



RIC-30/42 PLANNING STUDY PID 119315

Madison Township, Richland County, Ohio

December 2025 (Updated February 2026)

Prepared By:

GPD Group
520 S Main Street, Suite 2531
Akron, Ohio 44311



Prepared For:

ODOT District 3
906 Clark Avenue
Ashland, OH 44805



TABLE OF CONTENTS

Executive Summary	4
1. Introduction	6
2. Purpose and Need	6
3. Crash Analysis / Safety	7
4. Existing Capacity Analysis	7
5. Signal Warrant Analysis	7
6. Alternatives	8
No Build Alternative	8
Alternative 1	9
Alternative 2	9
Alternative 2A.....	10
Alternative 3	10
Alternative 4	11
Additional Improvements for Alternatives 1, 2, 2A and 4.....	11
7. Key Issues	12
Primary Need – Geometric Design	13
Primary Need – Safety	13
Primary Need – Mobility	14
Secondary Need – Operations.....	14
Secondary Need – Facility Deficiencies	18
Emergency Response	18
Utility Impacts	18
Cost Estimates.....	19
Environmental.....	19
Public Engagement.....	19
8. Comparison of Alternatives	20
Table 5: Alternatives Comparison Matrix	21
7. Conclusion and Next Steps	22

LIST OF IMAGES

Image 1: Aerial Image showing the existing condition and No Build Alternative.	8
Image 2: Alternative 1 Conceptual Rendering	9
Image 3: Alternative 2 Conceptual Rendering	9
Image 4: Alternative 2A Conceptual Rendering	10
Image 5: Alternative 3 Conceptual Rendering	10
Image 6: Alternative 4 Conceptual Rendering	11
Image 7: Additional Improvements for Alternatives 1, 2, 2A, and 4.....	12

LIST OF TABLES

Table 1: Geometric Design Issues	13
Table 2: Operations Summary at Key Intersections, Design Year, AM Peak Hour	16
Table 3: Operations Summary at Key Intersections, Design Year, PM Peak Hour	17
Table 4: Cost Estimates.....	19
Table 5: Alternatives Comparison Matrix	21

LIST OF APPENDICES

Appendix A: Purpose and Need Statement	A
Appendix B: Crash Diagrams & CAM Tool	B
Appendix C: Existing Conditions Analysis	C
Appendix D: Signal Warrant Analysis.....	D
Appendix E: Alternative Exhibits.....	E
Appendix F: ECAT Analysis	F
Appendix G: Traffic Operations Report	G
Appendix H: Utility Response Report.....	H
Appendix I: Detailed Cost Estimates	I

Executive Summary

ODOT District 3 commissioned this study to consider alternatives to improve the US-30/US-42 interchange as well as a portion of the US-42 corridor within the vicinity of the interchange.

District staff prepared the Purpose and Need Statement, which established the purpose to improve geometrics and safety at the interchange and to enhance mobility for non-motorized users along US-42. The Purpose and Need Statement included the following:

- Primary Needs
 - Improve ramp geometrics, including:
 - Inadequate deceleration areas for two exit loop ramps
 - Short weaving area between the interchange and adjacent intersection on US-42
 - Undesirable local road intersection (Beal Road) with entrance and exit ramps for westbound US-30
 - Improve safety due to current and past safety concerns
- Secondary Needs
 - Improve operations
 - Address facility deficiencies such as pavement condition

Five build alternatives were considered and compared against the option to do nothing, known as the no build alternative. These include the following:

- **Alternative 1**, which most notably includes reconstructing the interchange as a tight diamond with signals at the ramp intersections and rerouting Beal Road away from the interchange. Alternative 1 also includes a number of other improvements along US-42 including a multi-use path and capacity improvements at the Stewart Road intersection.
- **Alternative 2**, which most notably also includes reconstruction of the interchange with a tight diamond but includes roundabouts at the ramp intersections and connecting Beal Road as a fifth leg into the northern-most roundabout. Additional improvements along US-42 are included and are the same as what is proposed under Alternative 1.
- **Alternative 2A** is the same as Alternative 2 but reroutes Beal Road away from the interchange. Additional improvements along US-42 are also included and match those proposed under Alternatives 1 and 2.
- **Alternative 3** proposes is to maintain the same partial cloverleaf interchange configuration but provides appropriate deceleration areas for both exit loop ramps, but no other changes to the interchange and no improvements along US-42.
- **Alternative 4** is very similar to Alternative 1, including reconstruction of the interchange as a tight diamond with signalized ramp intersections, but instead of rerouting Beal Road, it is simply terminated into a cul-de-sac. Alternative 4 also includes the same other improvements along the US-42 corridor as Alternatives 1, 2, and 2A.

Regarding geometric design, all alternatives address the identified issues at the interchange, and all alternatives except Alternative 3 address the weave between the interchange and Stewart Road. Eliminating access between Beal Road and the westbound entrance and exit ramps is possible but may increase emergency response times and is expected to increase congestion at US-42 at Stewart Road-the most congested intersection in the corridor.

A formal safety analysis was not included as part of this project; however, a cursory review of crash data and reported concerns centered on addressing several specific concerns. Most notably, these include pedestrian-involved crashes along US-42 and sideswipe crashes on southbound US-42 between US-30 and Stewart Road. As such, Alternatives 1, 2, 2A, and 4 include a shared-use path and intersection control at ramp intersections to help eliminate any weaves which contribute to sideswipe crashes.

Traffic capacity analysis was performed for most alternatives, with an opening year of 2032 and design year of 2052. Design year analysis shows notable capacity issues predominantly during the PM peak hour, with congestion most acute at the US-42/Stewart Road intersection (LOS F, average delay of 92.8 seconds) and for the ramp approaches at the US-30 westbound to US-42 northbound ramp (LOS F, average delay of 79 seconds) and the opposing southbound left-turn movement from the US-30 westbound loop ramp (LOS F, average delay of 633.6 seconds). That movement is primarily traffic from Beal Road turning left onto US-42, not traffic from US-30. Build alternatives 1, 2, 2A, and 4 provide capacity improvements at the most congested intersections to LOS D or better, satisfying ODOT's acceptable Level of Service.

As noted by ODOT District 3, pavement condition of US-30, its interchange with US-42, and the bridge itself are quickly reaching the end of useful life and reconstruction is expected within the next five to 10 years. As such, this project presents an opportunity to update the interchange to meet current geometric design standards, right-size the amount of improvements, and improve safety.

Alternative 2 has been identified as the recommended alternative at this time. This option fully addresses all identified geometric design issues and preserves acceptable access to Beal Road, maintaining emergency response times and not forcing more motorists to travel through the US-42/Stewart Road intersection. Further, the provision of roundabouts at the ramp intersections (Alternatives 2 and 2A) is expected to be a safer option than traffic signals (Alternatives 1 and 4). Like Build Alternatives 1, 2, 2A, and 4, the inclusion of a multi-use path along US-42 and additional capacity at the US-42/Stewart Road intersection are critical elements to this project.

1. Introduction

The Ohio Department of Transportation has initiated this study to evaluate the feasibility of various alternatives for reconstructing and improving the interchange of US-30 and US-42 in Richland County.

The existing partial cloverleaf interchange is original to the initial construction of this section of US-30 and is being considered for major rehabilitation within the next five to 10 years, and the US-30 structures over US-42 are being considered for replacement in the next few years. Beyond pavement and structure condition, several segments within the interchange area have and continue to be listed on safety priority lists.

2. Purpose and Need

District 3 prepared the project's Purpose and Need statement, dated 12/6/2024—provided in full in **Appendix A**. This statement is summarized as the following.

Purpose Statement

“To improve roadway geometrics and enhance safety at the US-30 and US-42 interchange in Madison Township, Richland County. Also, increase mobility along US-42 for non-motorized users.”

Need Elements include the following:

Primary Needs

- Improved ramp geometrics, remedying the following issues:
 - o US-30 EB to US-42 NB deceleration area prior to the loop ramp
 - o Weave movements between the US-30 EB to US-42 SB exit ramp and US-42 intersection at Stewart Road N.
 - o US-30 westbound entrance and exit ramps (to US-42 SB) and their intersection with Beal Road
- Enhance interchange safety due to current and past safety concerns.

Secondary Needs

- Improved operations at intersections throughout the corridor, with some approaches operating at LOS F, E, and D; and some movements with queue-storage ratios (QSR) greater than 1.0.
- Facility Deficiencies, most notably Pavement condition.

These aspects are needed to ensure the US-30 / US-42 interchange remains an efficient and reliable transportation facility for years to come.

3. Crash Analysis / Safety

As noted in the project's Purpose and Need statement, there is a need to improve the number of existing safety issues, most notably:

- Intersection of US-42 and Stewart Road N signal (38 crashes)
- US-42 and Kroger Driveway signal (14 crashes)
- US-42 between US-30 WB ramps intersection and McElroy Road (12 crashes)
- US-30 EB to US-42 NB ramp (9 crashes)
- US-30 WB on-ramp (8 crashes)

The crash numbers above are based on data from 2021-2023, during which time there were a total of 112 crashes in the study area. There were 66 property damage crashes, 45 injury crashes, and 1 fatal crash. The primary crash types were rear-end (50), angle (15), fixed object (14), sideswipe passing (12), and left-turn crashes (9). There were also 4 pedestrian crashes, including the fatality.

Notable crash patterns include rear-end collisions at signalized intersections, sideswipe crashes where the US-30 loop ramps enter US-42, and fixed-object crashes primarily on the loop ramps. A crash diagram for the corridor and CAM tool results are provided in **Appendix B**.

The segments of US-42 from SLM 13.6 to 14.1 and SLM 14.1 to 14.6, which encompass the study area, were identified as #436 and #435, respectively, on ODOT's Suburban Non-Freeway 2024 HSIP list. The intersection of US-42 and Stewart Road was identified as #116 on the Suburban Intersection HSIP list.

4. Existing Capacity Analysis

An Existing Conditions Analysis report was prepared and submitted to District 3 on December 19, 2024. This included HCS analysis of the existing year 2024 conditions at study area intersections, ramp junctions, and US-30 mainline. A copy of the report is provided in **Appendix C**.

The analysis identified that the signalized intersections all operate with overall LOS C or better, and all movements operate with LOS E or better. There are several movements, particularly at the Stewart Road and McElroy Road intersections, with QSR values greater than 1.0, indicating that queues extend beyond the available storage.

Analysis of the unsignalized intersections found that all approaches operate with acceptable LOS except the southbound left-turn movement from the US-30 westbound loop ramp to US-42. That movement operates at LOS E in the AM peak hour and LOS F in the PM peak hour.

All mainline US-30 segments and ramp junctions operate at LOS C or better.

5. Signal Warrant Analysis

As some alternatives consider modifying the US-30 / US-42 interchange to a tight diamond configuration, signal warrant analysis was performed to determine whether the ramp intersections

would meet signal warrants. For this analysis, projected opening year 2032 traffic volumes were used in the standard ODOT signal warrant spreadsheets. The existing traffic counts were adjusted to account for movements that change by removing the loop ramps, then grown to year 2032.

With the availability of 12 hours of volumes, Warrants #1, #2, and #3 were evaluated. The analysis shows that the US-30 EB / US-42 intersection satisfies Warrant #1 (Eight-Hour Vehicular Volume), meeting 11 hours of Condition A, 9 hours of Condition B, and 12 hours of the Combination of Conditions A and B. This intersection also satisfies both Warrant #2 (Four-Hour Vehicular Volume) and Warrant #3 (Peak Hour) under projected opening year 2032 traffic volumes. The intersection of US-30 WB / US-42 satisfies Warrant #1, meeting 12 hours of Condition B, as well as Warrants #2 and #3. Copies of the signal warrant analysis reports are provided in **Appendix D**.

6. Alternatives

Five conceptual alternatives were developed to address the project's Purpose and Need, *Alternatives 1, 2, 2A, 3 and 4*. In addition, a “no build” alternative is presented and considered. Exhibits illustrating the build alternatives are presented in **Appendix E**.

No Build Alternative

This alternative consists of no improvements and therefore does not produce any impacts or construction costs. As a consequence, it does not address the project's Purpose and Need. **Image 1** below shows an aerial image of the existing condition and No Build Alternative.



Image 1: Aerial Image showing the existing condition and No Build Alternative.

Alternative 1

This alternative includes reconstruction of the interchange as a tight diamond with signals at each exit/entrance ramp intersection and removes the connection between Beal Road and US-42 (Image 2). In addition, this alternative includes improvements along US-42 to the southwest, shown in Image 7 on page 12.

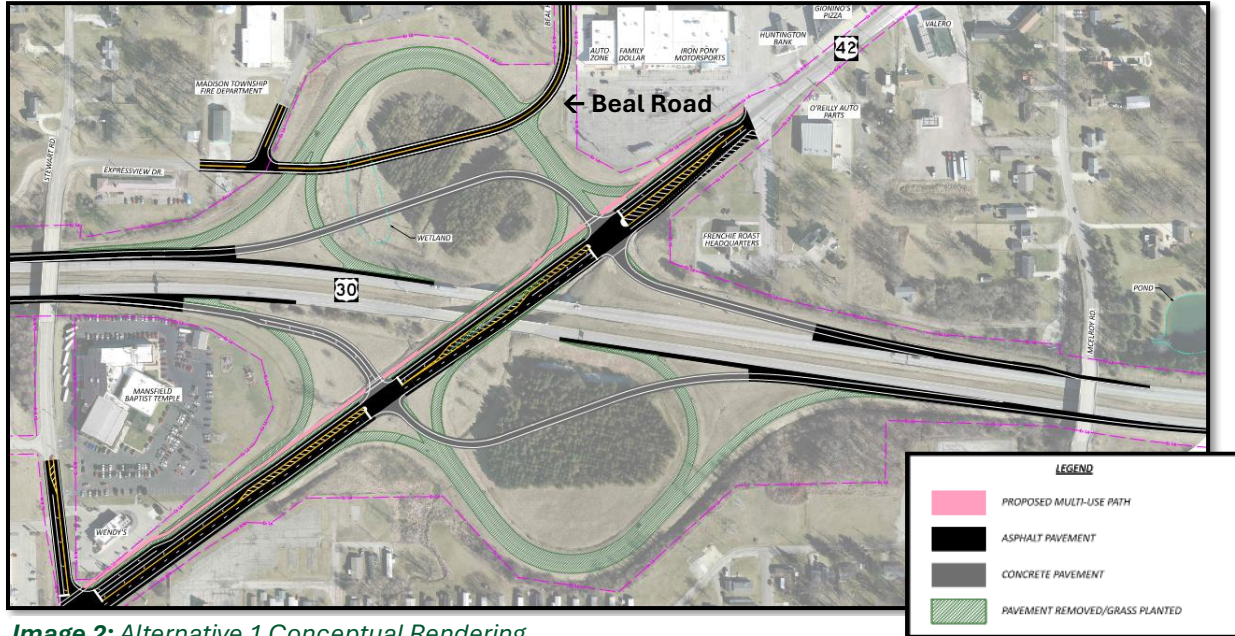


Image 2: Alternative 1 Conceptual Rendering

Alternative 2

This alternative consists of reconstructing the interchange as a tight diamond with roundabouts at each ramp intersection and providing access to Beal Road from the north roundabout (Image 3). Alternative 2 also includes adding a second northbound lane from the interchange to McElroy Road where it drops as a right turn lane. Like Alternative 1, this alternative includes the same additional improvements along US-42 to the southwest, shown in Image 7 on page 12.

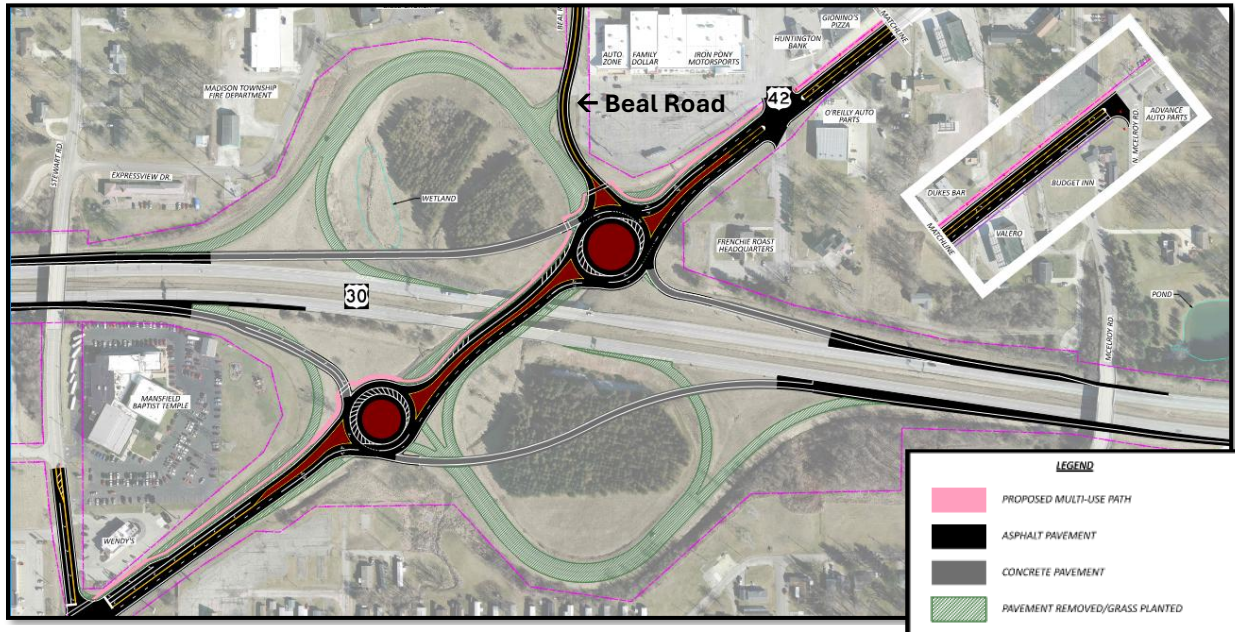


Image 3: Alternative 2 Conceptual Rendering

Alternative 2A

This alternative is the same as Alternative 2 (tight diamond with roundabout intersections), except access is not maintained to Beal Road (Image 4). Like Alternative 1, this alternative includes the same additional improvements along US-42 to the southwest, shown in Image 7 on page 12.

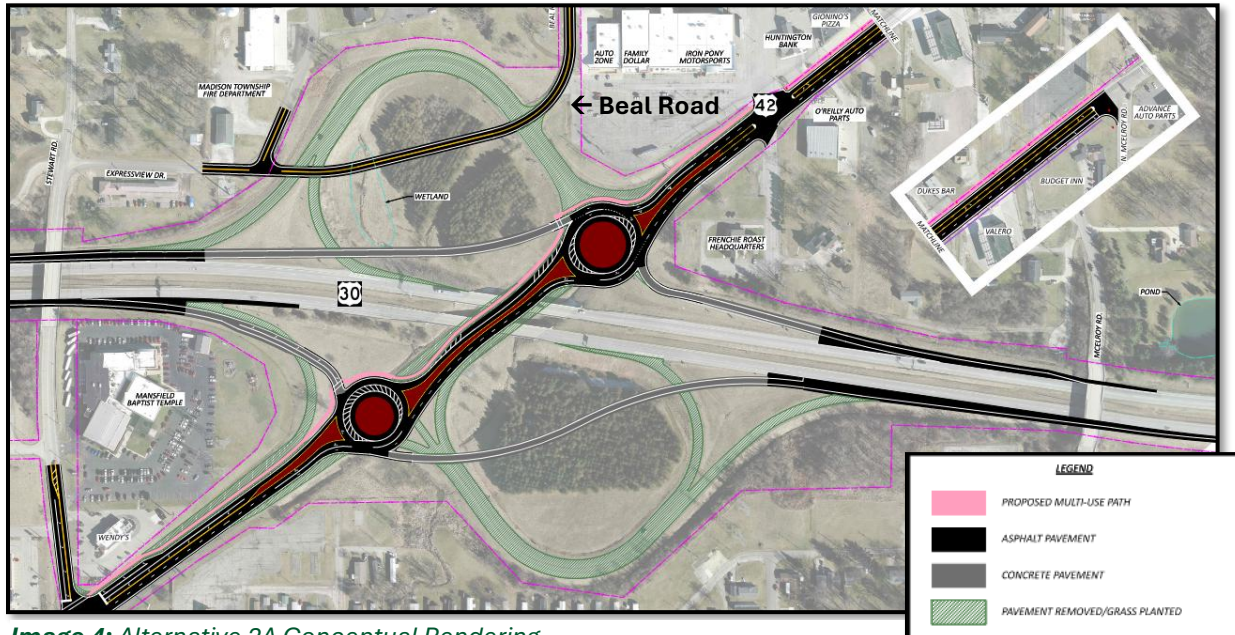


Image 4: Alternative 2A Conceptual Rendering

Alternative 3

This alternative preserves the partial cloverleaf design but provides proper deceleration lanes by widening the US-30 bridges over US-42 for the US-30 EB to US-42 NB and US-30 WB to US-42 SB ramps. No other improvements except for the addition of a multi-use path along US-42 (Image 5).

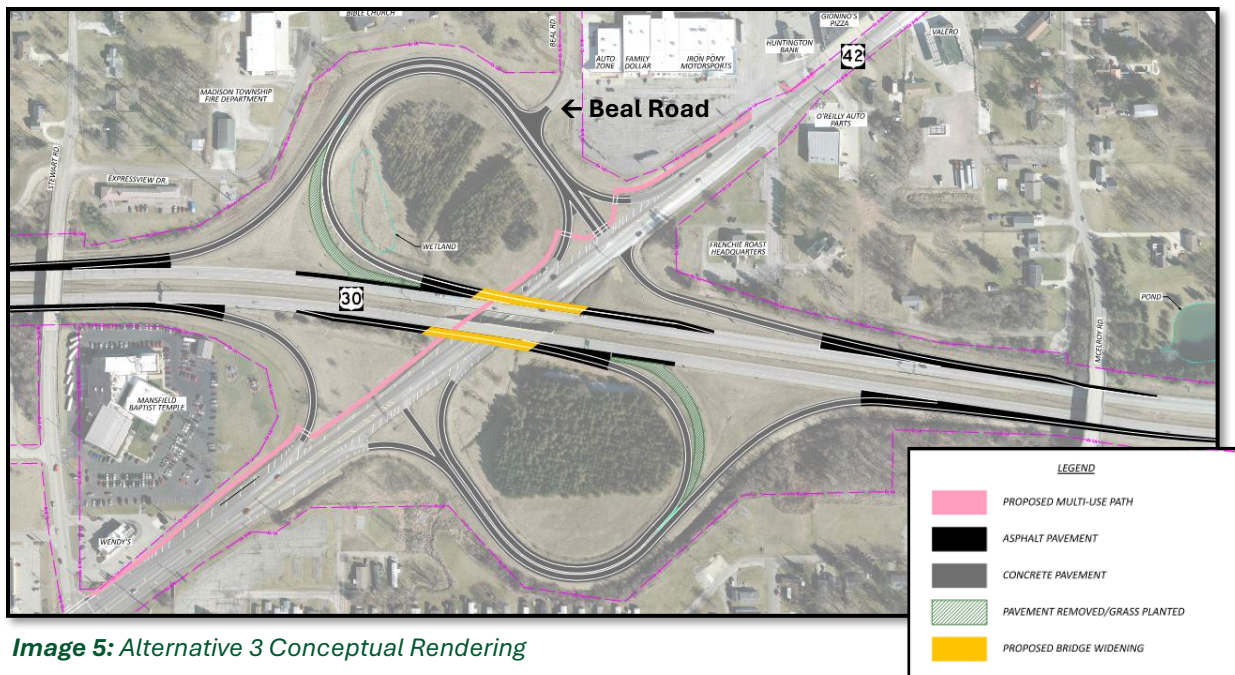


Image 5: Alternative 3 Conceptual Rendering

Alternative 4

This alternative is very similar to Alternative 1, except that only the eastbound exit ramp would be reconstructed on a new alignment. The existing eastbound entrance ramp, the westbound exit diamond ramp and westbound entrance ramps would be reconstructed on their existing alignments with the inside loop ramps eliminated (**Image 6**). Like Alternative 1, this alternative eliminates access to Beal Road and includes the same additional improvements along US-42 to the southwest, shown in **Image 7**.

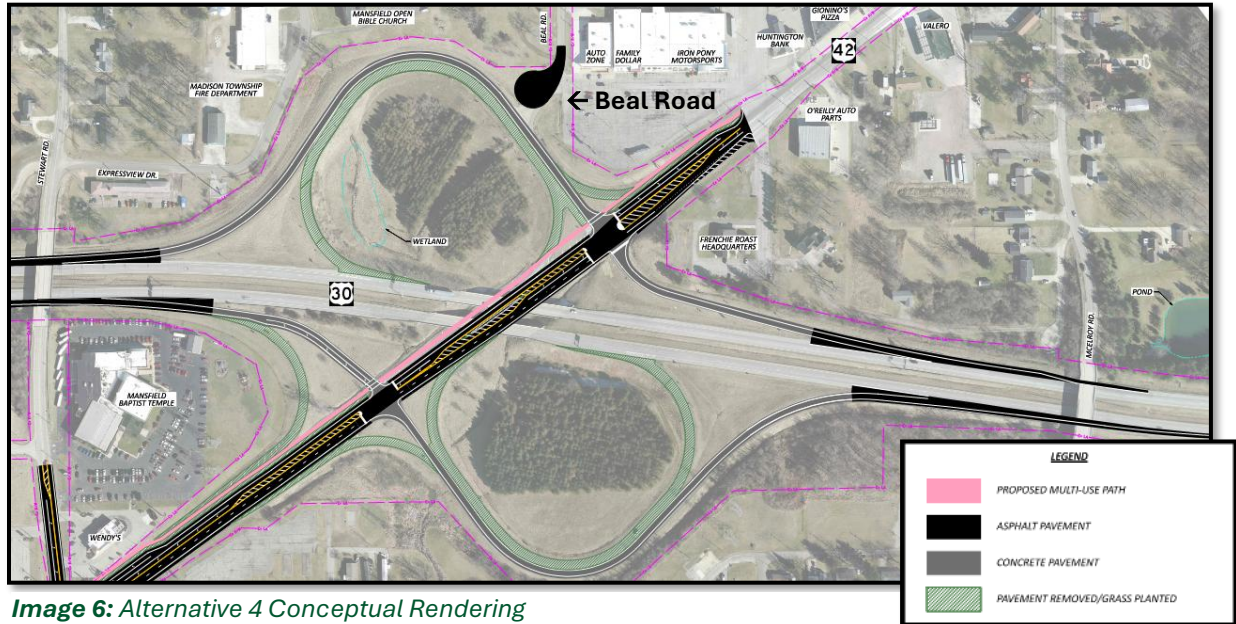


Image 6: Alternative 4 Conceptual Rendering

Additional Improvements for Alternatives 1, 2, 2A and 4

The following illustration shows anticipated additional improvements needed in the vicinity of Stewart Road to be performed with all build alternatives.

The intersection of US 42 and Stewart Road has improvements planned as part of a commercial development on the northwest corner of the intersection, as well as improvements that will be incorporated as part of any of the Build alternatives from this study.

The commercial development will incorporate a southbound left-turn phase on Stewart Road, along with westbound and northbound right-turn overlap phases. A northbound left-turn lane will be constructed on Stewart Road for the proposed new driveway which is being shifted north closer to Duke Avenue. The existing eastbound left-turn lane on US 42 at Stewart Road will be restriped to provide more storage and the eastbound right-turn lane on US 42 will be restriped as a thru-right lane. A narrow-raised median with delineators will be constructed on US 42 between Kroger / UH and Stewart Road to prevent left turns at the proposed commercial driveway. None of these improvements preclude potential future additional improvements by ODOT.

The future proposed improvements include widening US 42 to provide side-by-side left-turn lanes at Stewart Road and Kroger / UH, lengthening the southbound left-turn lane on Stewart Road, and lengthening the northbound right-turn lane on Stewart Road.

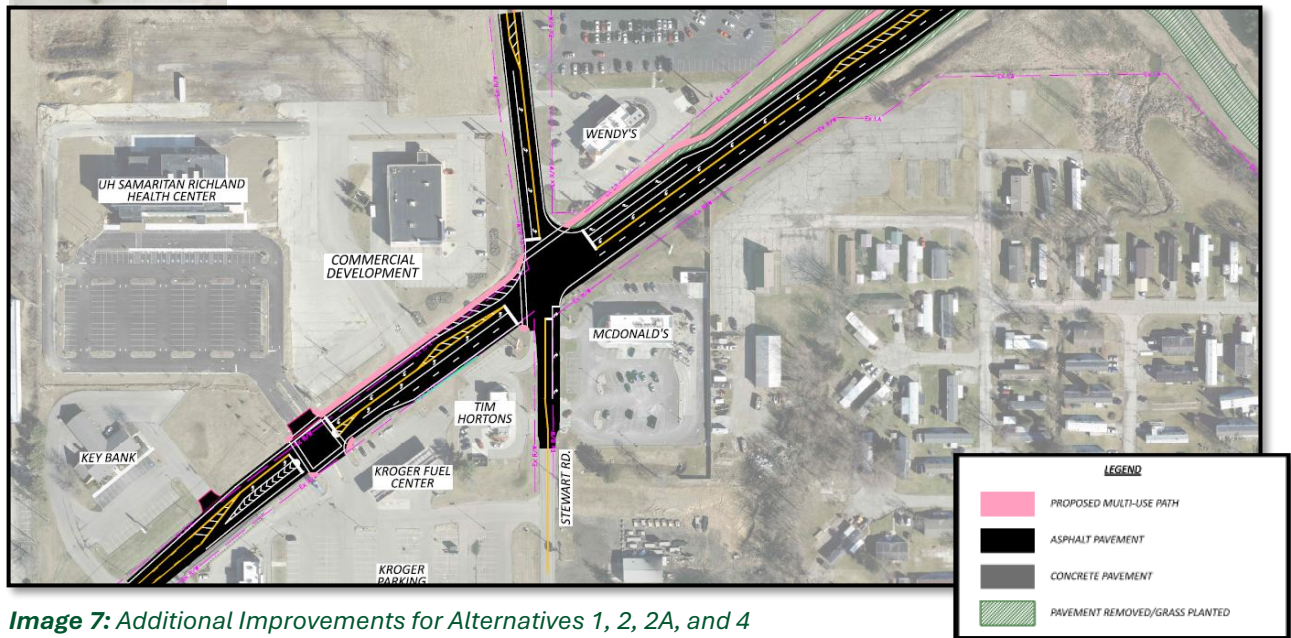


Image 7: Additional Improvements for Alternatives 1, 2, 2A, and 4

7. Key Issues

The following Key Issues have been identified and are briefly discussed.

Primary Need – Geometric Design

As noted in the project’s Purpose and Need statement, there is a need to improve or eliminate a number of existing geometric issues, including:

- **Deceleration Length for Loop Ramps:** provision of proper deceleration lanes for lower-speed loop ramps will require costly widening of the US-30 structure over US-42. Alternatives which eliminate the need for a wider bridge are likely to be less expensive.
- **Elimination of the EB to SB Weave** between the US-30 EB to US-42 SB exit ramp and Stewart Road may be accomplished by bringing the ramp into a controlled intersection such as with a signal or roundabout. The existing ramp has a downward grade leading toward an upward grade along US-42 south from the US-30/US-42 overpass.
- **Maintaining access to Beal Road** via limited access ramps is not an acceptable practice and should be remedied as part of this project.

Table 1 presents these issues and how the different alternatives address them.

Existing Geometric Issues	No Build Alternative	Alt 1 Signalized Tight Diamond	Alt 2 Roundabout with Beal	Alt 2A Roundabout without Beal	Alt 3 Improved Ramp Geometry Only	Alt 4 Signalized Diamond
Deceleration Length for EB US-30 to NB US-42 Loop Ramps	○ Insufficient	● Loop Ramps Eliminated	● Loop Ramps Eliminated	● Loop Ramps Eliminated	● Provided	● Loop Ramps Eliminated
Deceleration Length for WB US-30 to SB US-42 Loop Ramps	○ Insufficient	● Loop Ramps Eliminated	● Loop Ramps Eliminated	● Loop Ramps Eliminated	● Provided	● Loop Ramps Eliminated
EB US-30 to SB US-42 Weave to Stewart Road	○ Weave Remains	● Weave Eliminated	● Weave Eliminated	● Weave Eliminated	○ Weave Remains	● Weave Eliminated
Access to Beal Road via Ramp	○ Provided via Ramps (Undesired)	● Access Eliminated (rerouted)	● Provided via Roundabout (acceptable)	● Access Eliminated (rerouted)	○ Provided via Ramps (Undesired)	● Access Eliminated (rerouted)
Symbol Key — Best ● Acceptable ○ Worst ○						

Primary Need – Safety

As noted earlier in Section 3, there is a need to improve the existing safety issues. The crash data from years 2021-2023 show a total of 112 crashes in the study area, including one fatal crash. There is a primary need to reduce crash frequency and improve safety through the interchange area and the adjacent US-42 corridor.

ECAT analysis was performed for the existing condition and for the build alternatives to identify the predicted and expected crash frequencies, potential for safety improvement, and anticipated crash modification factors (CMF) for each alternative. Since Alternative 3 doesn't change intersection geometry, ECAT results for that alternative would be substantially similar to the existing conditions. While longer deceleration lengths would be provided on US-30 ramps, those are not areas with major safety issues. Alternatives 1 and 4 are essentially the same in regards to intersection geometry, so one ECAT analysis was performed that applies to both. Alternatives 2 and 2A also have similar anticipated safety results, therefore one ECAT analysis applies to both. Note that the ECAT analysis was only performed along the US-42 corridor and did not include the ancillary local intersections. At this point in the project development process benefit-cost analysis was not performed. The ECAT reports are provided in **Appendix F**.

The existing conditions ECAT analysis indicates a predicted average crash frequency of 20.4 crashes per year and an expected average crash frequency of 22.0 crashes per year. This indicates that the US-42 corridor performs somewhat worse than peer locations and has a potential for safety improvement of 1.6 crashes per year.

The Alternatives 1 and 4 ECAT analysis indicates a proposed conditions predicted average crash frequency of 30.8 crashes per year, increasing crashes by 50% over the existing condition. These alternatives introduce two new signalized intersections in place of stop-controlled intersections at the US-30 ramps, which increases the likelihood of rear-end crashes. CMFs for introducing zero or positive offset left-turn lanes at the Kroger / UH intersection were included, as was resurfacing for the entire study area.

The Alternatives 2 and 2A ECAT analysis indicates a proposed conditions predicted average crash frequency of 18.6 crashes per year, decreasing crashes by nearly 10% over the existing conditions. Incorporating roundabouts at the ramp intersections is the primary reason for the anticipated reduction in crashes. The CMFs for zero or positive left-turn lanes at Kroger / UH and resurfacing were also included for these alternatives.

Primary Need – Mobility

The US-42 corridor currently lacks sidewalks or sidepaths and lacks continuous lighting. Between 2021 and 2024, four pedestrian-involved crashes occurred resulting in a fatality within the interchange and three injury crashes outside of it.

All build alternatives include the addition of a multi-use path on the northwest side of US-42 from Stewart to their work limits near McElroy.

Secondary Need – Operations

An assessment of operations has been performed and documented in the *US-30 and US-42 Future Conditions Analysis* report provided in **Appendix G**. This assessment references a 'no build' alternative as well as five 'build' alternatives: 1, 2, 2A, 3, and 4. These 'build' alternatives correspond to the similarly named 'build' alternatives in this study.

As noted in the report, analysis of these alternatives was limited to the 'No Build', Option 1, and Option 2. With respect to the alternatives considered under this study:

- Recommendations for Alternatives 1 and 4 are the same at all intersections studied for traffic capacity and, as such, are both represented by Option 1.

RIC-30/42 PLANNING STUDY (PID 119315)

- Recommendations for Alternatives 2 and 2A are very similar with their differences limited to whether Beal Road is connected to the WB US-30 ramp roundabout or not. Volumes to/from Beal Road are relatively small and have a very minor impact on overall capacity. As such, capacity analysis for the EB and WB ramp roundabout intersections is assumed to be represented by Option 2.
- Lastly, Alternative 3 only consists of improvements to exit loop ramp geometry and results in no changes at the studied intersections. As such, it is the same as the No Build capacity analysis.

Table 2 and **Table 3** on pages 16-17 show a comparison of intersection Level of Service and Level of Service by approach for all studied intersections and alternatives for the design year AM peak and PM peak.

Table 2: Operations Summary at Key Intersections, Design Year, AM Peak Hour

	No Build and Alternative 3		Build Alternatives 1 and 4		Build Alternative 2		Build Alternative 2A	
	<i>No Build Alternative and Alternative 3 with Beal Road Connection</i>		<i>Signalized Diamond without Beal Road Connection</i>		<i>Roundabouts at US-30, with Beal Road Connection</i>		<i>Roundabouts at US-30 without Beal Road Connection</i>	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
US-42/Kroger Driveway/University Hospital Driveway								
EB US-42 Approach	A	9.4	A	8.8	A	8.8	A	8.8
WB US-42 Approach	A	7.5	A	7.0	A	7.0	A	7.0
Kroger (NB) Approach	C	31.9	C	31.9	C	31.9	C	31.9
Uni. Hospital (SB) Approach	C	29.0	C	29.0	C	29.0	C	29.0
Intersection	B	11.2	B	10.7	B	10.7	B	10.7
US-42/Stewart Road								
EB US-42 Approach	C	22.7	C	26.1	C	25.6	C	26.1
WB US-42 Approach	C	22.7	C	30.4	C	28.7	C	30.4
NB Stewart Approach	D	35.4	C	23.5	C	22.8	C	23.5
SB Stewart Approach	C	30.3	C	21.1	B	19.6	B	21.1
Intersection	C	26.7	C	25.9	C	25.2	C	25.9
US-42/EB US-30 Ramps								
EB US-42 Approach			A	5.0	A	4.3	Similar to Build Alternative 2	
WB US-42 Approach	A	0.5	A	6.1	A	2.6		
—								
EB US-30 (SB) Approach			D	39.0	A	9.5		
Intersection			B	12.7	A	4.9		
US-42/WB US-30 Ramps								
EB US-42 Approach	A	1.6	A	7.1	A	1.0	Similar to Build Alternative 2	
WB US-42 Approach			B	13.5	A	4.7		
WB US-30 (NB) Approach	F	79.4	D	46.6	B	10.5		
Beal Road (SB) Approach	F	633.6			B	10.3		
Intersection			B	13.8	A	3.7		
US-42/McElroy Road								
EB US-42 Approach	A	7.3	A	7.3	A	4.6	A	4.6
WB US-42 Approach	B	10.9	B	10.9	A	8.9	A	8.9
McElroy (NB) Approach	D	36.4	D	36.4	D	36.5	D	36.5
—								
Intersection	B	12.9	B	12.9	B	10.9	B	10.9

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a Level-of-Service F

Table 3: Operations Summary at Key Intersections, Design Year, PM Peak Hour

	No Build and Alternative 3		Build Alternatives 1 and 4		Build Alternative 2		Build Alternative 2A	
	<i>No Build Alternative and Alternative 3 with Beal Road Connection</i>		<i>Signalized Diamond without Beal Road Connection</i>		<i>Roundabouts at US-30, with Beal Road Connection</i>		<i>Roundabouts at US-30 without Beal Road Connection</i>	
	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)
US-42/Kroger Driveway/University Hospital Driveway								
EB US-42 Approach	C	26.5	C	24.7	C	24.7	C	24.7
WB US-42 Approach	B	13.2	B	12.5	B	12.5	B	12.5
Kroger (NB) Approach	D	46.9	D	46.9	D	46.9	D	46.9
Uni. Hospital (SB) Approach	C	31.6	C	31.6	C	31.6	C	31.6
Intersection	C	23.8	C	22.7	C	22.7	C	22.7
US-42/Stewart Road								
EB US-42 Approach	E	62.6	D	39.5	D	38.1	D	39.5
WB US-42 Approach	C	31.8	D	52.5	D	42.7	D	52.5
NB Stewart Approach	E	64.8	D	42.7	C	30.7	D	42.7
SB Stewart Approach	F	275.1	D	41.2	C	30.2	D	41.2
Intersection	F	92.8	D	44.8	D	37.2	D	44.8
US-42/EB US-30 Ramps								
EB US-42 Approach			B	11.7	B	11.2	Similar to Build Alternative 2	
WB US-42 Approach	A	0.5	B	15.4	A	3.1		
—								
EB US-30 (SB) Approach			D	40.2	C	34.2		
Intersection			C	20.7	C	15.6		
US-42/WB US-30 Ramps								
EB US-42 Approach	A	1.6	B	12.9	A	1.1	Similar to Build Alternative 2	
WB US-42 Approach			B	11.9	A	4.7		
WB US-30 (NB) Approach	F	79.4	D	53.8	D	36.9		
Beal Road (SB) Approach	F	633.6			A	7.4		
Intersection			B	15.9	A	5.9		
US-42/McElroy Road								
EB US-42 Approach	A	1.6	B	13.3	A	8.0	A	8.0
WB US-42 Approach	B	15.9	B	15.9	B	10.6	B	10.6
McElroy (NB) Approach	D	44.3	D	44.3	D	44.4	D	44.4
—								
Intersection	B	17.5	B	17.5	B	12.7	B	12.7

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a Level-of-Service F

These findings show that build alternatives 1, 2, 2A, and 4 will slightly increase overall congestion at the ramp terminal intersections, but the resulting estimated congestion will be well within the acceptable Level of Service standard for intersections within metropolitan planning organizations. Further, these build alternatives will improve congestion at US-42 and Stewart Road and slightly improve congestion at US-42 and Kroger Driveway/University Hospital Driveway.

Secondary Need – Facility Deficiencies

As noted by District 3, it is assumed that all ramps and the US-30 mainline will need full-depth reconstruction within the next five to 10 years and, as such, pavement salvage or minimization of disturbance of the ramps is not necessarily an objective for this project. All *build alternatives* propose full and complete reconstruction of interchange ramps.

Emergency Response

During the planning process, the Madison Township Fire Department expressed concern that removing access between Beal Road and US-42 as shown by Alternatives 1, 2A, and 4 will slow response times to US-30 and points northeast of the interchange. For these Alternatives, traffic which would have used Beal Road must use Stewart Road, adding additional traffic to what is already a congested intersection.

Utility Impacts

An Ohio 811 request was performed to perform an initial assessment of utility presence and possible conflicts with the proposed alternatives (see **Appendix H**). This assessment is considered Quality Level D or the lowest level of confidence in utility accuracy, and may be incomplete or inaccurate, and relies upon the cooperation of area utilities. Based on the request (Ticket #A406602517-00A), the following utilities were identified and responded to the request:

Utility Owner	Response Type
Brightspeed (USIC)	008 Design Notification (DSGN)
Columbia Gas of Ohio – Mansfield	008 Design Notification (DSGN)
City of Mansfield (Electric)	001 No Conflict
City of Mansfield (Sewer)	001 No Conflict
City of Mansfield (Water)	001 No Conflict
Madison Water District	008 Design Notification (DSGN)
Aqua Ohio – Mansfield	001 No Conflict
ODOT District 3 Traffic	008 Design Notification (DSGN)
Ohio Edison (USIC)	999 No Response (LATE)
Everstream Solutions / Northern	001 No Conflict
Richland County Wastewater	008 Design Notification (DSGN)
Charter Communications (Spectrum / Time Warner)	001 No Conflict
Zayo Fiber Solutions (Stake Center)	001 No Conflict

Notable findings from submitted plans and resources from various utilities are noted below. This data may not include all utilities or possible conflicts.

- Presence of a waterline through the northwest quadrant of the interchange under entrance and exit ramps, as well as along US-42 northeast of the interchange, and along Stewart Road.
- Presence of transmission electric on the south side of the interchange, and distribution circuits primarily along US-42 outside of the interchange, and along Stewart Road.
- Presence of natural gas along Stewart Road, and US-42 northeast of the interchange, and southwest of Stewart Road.
- Presence of fiber and copper communication lines along Stewart Road and US-42, including through the interchange.
- Presence of ODOT lighting circuits along US-42 in the interchange.

- Presence of wastewater sewers along Stewart Road and US-42 between Stewart Road and the interchange.

Based on the information available at this time, it is likely that all build alternatives may encounter multiple underground and above ground utilities, but their presence is unlikely to affect the selection of an alternative.

Cost Estimates

Project cost is a consideration and as such, construction cost estimates were prepared for each alternative and are summarized below in **Table 4**. For comparison purposes, all alternatives assume reconstruction of their ramps and ramp terminals with US-30. Detailed cost estimates are provided in **Appendix I**.

Table 4: Cost Estimates						
Existing Geometric Issues	No Build Alternative	Alt 1 Signalized Tight Diamond	Alt 2 Roundabout with Beal	Alt 2A Roundabout without Beal	Alt 3 Improved Ramp Geometry Only	Alt 4 Signalized Diamond
Cost of alternative as presented	\$0	\$16.8M	\$18.4M	\$19.3M	\$ 21.3M	\$ 15.7M

Environmental

Environmental tasks are presumed to be performed separately and have not been addressed within this study.

Public Engagement

Public engagement tasks were not performed as part of this study.

8. Comparison of Alternatives

The comparison of alternatives generally follows the Key Issues portion of the report, including Facility Deficiencies, Geometric Design, Safety, Mobility, and Operations. A matrix illustrating this comparison is provided in **Table 5**.

Table 5: Alternatives Comparison Matrix

Category	No Build	Alternative 1 <i>Signalized Diamond with Improved Geometry, Without Connection to Beal Road</i>	Alternative 2 <i>Roundabouts with Connection to Beal Road</i>	Alternative 2A <i>Roundabouts without Connection to Beal Road</i>	Alternative 3 <i>Improved Ramp Geometry, No Changes at Ramp Intersections, Maintains Connection to Beal Road</i>	Alternative 4 <i>Signalized Diamond without Connection to Beal Road</i>
Purpose and Need - Geometric Issues						
Deceleration Area for EB Loop Ramp	○ Insufficient Deceleration Area	● Loop Eliminated	● Loop Eliminated	● Loop Eliminated	● Deceleration Area Provided	● Loop Eliminated
Deceleration Area for WB Loop Ramp	○ Insufficient Deceleration Area	● Loop Eliminated	● Loop Eliminated	● Loop Eliminated	● Deceleration Area Provided	● Loop Eliminated
EB US-30 to SB US-42 Weave	○ Weave Remains	● Weave Eliminated	● Weave Eliminated	● Weave Eliminated	○ Weave Remains	● Weave Eliminated
Access to Beal Via Ramp	○ Provided by Ramp	🚫 Eliminated (Rerouted)	● Provided via Roundabout	🚫 Eliminated (Rerouted)	○ Provided by Ramp	🚫 Eliminated (Rerouted)
Purpose and Need - Safety*						
US-42 west of Stewart Road N	○ Baseline (Poor)	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage
US-42 at Stewart Road N	○ Baseline (Poor)	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage	🚦 Improved Storage
US-42 from Stewart Road to US-30 EB	○ Baseline (Poor)	● SB Weave/Merge Eliminated	● SB Weave/Merge Eliminated	● SB Weave/Merge Eliminated	○ Baseline (Poor)	● SB Weave/Merge Eliminated
US-42 at US-30 EB	○ Baseline (Poor)	🚦 Signalized	● Angle/LT Crashes Eliminated	● Angle/LT Crashes Eliminated	○ Baseline (Poor)	🚦 Signalized
US-42 from US-30 EB to US-30 WB	○ Baseline (Poor)	● Weave/Merge Eliminated	● Weave/Merge Eliminated	● Weave/Merge Eliminated	○ Baseline (Poor)	● Weave/Merge Eliminated
US-42 at US-30 WB	○ Baseline (Poor)	🚦 Signalized	● Angle/LT Crashes Eliminated	● Angle/LT Crashes Eliminated	○ Baseline (Poor)	🚦 Signalized
US-42 east of US-30 WB	○ Baseline (Poor)	○ No Substantial Changes	○ No Substantial Changes	○ No Substantial Changes	○ No Substantial Changes	○ No Substantial Changes
US-30 EB Exit Ramps	○ Baseline (Poor)	● Exit Loop Ramp Removed	● Exit Loop Ramp Removed	● Exit Loop Ramp Removed	● Improved Ramp Geometry	● Exit Loop Ramp Removed
US-30 WB Exit Ramps	○ Baseline (Poor)	● Exit Loop Ramp Removed	● Exit Loop Ramp Removed	● Exit Loop Ramp Removed	● Improved Ramp Geometry	● Exit Loop Ramp Removed
Purpose and Need - Mobility						
Provides Multimodal Facility on US-42	○ No	● Yes	● Yes	● Yes	● Yes	● Yes
Purpose and Need - Operations						
LOS at US-42 / Stewart Road N	🚦 Declines over Time	● Some Improvement vs Baseline	● Greatest Improvement	● Some Improvement vs Baseline	● Greatest Improvement	● Some Improvement vs Baseline
LOS at US-42 / US-30 EB	🚦 Declines over Time	🚦 Worse than Baseline	🚦 Worse than Baseline	🚦 Worse than Baseline	🚦 Worse than Baseline	🚦 Worse than Baseline
LOS at US-42 / US-30 WB	🚦 Declines over Time	● Some Improvement vs Baseline	● Some Improvement vs Baseline	● Some Improvement vs Baseline	🚦 Worse than Baseline	● Some Improvement vs Baseline
LOS at US-42 / McElroy Road	🚦 Declines over Time	🚦 Nearly same as baseline	🚦 Nearly same as baseline	🚦 Nearly same as baseline	🚦 Nearly same as baseline	🚦 Nearly same as baseline
Other Considerations						
Beal Road closure expected to increase emergency response time for Madison Township Fire and Police Depts.	● Beal Road connection maintained	○ Beal Road connection eliminated, traffic rerouted through Stewart Road signal	● Beal Road connection maintained	○ Beal Road connection eliminated, traffic rerouted through Stewart Road signal	● Beal Road connection maintained	○ Beal Road connection eliminated, traffic rerouted through Stewart Road signal
Utility Conflicts	● None	🚦 Some are to be expected	🚦 Some are to be expected	🚦 Some are to be expected	● None expected	🚦 Some are to be expected
Asset Condition						
US-42	○ Baseline (Poor Condition)	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition
US-42 / US-30 Ramps	○ Baseline (Poor condition)	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition	● Upgraded Pavement Condition
Project Costs						
	N/A	\$ 16,777,400	\$ 18,417,800	\$ 19,256,800	\$ 21,291,600	\$ 15,679,250
Recommended Alternative						
	Not Recommended	Not Recommended	Recommended	Not Recommended	Not Recommended	Not Recommended
Symbol Key — Best ● Better 🚦 Acceptable 🚦 Poor 🚦 Worst ○						

*Stated changes refer to geometric changes made to address reported issues, not crash types.

7. Conclusion and Next Steps

This study concludes that Alternative 2 should be recommended for further consideration. This alternative best satisfies the identified Purpose and Need elements. The most notable improvements include:

- Avoiding expensive bridge modifications necessary to provide deceleration lanes which meet current geometric standards for the loop ramps in Alternative 3
- Maintaining efficient access for local and emergency traffic to Beal Road while also keeping this traffic separate from entrance and exit ramps
- Including a multi-use path along the US-42 corridor
- Including congestion improvements at US-42 and Stewart Road
- Reducing the risk and severity of future crashes at the interchange intersections

It is noted that Alternative 2 is \$1.6M more expensive than Alternative 1, which is very similar except primarily for the addition of the roundabouts, the connection to Beal Road, and widening on US-42 from US-30 north to McElroy Road. Some of this additional cost may be justified through safety improvements from the roundabouts and less traffic at the Stewart Road intersection. It is also noted that Alternative 2 is \$2.7M more expensive than Alternative 4. This cost difference is due in part to the roundabouts and widening to McElroy Road, but also the strategy of reusing the alignment of some ramps—reducing the impact and cost to implement new ramp alignments (e.g. earthwork, drainage, etc.).

A suggested next step may include considering phasing improvements into smaller buildable units with independent utility which may be easier to program. By example, improvements along US-42, the interchange intersections and eastbound exit ramp, and remaining ramps may be phased independently.

Appendices

Appendix A: Purpose and Need Statement	A
Appendix B: Crash Diagrams & CAM Tool	B
Appendix C: Existing Conditions Analysis	C
Appendix D: Signal Warrant Analysis	D
Appendix E: Alternative Exhibits	E
Appendix F: ECAT Analysis	F
Appendix G: Traffic Operations Report	G
Appendix H: Utility Response Report	H
Appendix I: Detailed Cost Estimates	I

Appendix A: Purpose and Need Statement

PID 119315 (RIC-30/42 Study) Purpose & Need Statement

Project History

Initiation of this study at the US-30 and US-42 interchange occurred due to the following:

- The pavement along this section of US-30, including the ramps at US-42, is likely due for a major rehabilitation project in the next 5-10 years.
- The structures on US-30 over US-42 are due for replacement in the next few years.
- Several segments have appeared on past safety priority lists and continue to appear on current safety lists.
- Concept plans for reconfiguration dating back almost two decades; ODOT District 3 was never able to secure funding.

Purpose Statement

To improve roadway geometrics and enhance safety at the US-30 and US-42 interchange in Madison Township, Richland County. Also, increase mobility along US-42 for non-motorized users.

Need Elements

Primary

- **Geometrics** – Improve roadway geometrics at the following areas:
 - US-30 eastbound off-ramp to US-42 northbound and US-30 westbound off-ramp to US-42 southbound – existing deceleration lanes do not provide enough length for motorists to properly slow down outside of the through lane for the initial loop ramp curve.
 - Weaving Movement between US-30 eastbound to US 42 southbound ramp and Stewart Road.
 - US-30 westbound on/off ramps intersecting Beal Road – does not meet current standards.
- **Safety** – Enhance safety due to past and present safety concerns supported by the following:
 - During the three-year crash analysis timeframe (2021-2023), there were 119 crashes within the study area: 1 (1%) fatal, 4 (3%) serious injury, 45 (37%) minor injury, and 71 (59%) Property Damage Only (PDO). A breakdown of crashes by location includes the following:

Location	Type	Crashes
US 42 & Parry	Intersection, Signal	5
US 42 & Kroger driveway	Intersection, Signal	14
US 42 & Stewart	Intersection, Signal	38
US 42 & 30 EB Ramp	Intersection, Stop Sign	1
US 42 & 30 WB Ramp	Intersection, Stop Sign	8
US 42 & McElroy	Intersection, Signal	4
Stewart & Expressview	Intersection, Stop Sign	2
Expressview & Rayfield	Intersection, Stop Sign	0
Rayfield & Beal	Intersection, Stop Sign	1
US 30 WB On-Ramp & Beal	Intersection, Stop Sign	4
US 30 EB Off-Ramp to US 42 SB	Ramp	2
US 30 EB Off-Ramp to US 42 NB	Ramp	9
US 30 EB On-Ramp	Ramp	2
US 30 WB Off-Ramp US 42 NB	Ramp	1
US 30 WB Off-Ramp US 42 SB	Ramp	2
US 30 WB On-Ramp	Ramp	8
US 42, between Parry & Kroger driveway	Segment	1
US 42, between Kroger driveway & Stewart	Segment	2
US 42, between Stewart & US 30 EB Ramp	Segment	3
US 42, between 30 WB Ramp & McElroy	Segment	12
Stewart, between US 42 & Expressview	Segment	1
Expressview, between Stewart & Rayfield	Segment	1
Rayfield, between Expressview & Beal	Segment	0
Beal, between US 30 Ramp & Rayfield	Segment	0

- Several locations in the study area have higher than predicted fatal and injury crashes as compared to similar sites across the state. The latest ODOT Highway Safety Improvement Program (HSIP) Priority List ranks the following:
 - US-42 at Stewart Road Intersection: Suburban Intersection #116
 - US-30 at US-42 Interchange: Segment as #391 statewide.
 - US-42, within the US-30 interchange area and heading south through the Stewart Road Intersection: Suburban Non-Freeway Segment #456.
 - US-42, area northeast of US-30 Interchange Area: Suburban Non-Freeway Segment #436.
- **Mobility** – Improve mobility along US-42 for non-motorized users.
 - Four pedestrian crashes occurred from 2021-2023: 1 fatality, 2 serious injuries, and 1 non-serious injury.
 - Pedestrians frequently observed using the area, including going to/from work.

Secondary

- **Operations** – US-42 corridor is a commercialized area and serves as a connector between US 30 to the east and the Mansfield area. During peak hours, congestion and travel time delays are experienced for some movements.
 - The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). A table of the intersection and approach LOS for major study intersections for 2024 No-Build conditions is as follows:

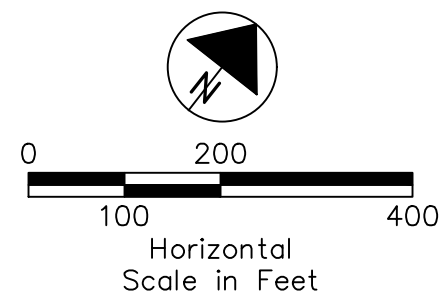
Intersection	Intersection Control	Peak Period	Eastbound	Westbound	Northbound	Southbound	Overall
US 42 & Parry	Signal	AM	A	A	C	A	A
		PM	A	A	D	A	A
US 42 & Kroger	Signal	AM	A	A	C	C	A
		PM	A	A	D	C	B
US 42 & Stewart	Signal	AM	B	B	D	C	C
		PM	C	C	D	D	C
US 42 & McElroy	Signal	AM	A	A	D	--	B
		PM	A	A	D	--	B
US 42 & US 30 WB Ramps	Minor Stop	AM	--	--	B	E	--
		PM	--	--	C	F	--
US 30 WB Ramps & Beal Rd	Minor Stop	AM	--	--	--	C	--
		PM	--	--	--	C	--

- Also to note, the US-42 at Stewart Road Intersection has several movements (US-42 eastbound through, Stewart northbound right, and Stewart southbound left) that experience Queue to Storage Ratios (QSR) greater than 1, or a potential blockage may be occurring.
- **Facility Deficiencies** – US-30 mainline/ramp pavement and the bridges on US-30 over US-42 are reaching the end of their useful life. Future replacement is being considered. If interchange improvements are warranted and implemented, that would also be an improvement to the US-30 mainline.


Appendix B: Crash Diagrams & CAM Tool



MATCH LINE 'A'



LEGEND			
←	MOVING VEHICLE	←	REAR END
←	BACKING VEHICLE	←	HEAD ON
←	BICYCLIST	←	OUT OF CONTROL
←	PEDESTRIANS	←	LEFT TURN
□	PARKED VEHICLE	←	SIDESWIPE
□	FIXED OBJECT	←	ANGLE
●	FATAL CRASH		
○	INJURY CRASH		
	NO FAULT CRASH		



RIC-30/42 (PID 119315)

CRASH DIAGRAMS
 2021-2023
 SHEET 1 OF 7

NOVEMBER 2024

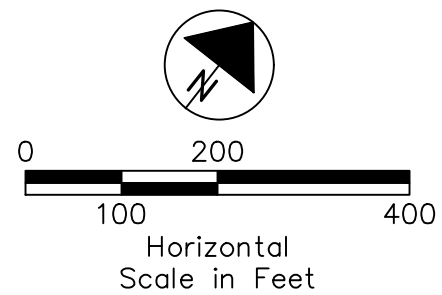
MATCH LINE 'D'



MATCH LINE 'A'

MATCH LINE 'B'

Drawing File: C:\2020\20200808_0001 D12-53 Traffic T0\03-03 RIC-US 30-US 42 Interchange Feasibility Study\19315\400-Engineering\Traffic\Study\Figures\Crash Diagrams 2021-2023.dwg Layout: SHEET 2
 Date: Dec 02, 2024 Time: 10:51 am TABEL 0
 Technician: M.Lessiter



LEGEND			
	MOVING VEHICLE		REAR END
	BACKING VEHICLE		HEAD ON
	BICYCLIST		OUT OF CONTROL
	PEDESTRIANS		LEFT TURN
	PARKED VEHICLE		SIDESWIPE
	FIXED OBJECT		ANGLE
	FATAL CRASH		
	INJURY CRASH		
	NO FAULT CRASH		

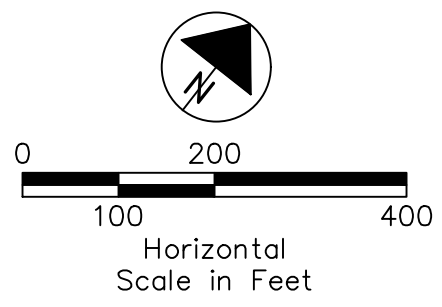


RIC-30/42 (PID 119315)


CRASH DIAGRAMS
2021-2023
SHEET 2 OF 7

NOVEMBER 2024

Drawing File: C:\2020\20200808_0001 D12-53 Traffic T0\03-03 RIC-US 30-US 42 Interchange Feasibility Study\19315\400-Engineering\Traffic\Study\Figures\Crash Diagrams 2021-2023.dwg Layout: SHEET 3
 Date: Dec 02, 2024 Time: 10:51 am Table: 0
 Technician: M.Lessiter



LEGEND			
	MOVING VEHICLE		REAR END
	BACKING VEHICLE		HEAD ON
	BICYCLIST		OUT OF CONTROL
	PEDESTRIANS		LEFT TURN
	PARKED VEHICLE		SIDESWIPE
	FIXED OBJECT		ANGLE
	FATAL CRASH		
	INJURY CRASH		
	NO FAULT CRASH		

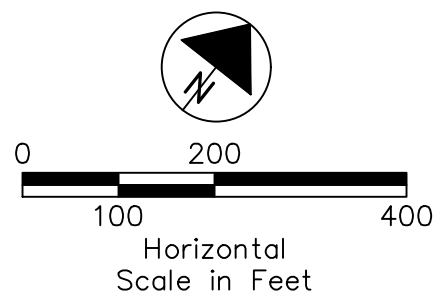


RIC-30/42 (PID 119315)

CRASH DIAGRAMS
2021-2023
SHEET 3 OF 7

NOVEMBER 2024

MATCH LINE 'C'



LEGEND

←	MOVING VEHICLE	→	REAR END
←	BACKING VEHICLE	→	HEAD ON
←	BICYCLIST	→	OUT OF CONTROL
←	PEDESTRIANS	→	LEFT TURN
←	PARKED VEHICLE	→	SIDESWIPE
□	FIXED OBJECT	→	ANGLE
●	FATAL CRASH		
○	INJURY CRASH		
	NO FAULT CRASH		

RIC-30/42 (PID 119315)

CRASH DIAGRAMS
 2021-2023
 SHEET 4 OF 7

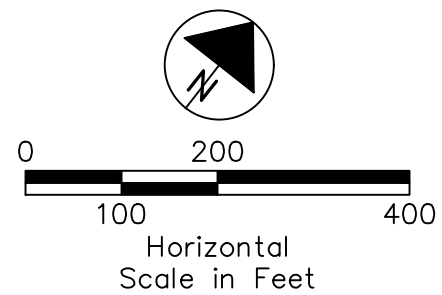
DECEMBER 2024

Drawing File: C:\2020\2020089.DWG DT: 53 Traffic TO: 03-03 RIC-US 30-US 42 Interchange Feasibility Study\19315\400-Engineering\Traffic\Study\Figures\Crash Diagrams 2021-2023.dwg Layout: SHEET 5
 Date: Dec 02, 2024 Time: 10:51 am TWTB: 0
 Technician: M.Lessiter




MATCH LINE 'D'

MATCH LINE 'F'



LEGEND	
MOVING VEHICLE	REAR END
BACKING VEHICLE	HEAD ON
BICYCLIST	OUT OF CONTROL
PEDESTRIANS	LEFT TURN
PARKED VEHICLE	SIDESWIPE
FIXED OBJECT	ANGLE
FATAL CRASH	
INJURY CRASH	
NO FAULT CRASH	



RIC-30/42 (PID 119315)

CRASH DIAGRAMS
2021-2023
SHEET 5 OF 7

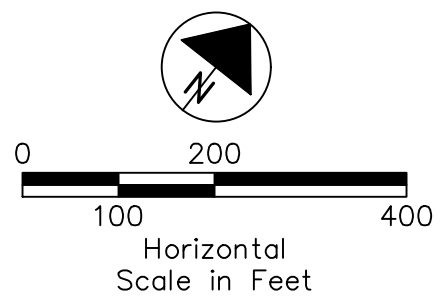
DECEMBER 2024

Drawing File: C:\2020\2020089.DWG DT: 03 Traffic: T0\03-03 RIC-US 30-US 42 Interchange Feasibility Study\19315\400-Engineering\Traffic\Study\Figures\Crash Diagrams 2021-2023.dwg Layout: SHEET 6
 Date: Dec 02, 2024 Time: 10:51 am TWTBL 0
 Technician: M.Lessiter

MATCH LINE 'F'



MATCH LINE 'E'



LEGEND			
	MOVING VEHICLE		REAR END
	BACKING VEHICLE		HEAD ON
	BICYCLIST		OUT OF CONTROL
	PEDESTRIANS		LEFT TURN
	PARKED VEHICLE		SIDESWIPE
	FIXED OBJECT		ANGLE
	FATAL CRASH		
	INJURY CRASH		
	NO FAULT CRASH		

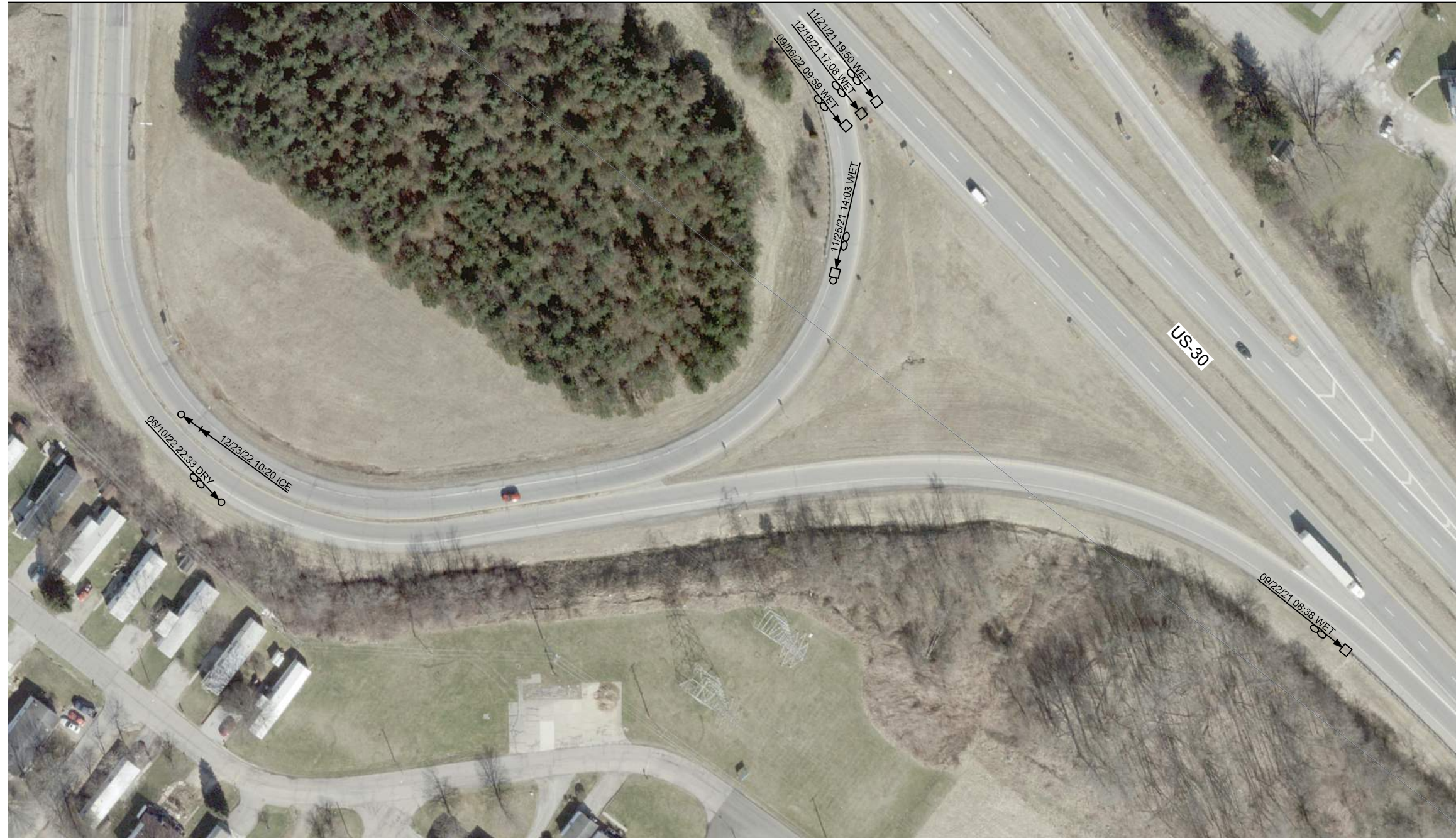


RIC-30/42 (PID 119315)

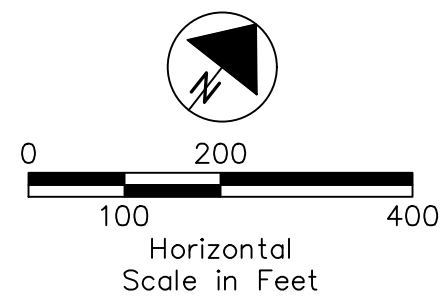
CRASH DIAGRAMS
 2021-2023
 SHEET 6 OF 7

NOVEMBER 2024

MATCH LINE 'G'



Drawing File: C:\2020\2020089_0001 D12-53 Traffic T0\03-03 RIC-US 30-US 42 Interchange Feasibility Study\19315\400-Engineering\Traffic\Study\Figures\Crash Diagrams 2021-2023.dwg Layout: SHEET 7
 Date: Dec 02, 2024 Time: 10:51 am TWTB: 0
 Technician: M.Lessiter



LEGEND			
	MOVING VEHICLE		REAR END
	BACKING VEHICLE		HEAD ON
	BICYCLIST		OUT OF CONTROL
	PEDESTRIANS		LEFT TURN
	PARKED VEHICLE		SIDESWIPE
	FIXED OBJECT		ANGLE
	FATAL CRASH		
	INJURY CRASH		
	NO FAULT CRASH		

RIC-30/42 (PID 119315)

CRASH DIAGRAMS
2021-2023
SHEET 7 OF 7

DECEMBER 2024

US 30 / US 42 Interchange Crashes

	Number
Total	112

CRASH_SEVERITY	Number	%
Fatal Crash	1	0.9%
Injury Crash	45	40.2%
Property Damage Crash	66	58.9%
Grand Total	112	100.0%

TRAFFIC_CRASH_YEAR	Number	%
2021	50	44.6%
2022	39	34.8%
2023	23	20.5%
Grand Total	112	100.0%

DAY_OF_WEEK	Number	%
(6) Friday	27	24.1%
(2) Monday	17	15.2%
(4) Wednesday	16	14.3%
(5) Thursday	15	13.4%
(7) Saturday	15	13.4%
(1) Sunday	11	9.8%
(3) Tuesday	11	9.8%
Grand Total	112	100.0%

TYPE_OF_CRASH	Number	%
Rear End	50	44.6%
Angle	15	13.4%
Fixed Object	14	12.5%
Sideswipe - Passing	12	10.7%
Left Turn	9	8.0%
Pedestrian	4	3.6%
Right Turn	4	3.6%
Overturning	2	1.8%
Head On	1	0.9%
Backing	1	0.9%
Grand Total	112	100.0%

HOUR_OF_DAY	Number	%
0	1	0.9%
2	3	2.7%
5	2	1.8%
6	2	1.8%
7	2	1.8%
8	5	4.5%
9	6	5.4%
10	6	5.4%
11	5	4.5%
12	2	1.8%
13	7	6.3%
14	9	8.0%
15	13	11.6%
16	14	12.5%
17	13	11.6%
18	5	4.5%
19	7	6.3%
20	3	2.7%
21	5	4.5%
22	2	1.8%
Grand Total	112	100.0%

WEATHER_CONDITION	Number	%
Clear	63	56.3%
Cloudy	30	26.8%
Rain	16	14.3%
Snow	3	2.7%
Grand Total	112	100.0%

ROAD_CONDITION	Number	%
Dry	88	78.6%
Wet	21	18.8%
Snow	2	1.8%
Ice	1	0.9%
Grand Total	112	100.0%

US 30 / US 42 Interchange Crashes

LIGHT_CONDITION	Number	%
Daylight	86	76.8%
Dark - Lighted Roadway	15	13.4%
Dark - Roadway Not Lighted	9	8.0%
Dawn/Dusk	2	1.8%
Grand Total	112	100.0%

LOCATION	Number	%
Four-Way Intersection	59	52.7%
Not An Intersection	16	14.3%
Off Ramp	14	12.5%
On Ramp	10	8.9%
Driveway/Alley Access	8	7.1%
T-Intersection	5	4.5%
Grand Total	112	100.0%

ROAD_CONTOUR	Number	%
Straight Level	85	75.9%
Straight Grade	11	9.8%
Curve Grade	10	8.9%
Curve Level	6	5.4%
Grand Total	112	100.0%

SPECIAL_AREA	Number	%
(blank)	112	100.0%
Grand Total	112	100.0%

ACTION1	Number	%
Straight Ahead	55	49.1%
Making Left Turn	16	14.3%
Negotiating a Curve	12	10.7%
Changing Lanes	9	8.0%
Entering Traffic Lane	7	6.3%
Making Right Turn	4	3.6%
Walking, Running, Jogging, Playing	3	2.7%
Slowing or Stopped In Traffic	2	1.8%
Backing	1	0.9%
Overtaking/Passing	1	0.9%
Entering or Crossing Specified Location	1	0.9%
Other / Unknown	1	0.9%
Grand Total	112	100.0%

TRAFFIC_CONTROL1	Number	%
No Control	59	52.7%
Signal	47	42.0%
Stop Sign	3	2.7%
Yield Sign	3	2.7%
Grand Total	112	100.0%

NUMBER_OF_VEHICLES	Number	%
1	16	14.3%
2	88	78.6%
3	7	6.3%
4	1	0.9%
Grand Total	112	100.0%

CRASH_MONTH_NBR	Number	%
1	10	8.9%
2	8	7.1%
3	8	7.1%
4	5	4.5%
5	10	8.9%
6	11	9.8%
7	11	9.8%
8	9	8.0%
9	11	9.8%
10	10	8.9%
11	4	3.6%
12	15	13.4%
Grand Total	112	100.0%

ANIMAL_TYPE	Number	%
(blank)	112	100.0%
Grand Total	112	100.0%

CONTRIBUTING_FACTOR1	Number	%
Following Too Closely/ACDA	48	42.9%
Failure to Yield	20	17.9%
Unsafe Speed	14	12.5%
Improper Lane Change	9	8.0%
Ran Red Light	5	4.5%
Improper Crossing	4	3.6%
Drove off Road	3	2.7%
Not Discernible	3	2.7%
Other Improper Action	2	1.8%
Left of Center	2	1.8%
Improper Turn	1	0.9%
Improper Backing	1	0.9%
Grand Total	112	100.0%

DRIVER_ALCOHOL1	Number	%
No	104	92.9%
Yes	8	7.1%
Grand Total	112	100.0%

DRIVER_DRUGS1	Number	%
No	111	99.1%
Yes	1	0.9%
Grand Total	112	100.0%

US 30 / US 42 Interchange Crashes

DIRECTION_FROM1	Number	%
Southwest	40	35.7%
Northeast	32	28.6%
North	10	8.9%
East	9	8.0%
Southeast	7	6.3%
South	7	6.3%
West	5	4.5%
Northwest	1	0.9%
Unknown	1	0.9%
Grand Total	112	100.0%

DIRECTION_TO1	Number	%
Northeast	40	35.7%
Southwest	25	22.3%
South	16	14.3%
Northwest	10	8.9%
West	10	8.9%
North	5	4.5%
East	3	2.7%
Southeast	2	1.8%
Unknown	1	0.9%
Grand Total	112	100.0%

POSTED_SPEED1	Number	%
35	93	83.0%
60	12	10.7%
55	3	2.7%
50	2	1.8%
0	1	0.9%
45	1	0.9%
Grand Total	112	100.0%

ESTIMATED_SPEED1	Number	%
1	1	50.0%
15	1	50.0%
Grand Total	2	100.0%

VEHICLE_TYPE1	Number	%
Passenger Car	48	42.9%
Sport Utility Vehicle	27	24.1%
Pick up	20	17.9%
Passenger Van (minivan)	9	8.0%
Pedestrian/Skater	4	3.6%
Single Unit Truck	1	0.9%
Semi-Tractor	1	0.9%
Cargo Van	1	0.9%
Motorcycle 2 Wheeled	1	0.9%
Grand Total	112	100.0%

VEHICLE_TYPE2	Number	%
Passenger Car	45	40.2%
Sport Utility Vehicle	37	33.0%
Pick up	16	14.3%
Motorcycle 2 Wheeled	11	9.8%
Motorcycle 2 Wheeled	2	1.8%
Passenger Van (minivan)	1	0.9%
Grand Total	112	100.0%

US 30 / US 42 Interchange Crashes

ACTION2	Number	%
Slowing or Stopped In Traffic	46	41.1%
Straight Ahead	37	33.0%
Making Left Turn	16	14.3%
Changing Lanes	7	6.3%
Entering Traffic Lane	2	1.8%
Negotiating a Curve	1	0.9%
Parked	1	0.9%
Making Right Turn	1	0.9%
Grand Total	112	100.0%

DIRECTION_FROM2	Number	%
Northeast	38	33.9%
Southwest	36	32.1%
South	16	14.3%
North	8	7.1%
Southeast	6	5.4%
East	3	2.7%
Northwest	3	2.7%
West	1	0.9%
Grand Total	112	100.0%

DRIVER_ALCOHOL2	Number	%
(blank)	112	100.0%
Grand Total	112	100.0%

CONTRIBUTING_FACTOR2	Number	%
None	92	82.1%
Not Discernible	16	14.3%
Failure to Yield	3	2.7%
Grand Total	112	100.0%

DIRECTION_TO2	Number	%
Southwest	38	33.9%
Northeast	35	31.3%
North	16	14.3%
South	9	8.0%
Northwest	9	8.0%
West	3	2.7%
East	2	1.8%
Grand Total	112	100.0%

DRIVER_DRUGS2	Number	%
(blank)	112	100.0%
Grand Total	112	100.0%

Appendix C: Existing Conditions Analysis

RIC-US 30 & US 42 Planning Study (PID 119315) Existing Conditions Capacity Analysis

The purpose of this report is to analyze existing vehicular operations in the vicinity of the US 30 / US 42 interchange and identify existing capacity issues for the US 30 & US 42 Planning Study. The US 30 / US 42 interchange is located in Madison Township, Richland County, Ohio. The purpose of the US 30 & US 42 Planning Study is to analyze the vehicular operating conditions in the vicinity of the existing interchange and recommend improvements to the interchange and surrounding roadway network.

Study Area

The study area includes the US 30 / US 42 interchange, the US 30 / 5th Avenue interchange to the west, the US 30 / Laver Road interchange to the east, and US 42 (Ashland Road) within a half mile of the US 30 interchange. The segment of US 42 included in the study area extends from Parry Avenue to the southwest, to McElroy Road in the northeast. In addition, portions of Beal Road, Rayfield Drive, Expressview Drive, and Stewart Road are included in the study to determine the effect of eliminating the US 30 WB Ramps / Beal Road intersection on the surrounding roadway network in the 'Build' condition.

Traffic Counts

Tri-State Traffic Data, Inc. performed turning movement traffic counts at the following ten intersections:

- US 42 / Parry Avenue / Mansfield Storage Center Driveway
- US 42 / Kroger Driveway / University Hospital Driveway
- US 42 / Stewart Road
- US 42 / US 30 EB Ramps
- US 42 / US 30 WB Ramps
- US 42 / McElroy Road
- US 30 WB Ramps / Beal Road
- Beal Road / Rayfield Drive
- Rayfield Drive / Expressview Drive
- Stewart Road / Expressview Drive / Yale Avenue

The counts were performed from 6:00 AM – 6:00 PM on Tuesday March 12, 2024. See **Attachment A** for printouts of the turning movement counts. The systemwide AM peak hour was found to occur from 7:00 AM – 8:00 AM and the systemwide PM peak hour was found to occur from 3:15 PM – 4:15 PM. Note that due to the higher volumes in the interchange area and the much later intersection peaks at Parry Avenue and Kroger/University Hospital, we selected the systemwide peak hour between Stewart Road and McElroy Road. The systemwide peak hour analysis is included in **Attachment A**.

ODOT MS2 data was obtained for the most recent counts along US 30, the US 30 / 5th Avenue interchange ramps, and the US 30 / Laver Road interchange ramps. The systemwide peak hours for US 42 were utilized for the US 30 volumes and accompanying interchange ramps. The MS2 traffic count data was grown to 2024 using growth rates provided by ODOT as the counts were completed in 2023.

Volume Development Process

Design hour volumes (DHV) were developed for the study area using the peak hour to design hour factors that are published by the ODOT Office of Statewide Planning and Research. The design hour factors utilized to develop the DHV are dependent upon the roadway's functional classification as well as the day of the week and month the count was performed. These factors were then applied to the raw turning movement counts and 2024 MS2 traffic counts to convert the existing volumes to DHV. See **Attachment B** for the peak hour to design hour factors. The DHV volumes were used for the Existing Year 2024 'No-Build' capacity analysis.

HCS Intersection Capacity Analysis

Intersection capacity analyses were performed for the Existing Year 2024 'No-Build' scenario to determine the current operating conditions at each study intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F.

Level-of-Service A, B, C, D and E are considered acceptable in an area within Metropolitan Planning Organization (MPO) for movements and approaches while the overall intersection must operate at LOS D or better. Level-of-Service F is considered unacceptable with significant levels of delay experienced by vehicles. Madison Township is located within the Richland County Regional Planning Commission (RCRPC) MPO. The thresholds related to average control delay for both signalized and unsignalized intersections are as follows:

<i>Level-of- Service</i>	<i>Delay Threshold – Signalized (Sec)</i>	<i>Delay Threshold – Unsignalized (Sec)</i>
A	< 10	< 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

The quantity of vehicles that a turning movement or approach has sufficient capacity for is measured with the volume to capacity ratio (v/c). A v/c less than 1.0 is considered acceptable with a v/c less than 0.93 preferred. An intersection is considered over capacity when signal timings or other intersection control cannot be adjusted to allow all turning movements to have a v/c less than 1.0.

The storage length represents the area at an approach where queued vehicles can be stored and not cause obstructions to adjacent turning movements or upstream intersections. The queue-storage ratio (QSR) is a measure of the expected queue length to the available storage length. A QSR equal to or less than 1.0 is considered acceptable, while a QSR greater than 1.0 indicates a strong possibility of vehicles obstructing an adjacent turning movement or upstream intersection.

The analysis was performed utilizing the computer program HCS 2024 which is developed by McTrans Corporation and based on the Highway Capacity Manual, 7th Edition. Based on criteria established by ODOT, Highway Capacity Software (HCS) is used to determine the required number of lanes and the lane assignments at intersections (i.e. the needed intersection capacity). The existing peak hour factors and heavy vehicle percentages were utilized during the AM and PM peak hours for the capacity analysis. Signal timing plans were provided by ODOT.

Table 1 summarizes the results of the capacity analysis for the signalized intersections under the Existing Year 2024 'No-Build' traffic conditions during the AM and PM peak hours. See **Attachment C** for the HCS Intersection Capacity Analysis printouts.

**Table 1: HCS Intersection Capacity Analysis Summary
Existing Year 2024 'No-Build' – Signalized Intersections**

Movement	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	0.0	0.00	0.00	0	A	0.0	0.00	0.00	0
EB Thru-Right	A	2.5	0.22	0.14	31	A	4.2	0.48	0.60	135
<i>EB Approach</i>	A	2.5	-	-	-	A	4.2	-	-	-
WB Left	A	2.7	0.03	0.05	4	A	5.2	0.04	0.08	6
WB Thru-Right	A	2.9	0.31	0.10	48	A	3.8	0.44	0.24	116
<i>WB Approach</i>	A	2.8	-	-	-	A	3.8	-	-	-
NB Left-Thru-Right	C	33.2	0.24	0.04	39	D	42.6	0.42	0.09	86
<i>NB Approach</i>	C	33.2	-	-	-	D	42.6	-	-	-
SB Left-Thru-Right	A	0.0	0.00	0.00	0	A	0.0	0.00	0.00	0
<i>SB Approach</i>	A	0.0	-	-	-	A	0.0	-	-	-
Intersection Total	A	4.4	-	-	-	A	6.1	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	5.4	0.01	0.01	1	A	7.6	0.01	0.02	2
EB Thru-Right	A	7.5	0.30	0.22	105	B	14.9	0.63	0.75	357
<i>EB Approach</i>	A	7.5	-	-	-	B	14.8	-	-	-
WB Left	A	4.0	0.06	0.07	8	A	8.8	0.27	0.30	32
WB Thru	A	5.9	0.35	0.32	109	A	8.5	0.45	0.65	216
WB Right	A	4.0	0.01	0.00	2	A	5.1	0.01	0.01	3
<i>WB Approach</i>	A	5.7	-	-	-	A	8.5	-	-	-
NB Left-Thru-Right	C	32.1	0.34	0.72	65	D	43.9	0.70	2.42	218
<i>NB Approach</i>	C	32.1	-	-	-	D	43.9	-	-	-
SB Left-Thru	C	29.8	0.01	0.01	1	C	34.4	0.04	0.10	10
SB Right	C	29.8	0.01	0.01	1	C	34.3	0.03	0.07	7
<i>SB Approach</i>	C	29.8	-	-	-	C	34.3	-	-	-
Intersection Total	A	8.7	-	-	-	B	15.9	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0

**Table 1: HCS Intersection Capacity Analysis Summary
Existing Year 2024 'No-Build' – Signalized Intersections (Cont.)**

Movement	AM Peak Hour					PM Peak Hour				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
US 42 / Stewart Road										
EB Left	D	37.9	0.32	0.15	20	D	54.1	0.71	0.93	121
EB Thru	B	15.9	0.33	0.42	136	C	30.4	0.71	1.23	399
EB Right	B	13.4	0.08	0.26	26	B	18.8	0.09	0.36	36
<i>EB Approach</i>	B	16.9	-	-	-	C	32.9	-	-	-
WB Left	D	37.6	0.82	0.35	178	E	61.4	0.90	0.66	337
WB Thru	A	9.8	0.21	0.12	72	B	15.1	0.32	0.26	160
WB Right	A	8.9	0.06	0.10	16	B	14.0	0.17	0.47	74
<i>WB Approach</i>	B	18.7	-	-	-	C	28.7	-	-	-
NB Left-Thru	C	26.3	0.35	0.08	82	C	32.8	0.53	0.17	170
NB Right	D	41.1	0.83	1.60	232	D	40.3	0.73	1.88	272
<i>NB Approach</i>	D	36.5	-	-	-	D	37.3	-	-	-
SB Left	C	31.6	0.23	0.42	42	D	50.5	0.63	1.34	134
SB Thru-Right	C	27.8	0.50	0.34	127	C	35.0	0.63	0.65	244
<i>SB Approach</i>	C	28.7	-	-	-	D	39.6	-	-	-
Intersection Total	C	24.1	-	-	-	C	33.1	-	-	-
US 42 / McElroy Road										
EB Thru-Right	A	5.5	0.51	0.14	138	A	7.6	0.66	0.27	274
<i>EB Approach</i>	A	5.5	-	-	-	A	7.6	-	-	-
WB Left	B	10.5	0.36	0.83	79	B	16.6	0.38	1.03	98
WB Thru	A	5.9	0.55	0.16	164	A	5.4	0.51	0.19	186
<i>WB Approach</i>	A	6.8	-	-	-	A	7.3	-	-	-
NB Left	D	36.5	0.75	1.43	143	D	40.2	0.47	1.05	105
NB Thru-Right	D	36.1	0.71	0.14	121	D	46.9	0.78	0.20	172
<i>NB Approach</i>	D	36.3	-	-	-	D	44.2	-	-	-
Intersection Total	B	11.1	-	-	-	B	12.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a QSR ≥ 1.0

As shown in **Table 1**, the northbound approach at the US 42 / Kroger Driveway / University Hospital Driveway intersection is experiencing a failing QSR under the Existing Year 2024 'No-Build' conditions during the PM peak hour. Although northbound vehicles are queueing beyond the signalized intersection, all queueing is occurring on private property with no impacts to operations along US 42.

The northbound right-turn lane of the US 42 / Stewart Road intersection is currently undersized under the Existing Year 2024 'No-Build' conditions during the AM and PM peak hours. The eastbound and southbound left-turn lanes are currently undersized under the existing traffic conditions. The eastbound approach is likely to queue up to, but not beyond the adjacent Kroger Driveway / University Hospital signalized intersection during the PM peak hour.

The westbound left-turn lane at the US 42 / McElroy Road intersection is experiencing a failing QSR under the Existing Year 2024 'No-Build' conditions during the PM peak hour, while the northbound left-turn lane is experiencing a failing QSR during both peak hours. Although the westbound left-turn lane is undersized, there is additional stacking area available for vehicles utilizing the existing center two-way left-turn lane.

Table 2 summarizes the results of the capacity analysis for the unsignalized intersections under the Existing Year 2024 'No-Build' traffic conditions during the AM and PM peak hours. See **Attachment C** for the HCS Intersection Capacity Analysis printouts.

Table 2: HCS Intersection Capacity Analysis Summary Existing Year 2024 'No-Build' Conditions – Unsignalized Intersections								
Movement	AM Peak Hour				PM Peak Hour			
	LOS	Delay (sec)	V/C Ratio	95th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	95th % Queue (feet)
US 42 / US 30 EB Ramps								
WB Left	A	8.5	0.02	3	A	9.5	0.03	3
<i>WB Approach</i>	A	0.4	-	-	A	0.4	-	-
US 42 / US 30 WB Ramps								
EB Left	A	9.0	0.21	21	A	9.4	0.23	23
<i>EB Approach</i>	A	2.7	-	-	A	1.9	-	-
NB Left-Thru-Right	B	11.9	0.06	6	C	22.0	0.12	11
<i>NB Approach</i>	B	11.9	-	-	C	22.0	-	-
SB Left	E	41.8	0.09	8	F	70.1	0.07	5
<i>SB Approach</i>	E	41.8	-	-	F	70.1	-	-
US 30 WB Ramps / Beal Road								
EB Left	A	8.9	0.00	0	A	8.9	0.01	0
EB Thru	A	0.0	-	-	A	0.1	-	-
<i>EB Approach</i>	A	0.5	-	-	A	0.9	-	-
SB Left-Right	C	15.7	0.24	23	C	16.6	0.30	30
<i>SB Approach</i>	C	15.7	-	-	C	16.6	-	-
Beal Road / Rayfield Drive								
EB Left-Right	A	9.0	0.03	3	A	9.2	0.05	3
<i>EB Approach</i>	A	9.0	-	-	A	9.2	-	-
NB Left	A	7.5	0.00	0	A	7.5	0.01	0
NB Thru	A	0.0	-	-	A	0.1	-	-
<i>NB Approach</i>	A	1.3	-	-	A	0.7	-	-
Rayfield Drive / Expressview Drive								
WB Left-Right	A	8.6	0.01	0	A	8.8	0.02	0
<i>WB Approach</i>	A	8.6	-	-	A	8.8	-	-
SB Left	A	7.2	0.01	0	A	7.3	0.00	0
SB Thru	A	0.0	-	-	A	0.0	-	-
<i>SB Approach</i>	A	4.6	-	-	A	3.4	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F

**Table 2: HCS Intersection Capacity Analysis Summary
Existing Year 2024 'No-Build' Conditions – Unsignalized Intersections**

Movement	AM Peak Hour				PM Peak Hour			
	LOS	Delay (sec)	V/C Ratio	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	95 th % Queue (feet)
Stewart Road / Expressview Drive / Yale Avenue								
EB Left-Thru-Right	A	9.4	0.05	3	B	10.2	0.06	5
<i>EB Approach</i>	A	9.4	-	-	B	10.2	-	-
WB Left-Thru-Right	B	11.1	0.02	3	B	13.7	0.06	5
<i>WB Approach</i>	B	11.1	-	-	B	13.7	-	-
NB Left	A	7.6	0.01	0	A	7.7	0.03	0
NB Thru-Right	A	0.1	-	-	A	0.3	-	-
<i>NB Approach</i>	A	1.1	-	-	A	1.3	-	-
SB Left	A	7.4	0.00	0	A	7.8	0.00	0
SB Thru-Right	A	0.0	-	-	A	0.0	-	-
<i>SB Approach</i>	A	0.2	-	-	A	0.2	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F

As shown in **Table 2**, most movements and approaches at the unsignalized intersections are operating with acceptable Levels-of-Service under Existing Year 2024 'No-Build' conditions during both the AM and PM peak hours. The SB US 30 WB exit ramp at the US 42 / US 30 WB Ramps intersection is expected to operate with failing Levels-of-Service during the PM peak hour. However, the LOS F only applies to the left turning movement as the right turning movement operates under free-flow utilizing the existing loop ramp. Most vehicles proceeding from WB US 30 to NB US 42 use the WB US 30 diamond exit ramp, with vehicles performing the left-turn movement at the SB approach likely traveling from Beal Road.

HCS Freeway Capacity Analysis

Freeway capacity analyses were performed for the Design Year 2045 'No-Build' and 'Build' scenarios to determine the operating conditions that are occurring at each freeway segment of the US 30 / US 42 interchange. The quality of the operating conditions experienced by a freeway segment is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F.

Level-of-Service A, B, C and D are considered acceptable in an area within Metropolitan Planning Organization (MPO) for basic, merge, diverge, and weave segments. Level-of-Service E and F is considered unacceptable with significant density of traffic on a freeway segment. The thresholds related to average density for a freeway segment are as follows:

Level-of- Service	Density Threshold – (pc/mi/ln)
A	< 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	> 45

The quantity of vehicles a freeway segment has sufficient capacity for is measured with the demand-to-capacity ratio (d/c). A d/c less than 0.93 is considered acceptable. For a facilities analysis, a single freeway segment with a d/c over 1.0 results in a facility-wide LOS F.

Table 3 summarizes the results of the freeway capacity analysis for the US 30 / US 42 interchange under the Existing Year 2024 'No-Build' traffic conditions during the AM and PM peak hours. See **Attachment C** for the HCS Freeway Capacity Analysis printouts.

Table 3: HCS Freeway Capacity Analysis Summary Existing Year 2024 'No-Build' Conditions US 30 / US 42 Interchange							
Analysis Type	Location	'No-Build' Condition					
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
		AM Peak Hour			PM Peak Hour		
EB US-30							
Basic	EB US 30 @ Mile Marker 12.5	A	0.27	-	C	0.47	-
Diverge	EB US 30 5 th Avenue Off Ramp	B	0.27	0.05	C	0.47	0.09
Basic	EB US 30 @ 5 th Avenue	A	0.24	-	B	0.42	-
Merge	EB US 30 5 th Avenue On Ramp	A	0.25	0.02	B	0.45	0.04
Basic	EB US 30 @ Mile Marker 13.5	A	0.25	-	B	0.44	-
Diverge	EB US 30 WB US 42 Off Ramp	A	0.25	0.07	B	0.45	0.16
Basic	EB US 30 @ Mile Marker 14.0	A	0.22	-	B	0.36	-
Diverge	EB US 30 EB US 42 Off Ramp	B	0.22	0.13	B	0.36	0.23
Basic	EB US 30 @ Mile Marker 14.1	A	0.16	-	A	0.25	-
Merge	EB US 30 US 42 On Ramp	A	0.18	0.05	A	0.29	0.08
Basic	EB US 30 @ Mile Marker 15.0	A	0.19	-	B	0.31	-
Diverge	EB US 30 Laver Road Off Ramp	A	0.20	0.03	B	0.32	0.09
Basic	EB US 30 @ Laver Road	A	0.18	-	A	0.27	-
Merge	EB US 30 Laver Road On Ramp	A	0.19	0.02	A	0.27	0.01
Basic	EB US 30 @ Mile Marker 16.0	A	0.19	-	A	0.27	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Orange highlighted cells indicate a Level-of-Service E, 1 > d/c ratio > 0.93

**Table 13: HCS Freeway Capacity Analysis Summary
Existing Year 2024 'No-Build' Conditions
US 30 / US 42 Interchange**

Analysis Type	Location	'No-Build' Condition					
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
		AM Peak Hour			PM Peak Hour		
WB US-30							
Basic	WB US 30 Mile Marker 16.0	A	0.23	-	A	0.23	-
Diverge	WB US 30 Laver Road Off Ramp	A	0.23	0.00	A	0.24	0.02
Basic	WB US 30 @ Laver Road	A	0.22	-	A	0.22	-
Merge	WB US 30 Laver Road On Ramp	A	0.26	0.06	A	0.25	0.05
Basic	WB US 30 @ Mile Marker 15.0	A	0.26	-	A	0.25	-
Diverge	WB US 30 EB US 42 Off Ramp	B	0.26	0.02	B	0.26	0.02
Basic	WB US 30 @ Mile Marker 14.1	A	0.25	-	A	0.25	-
Diverge	WB US 30 WB US 42 Off Ramp	B	0.26	0.04	B	0.25	0.06
Basic	WB US 30 @ Mile Marker 14.0	A	0.23	-	A	0.22	-
Merge	WB US 30 US 42 On Ramp	B	0.37	0.32	B	0.35	0.29
Basic	WB US 30 @ Mile Marker 13.5	B	0.37	-	B	0.34	-
Diverge	WB US 30 5 th Avenue Off Ramp	B	0.37	0.03	B	0.35	0.02
Basic	WB US 30 @ 5 th Avenue	B	0.36	-	B	0.33	-
Merge	WB US 30 5 th Avenue On Ramp	B	0.38	0.05	B	0.37	0.07
Basic	WB US 30 @ Mile Marker 12.5	B	0.38	-	B	0.37	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Orange highlighted cells indicate a Level-of-Service E, 1 > d/c ratio > 0.93

As shown in **Table 3**, US 30 and the associated ramps are operating with acceptable Levels-of-Service and sufficient capacity under the Existing Year 2024 'No-Build' conditions during both peak hours.

Summary

GPD Group appreciates the opportunity to assist you with this project. Based on the results of this analysis, most of the study intersections are operating with acceptable Levels-of-Service and have sufficient capacity. The southbound left turning movement at the US 42 / US 30 WB ramps intersection is experiencing failing Levels-of-Service during both peak hours. In addition, there are several undersized turn lanes on US 42 at the Stewart Road and McElroy Road intersections. The freeway capacity analysis determined US 30 and the associated ramps are operating with acceptable Levels-of-Service and have sufficient capacity.

If you have any questions regarding this study, please feel free to contact me at (216) 927-8654 or via email at jmbennett@gpdgroup.com.

Sincerely,
GPD Group



Judith M. Bennett, PE, PTOE
Senior Traffic Engineer / Project Manager

CC: Michael A. Hobbs, PE, PTOE (GPD Group)
Kevin Westbrooks, PE, PTOE (GPD Group)
File

**ATTACHMENT A
SYSTEMWIDE PEAK HOUR ANALYSIS &
TURNING MOVEMENT COUNTS**

Systemwide Peak Hour Analysis - AM Peak Hour						
Intersection	Total Volume Entering Intersection					
	7:00 - 8:00 AM	7:15 - 8:15 AM	7:30 - 8:30 AM	7:45 - 8:45 AM	8:00 - 9:00 AM	
US 42 / Parry Avenue / Mansfield Storage Drive	605	616	615	619	616	
US 42 / Kroger Driveway / U.H. Driveway	675	691	686	706	720	
US 42 / Stewart Road	1209	1252	1171	1118	1106	
US 42 / US 30 EB Ramps	1141	1132	1034	975	985	
US 42 / US 30 WB Ramps	1322	1298	1217	1090	1047	
US 42 / McElroy Road	1284	1255	1113	938	884	
Total	6236	6244	5836	5446	5358	

Systemwide Peak Hour Analysis - AM Peak Hour (Interchange Area Only)						
Intersection	Total Volume Entering Intersection					
	7:00 - 8:00 AM	7:15 - 8:15 AM	7:30 - 8:30 AM	7:45 - 8:45 AM	8:00 - 9:00 AM	
US 42 / Stewart Road	1209	1252	1171	1118	1106	
US 42 / US 30 EB Ramps	1141	1132	1034	975	985	
US 42 / US 30 WB Ramps	1322	1298	1217	1090	1047	
US 42 / McElroy Road	1284	1255	1113	938	884	
Total	4956	4937	4535	4121	4022	

Systemwide Peak Hour Analysis - PM Peak Hour						
Intersection	Total Volume Entering Intersection					
	3:00 - 4:00 PM	3:15 - 4:15 PM	3:30 - 4:30 PM	3:45 - 4:45 PM	4:00 - 5:00 PM	
US 42 / Parry Avenue / Mansfield Storage Drive	1182	1179	1140	1167	1203	
US 42 / Kroger Driveway / U.H. Driveway	1292	1322	1312	1321	1347	
US 42 / Stewart Road	2017	2065	2039	2012	1991	
US 42 / US 30 EB Ramps	1887	1925	1903	1891	1870	
US 42 / US 30 WB Ramps	1842	1891	1867	1855	1849	
US 42 / McElroy Road	1660	1736	1710	1711	1664	
Total	9880	10118	9971	9957	9924	

Systemwide Peak Hour Analysis - PM Peak Hour (Interchange Area Only)						
Intersection	Total Volume Entering Intersection					
	3:00 - 4:00 PM	3:15 - 4:15 PM	3:30 - 4:30 PM	3:45 - 4:45 PM	4:00 - 5:00 PM	
US 42 / Stewart Road	2017	2065	2039	2012	1991	
US 42 / US 30 EB Ramps	1887	1925	1903	1891	1870	
US 42 / US 30 WB Ramps	1842	1891	1867	1855	1849	
US 42 / McElroy Road	1660	1736	1710	1711	1664	
Total	7406	7617	7519	7469	7374	

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction Time	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 6:00AM	0	26	2	0	0	28	0	1	25	0	0	0	26	0		
6:15AM	0	43	0	0	0	43	0	2	42	0	0	0	44	0		
6:30AM	0	44	2	0	0	46	0	3	48	0	0	0	51	0		
6:45AM	0	33	3	0	0	36	0	0	58	0	0	0	58	0		
Hourly Total	0	146	7	0	0	153	0	6	173	0	0	0	179	0		
7:00AM	0	42	3	0	0	45	0	5	61	0	0	0	66	0		
7:15AM	0	39	3	0	0	42	0	4	85	0	0	0	89	0		
7:30AM	0	67	6	0	0	73	0	8	91	0	0	0	99	0		
7:45AM	0	62	2	0	0	64	0	3	90	1	0	0	94	0		
Hourly Total	0	210	14	0	0	224	0	20	327	1	0	0	348	0		
8:00AM	0	48	3	0	0	51	0	1	73	0	0	0	74	0		
8:15AM	0	56	1	0	0	57	0	2	71	1	0	0	74	0		
8:30AM	0	73	5	0	0	78	0	4	92	0	0	0	96	0		
8:45AM	0	64	1	0	1	66	0	1	82	0	0	0	83	0		
Hourly Total	0	241	10	0	1	252	0	8	318	1	0	0	327	0		
9:00AM	0	64	2	0	0	66	0	1	72	0	0	0	73	0		
9:15AM	0	67	3	0	0	70	0	1	73	0	0	0	74	0		
9:30AM	0	66	2	0	0	68	0	2	80	0	0	0	82	0		
9:45AM	0	53	5	0	0	58	0	2	87	1	0	0	90	0		
Hourly Total	0	250	12	0	0	262	0	6	312	1	0	0	319	0		
10:00AM	0	72	3	0	0	75	0	2	76	2	0	0	80	0		
10:15AM	1	93	4	0	0	98	0	0	73	0	0	0	73	0		
10:30AM	0	77	2	0	0	79	0	2	92	0	0	0	94	0		
10:45AM	0	78	3	0	0	81	0	3	91	0	0	0	94	0		
Hourly Total	1	320	12	0	0	333	0	7	332	2	0	0	341	0		
11:00AM	0	97	6	0	0	103	1	0	91	0	0	0	91	0		
11:15AM	0	101	6	0	0	107	0	2	119	2	0	0	123	0		
11:30AM	0	93	8	0	1	102	0	2	97	1	0	0	100	0		
11:45AM	1	91	3	0	0	95	0	3	110	0	0	0	113	0		
Hourly Total	1	382	23	0	1	407	1	7	417	3	0	0	427	0		
12:00PM	0	97	5	0	0	102	0	3	128	0	0	0	131	0		
12:15PM	0	110	4	0	1	115	0	2	117	0	0	0	119	0		
12:30PM	0	110	1	0	0	111	0	2	121	1	0	0	124	0		
12:45PM	0	95	3	0	0	98	0	2	110	0	0	0	112	0		
Hourly Total	0	412	13	0	1	426	0	9	476	1	0	0	486	0		
1:00PM	0	111	2	0	0	113	0	11	81	1	0	0	93	0		
1:15PM	0	100	3	0	0	103	0	3	101	0	0	0	104	0		
1:30PM	0	95	2	0	0	97	0	5	87	1	0	0	93	0		
1:45PM	0	118	5	0	0	123	0	3	95	0	0	0	98	0		
Hourly Total	0	424	12	0	0	436	0	22	364	2	0	0	388	0		
2:00PM	0	99	2	0	0	101	0	2	105	0	0	0	107	0		
2:15PM	0	110	1	0	1	112	0	7	118	0	0	0	125	0		
2:30PM	1	127	2	0	0	130	0	5	107	0	0	0	112	0		
2:45PM	0	117	2	0	0	119	0	2	129	0	0	0	131	0		
Hourly Total	1	453	7	0	1	462	0	16	459	0	0	0	475	0		
3:00PM	0	147	6	0	0	153	0	4	139	0	0	0	143	0		
3:15PM	0	144	8	0	0	152	0	5	140	0	0	0	145	0		
3:30PM	0	135	1	0	0	136	0	4	134	1	0	0	139	0		
3:45PM	0	125	5	0	0	130	0	4	110	1	0	0	115	0		
Hourly Total	0	551	20	0	0	571	0	17	523	2	0	0	542	0		
4:00PM	0	152	7	0	0	159	0	3	135	1	0	0	139	0		
4:15PM	0	130	8	0	0	138	0	5	121	0	0	0	126	0		

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
Time																
4:30PM	0	144	4	0	0	148	0	4	145	0	0	0	149	0		
4:45PM	0	130	9	0	0	139	0	5	145	1	0	0	151	0		
Hourly Total	0	556	28	0	0	584	0	17	546	2	0	0	565	0		
5:00PM	0	146	6	0	0	152	0	3	121	0	0	0	124	0		
5:15PM	0	133	5	0	0	138	0	2	141	0	0	0	143	0		
5:30PM	0	112	4	0	1	117	0	4	116	0	0	0	120	0		
5:45PM	2	94	2	0	0	98	0	2	123	0	0	0	125	0		
Hourly Total	2	485	17	0	1	505	0	11	501	0	0	0	512	0		
Total	5	4430	175	0	5	4615	1	146	4748	15	0	0	4909	0		
% Approach	0.1%	96.0%	3.8%	0%	0.1%	-	-	3.0%	96.7%	0.3%	0%	0%	-	-		
% Total	0%	43.8%	1.7%	0%	0%	45.7%	-	1.4%	47.0%	0.1%	0%	0%	48.6%	-		
Lights	5	4338	172	0	5	4520	-	144	4644	13	0	0	4801	-		
% Lights	100%	97.9%	98.3%	0%	100%	97.9%	-	98.6%	97.8%	86.7%	0%	0%	97.8%	-		
Articulated Trucks and Single-Unit Trucks	0	77	3	0	0	80	-	1	85	1	0	0	87	-		
% Articulated Trucks and Single-Unit Trucks	0%	1.7%	1.7%	0%	0%	1.7%	-	0.7%	1.8%	6.7%	0%	0%	1.8%	-		
Buses	0	15	0	0	0	15	-	1	19	1	0	0	21	-		
% Buses	0%	0.3%	0%	0%	0%	0.3%	-	0.7%	0.4%	6.7%	0%	0%	0.4%	-		
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Perry Ave Northbound								North Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 6:00AM	1	0	0	0	1	2	0	0	0	0	0	0	0	0	56		
6:15AM	1	0	0	0	2	3	0	0	0	0	0	0	0	0	90		
6:30AM	2	0	0	0	2	4	0	0	0	0	0	0	0	0	101		
6:45AM	2	0	0	0	2	4	0	0	0	0	0	0	0	0	98		
Hourly Total	6	0	0	0	7	13	0	0	0	0	0	0	0	0	345		
7:00AM	6	0	2	0	5	13	0	0	0	0	0	0	0	0	124		
7:15AM	2	0	2	0	4	8	1	0	0	0	0	0	0	0	139		
7:30AM	3	0	0	0	3	6	0	0	0	0	0	0	0	0	178		
7:45AM	2	0	2	0	2	6	0	0	0	0	0	0	0	0	164		
Hourly Total	13	0	6	0	14	33	1	0	0	0	0	0	0	0	605		
8:00AM	2	0	3	0	4	9	0	1	0	0	0	0	1	0	135		
8:15AM	4	0	1	0	2	7	0	0	0	0	0	0	0	0	138		
8:30AM	3	0	1	0	4	8	0	0	0	0	0	0	0	0	182		
8:45AM	0	0	0	0	12	12	1	0	0	0	0	0	0	0	161		
Hourly Total	9	0	5	0	22	36	1	1	0	0	0	0	1	0	616		
9:00AM	1	0	1	0	5	7	0	0	0	0	0	0	0	0	146		
9:15AM	2	0	2	0	7	11	0	0	0	0	0	0	0	0	155		
9:30AM	2	0	4	0	8	14	0	0	0	0	0	0	0	0	164		
9:45AM	5	0	1	0	4	10	0	0	0	1	0	0	1	0	159		
Hourly Total	10	0	8	0	24	42	0	0	0	1	0	0	1	0	624		
10:00AM	3	0	4	0	1	8	0	0	0	0	0	0	0	0	163		
10:15AM	4	0	0	0	6	10	0	2	0	0	0	2	4	0	185		
10:30AM	1	0	1	0	2	4	0	0	0	0	0	0	0	0	177		
10:45AM	1	1	1	0	2	5	0	0	0	0	0	1	1	0	181		
Hourly Total	9	1	6	0	11	27	0	2	0	0	0	3	5	0	706		
11:00AM	1	0	1	0	14	16	0	0	0	0	0	0	0	0	210		
11:15AM	4	0	2	0	6	12	0	0	0	1	0	0	1	0	243		
11:30AM	3	0	3	0	4	10	0	0	0	0	0	0	0	0	212		
11:45AM	6	0	2	0	4	12	0	1	0	0	0	0	1	0	221		
Hourly Total	14	0	8	0	28	50	0	1	0	1	0	0	2	0	886		
12:00PM	8	0	5	0	10	23	0	0	0	0	0	1	1	0	257		
12:15PM	8	0	3	0	2	13	0	1	0	0	0	0	1	0	248		
12:30PM	3	1	1	0	8	13	0	1	0	0	0	0	1	0	249		
12:45PM	5	0	1	0	6	12	0	0	0	0	0	0	0	0	222		
Hourly Total	24	1	10	0	26	61	0	2	0	0	0	1	3	0	976		
1:00PM	4	0	3	0	9	16	0	1	0	0	0	0	1	0	223		
1:15PM	1	0	4	0	9	14	0	0	0	0	0	0	0	0	221		
1:30PM	3	0	2	0	9	14	0	0	0	0	0	0	0	0	204		
1:45PM	7	0	5	0	6	18	0	0	0	0	0	0	0	0	239		
Hourly Total	15	0	14	0	33	62	0	1	0	0	0	0	1	0	887		
2:00PM	2	0	7	0	5	14	0	0	0	0	0	0	0	0	222		
2:15PM	5	0	7	0	4	16	0	0	0	0	0	0	0	0	253		
2:30PM	1	0	4	0	3	8	0	0	0	0	0	0	0	0	250		
2:45PM	3	0	6	0	7	16	0	0	0	0	0	0	0	1	266		
Hourly Total	11	0	24	0	19	54	0	0	0	0	0	0	0	1	991		
3:00PM	7	0	1	0	11	19	0	0	0	0	0	0	0	0	315		
3:15PM	4	0	5	0	9	18	0	0	0	0	0	0	0	0	315		
3:30PM	3	0	3	0	4	10	4	0	0	0	0	0	0	0	285		
3:45PM	6	0	10	0	6	22	0	0	0	0	0	0	0	0	267		
Hourly Total	20	0	19	0	30	69	4	0	0	0	0	0	0	0	1182		
4:00PM	3	0	4	0	7	14	0	0	0	0	0	0	0	0	312		
4:15PM	2	0	5	0	5	12	0	0	0	0	0	0	0	0	276		

Leg Direction	Perry Ave Northbound								North Southbound								
Time	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	Int		
4:30PM	6	0	5	0	3	14	0	0	0	0	0	1	1	0	312		
4:45PM	4	0	1	0	8	13	0	0	0	0	0	0	0	0	303		
Hourly Total	15	0	15	0	23	53	0	0	0	0	0	1	1	0	1203		
5:00PM	4	0	4	0	10	18	0	0	0	0	0	0	0	0	294		
5:15PM	2	0	3	0	8	13	0	1	1	0	0	0	2	0	296		
5:30PM	3	0	3	0	9	15	1	0	0	0	0	0	0	0	252		
5:45PM	6	0	5	0	10	21	2	0	0	0	0	0	0	0	244		
Hourly Total	15	0	15	0	37	67	3	1	1	0	0	0	2	0	1086		
Total	161	2	130	0	274	567	9	8	1	2	0	5	16	1	10107		
% Approach	28.4%	0.4%	22.9%	0%	48.3%	-	-	50.0%	6.3%	12.5%	0%	31.3%	-	-	-		
% Total	1.6%	0%	1.3%	0%	2.7%	5.6%	-	0.1%	0%	0%	0%	0%	0.2%	-	-		
Lights	155	2	125	0	266	548	-	7	1	2	0	5	15	-	9884		
% Lights	96.3%	100%	96.2%	0%	97.1%	96.6%	-	87.5%	100%	100%	0%	100%	93.8%	-	97.8%		
Articulated Trucks and Single-Unit Trucks	4	0	0	0	1	5	-	1	0	0	0	0	1	-	173		
% Articulated Trucks and Single-Unit Trucks	2.5%	0%	0%	0%	0.4%	0.9%	-	12.5%	0%	0%	0%	0%	6.3%	-	1.7%		
Buses	2	0	5	0	7	14	-	0	0	0	0	0	0	-	50		
% Buses	1.2%	0%	3.8%	0%	2.6%	2.5%	-	0%	0%	0%	0%	0%	0%	-	0.5%		
Pedestrians	-	-	-	-	-	-	9	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	0%	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	100%	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

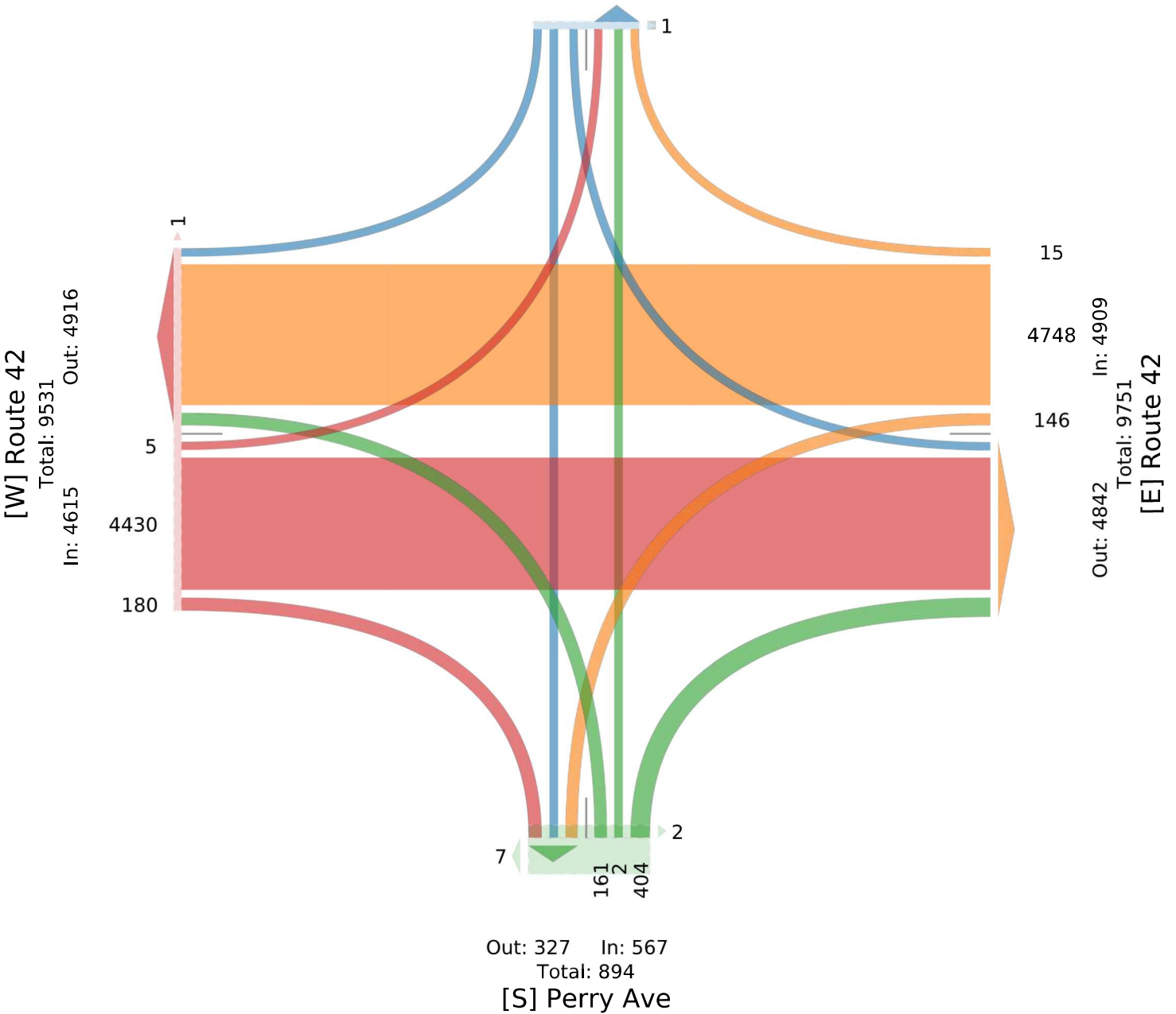
184 Baker Road,
Coatesville, PA, 19320, US

[N] North

Total: 38

In: 16 Out: 22

7 1 8



Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound							Route 42 Westbound						
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*
2024-03-12 10:00AM	0	72	3	0	0	75	0	2	76	2	0	0	80	0
10:15AM	1	93	4	0	0	98	0	0	73	0	0	0	73	0
10:30AM	0	77	2	0	0	79	0	2	92	0	0	0	94	0
10:45AM	0	78	3	0	0	81	0	3	91	0	0	0	94	0
Total	1	320	12	0	0	333	0	7	332	2	0	0	341	0
% Approach	0.3%	96.1%	3.6%	0%	0%	-	-	2.1%	97.4%	0.6%	0%	0%	-	-
% Total	0.1%	45.3%	1.7%	0%	0%	47.2%	-	1.0%	47.0%	0.3%	0%	0%	48.3%	-
PHF	0.250	0.860	0.750	-	-	0.849	-	0.583	0.902	0.250	-	-	0.907	-
Lights	1	313	11	0	0	325	-	6	322	1	0	0	329	-
% Lights	100%	97.8%	91.7%	0%	0%	97.6%	-	85.7%	97.0%	50.0%	0%	0%	96.5%	-
Articulated Trucks and Single-Unit Trucks	0	7	1	0	0	8	-	0	9	0	0	0	9	-
% Articulated Trucks and Single-Unit Trucks	0%	2.2%	8.3%	0%	0%	2.4%	-	0%	2.7%	0%	0%	0%	2.6%	-
Buses	0	0	0	0	0	0	-	1	1	1	0	0	3	-
% Buses	0%	0%	0%	0%	0%	0%	-	14.3%	0.3%	50.0%	0%	0%	0.9%	-
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Perry Ave Northbound							North Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
2024-03-12 10:00AM	3	0	4	0	1	8	0	0	0	0	0	0	0	0	163
10:15AM	4	0	0	0	6	10	0	2	0	0	0	2	4	0	185
10:30AM	1	0	1	0	2	4	0	0	0	0	0	0	0	0	177
10:45AM	1	1	1	0	2	5	0	0	0	0	0	1	1	0	181
Total	9	1	6	0	11	27	0	2	0	0	0	3	5	0	706
% Approach	33.3%	3.7%	22.2%	0%	40.7%	-	-	40.0%	0%	0%	0%	60.0%	-	-	-
% Total	1.3%	0.1%	0.8%	0%	1.6%	3.8%	-	0.3%	0%	0%	0%	0.4%	0.7%	-	-
PHF	0.563	0.250	0.375	-	0.458	0.675	-	0.250	-	-	-	0.375	0.313	-	0.954
Lights	9	1	5	0	11	26	-	1	0	0	0	3	4	-	684
% Lights	100%	100%	83.3%	0%	100%	96.3%	-	50.0%	0%	0%	0%	100%	80.0%	-	96.9%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	0	-	1	0	0	0	0	1	-	18
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	-	50.0%	0%	0%	0%	0%	20.0%	-	2.5%
Buses	0	0	1	0	0	1	-	0	0	0	0	0	0	-	4
% Buses	0%	0%	16.7%	0%	0%	3.7%	-	0%	0%	0%	0%	0%	0%	-	0.6%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

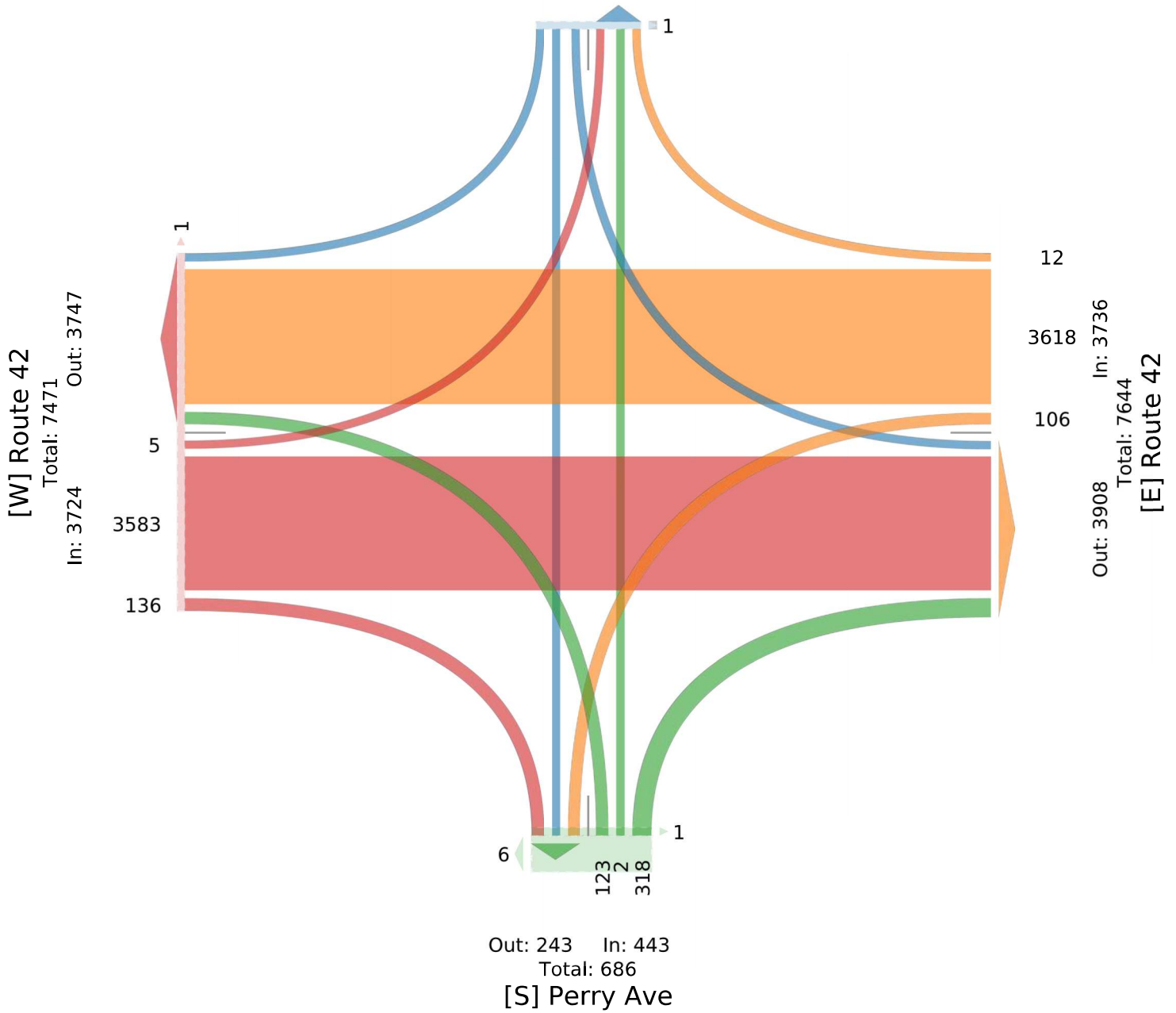
184 Baker Road,
Coatesville, PA, 19320, US

[N] North

Total: 33

In: 14 Out: 19

9-17



Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12PM - 1 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 12:00PM	0	97	5	0	0	102	0	3	128	0	0	0	131	0		
12:15PM	0	110	4	0	1	115	0	2	117	0	0	0	119	0		
12:30PM	0	110	1	0	0	111	0	2	121	1	0	0	124	0		
12:45PM	0	95	3	0	0	98	0	2	110	0	0	0	112	0		
Total	0	412	13	0	1	426	0	9	476	1	0	0	486	0		
% Approach	0%	96.7%	3.1%	0%	0.2%	-	-	1.9%	97.9%	0.2%	0%	0%	-	-		
% Total	0%	42.2%	1.3%	0%	0.1%	43.6%	-	0.9%	48.8%	0.1%	0%	0%	49.8%	-		
PHF	-	0.936	0.650	-	0.250	0.926	-	0.750	0.930	0.250	-	-	0.927	-		
Lights	0	401	13	0	1	415	-	9	465	1	0	0	475	-		
% Lights	0%	97.3%	100%	0%	100%	97.4%	-	100%	97.7%	100%	0%	0%	97.7%	-		
Articulated Trucks and Single-Unit Trucks	0	11	0	0	0	11	-	0	10	0	0	0	10	-		
% Articulated Trucks and Single-Unit Trucks	0%	2.7%	0%	0%	0%	2.6%	-	0%	2.1%	0%	0%	0%	2.1%	-		
Buses	0	0	0	0	0	0	-	0	1	0	0	0	1	-		
% Buses	0%	0%	0%	0%	0%	0%	-	0%	0.2%	0%	0%	0%	0.2%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12PM - 1 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Perry Ave Northbound								North Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 12:00PM	8	0	5	0	10	23	0	0	0	0	0	1	1	0	257		
12:15PM	8	0	3	0	2	13	0	1	0	0	0	0	1	0	248		
12:30PM	3	1	1	0	8	13	0	1	0	0	0	0	1	0	249		
12:45PM	5	0	1	0	6	12	0	0	0	0	0	0	0	0	222		
Total	24	1	10	0	26	61	0	2	0	0	0	1	3	0	976		
% Approach	39.3%	1.6%	16.4%	0%	42.6%	-	-	66.7%	0%	0%	0%	33.3%	-	-	-		
% Total	2.5%	0.1%	1.0%	0%	2.7%	6.3%	-	0.2%	0%	0%	0%	0.1%	0.3%	-	-		
PHF	0.750	0.250	0.500	-	0.650	0.663	-	0.500	-	-	-	0.250	0.750	-	0.949		
Lights	23	1	9	0	26	59	-	2	0	0	0	1	3	-	952		
% Lights	95.8%	100%	90.0%	0%	100%	96.7%	-	100%	0%	0%	0%	100%	100%	-	97.5%		
Articulated Trucks and Single-Unit Trucks	1	0	0	0	0	1	-	0	0	0	0	0	0	-	22		
% Articulated Trucks and Single-Unit Trucks	4.2%	0%	0%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	0%	-	2.3%		
Buses	0	0	1	0	0	1	-	0	0	0	0	0	0	-	2		
% Buses	0%	0%	10.0%	0%	0%	1.6%	-	0%	0%	0%	0%	0%	0%	-	0.2%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12PM - 1 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

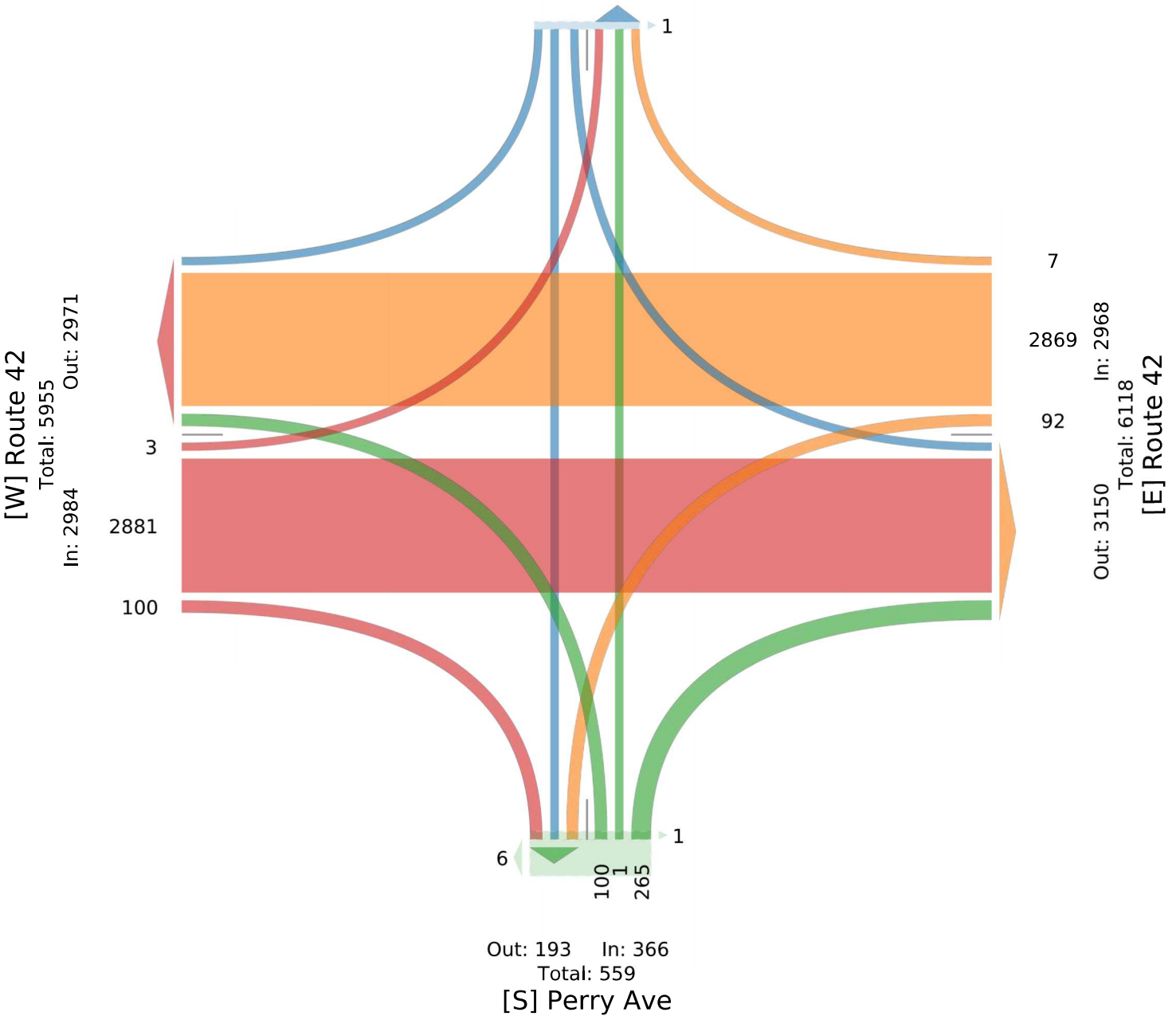
184 Baker Road,
Coatesville, PA, 19320, US

[N] North

Total: 18

In: 7 Out: 11

2 1 4



Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 4:30PM	0	144	4	0	0	148	0	4	145	0	0	0	149	0		
4:45PM	0	130	9	0	0	139	0	5	145	1	0	0	151	0		
5:00PM	0	146	6	0	0	152	0	3	121	0	0	0	124	0		
5:15PM	0	133	5	0	0	138	0	2	141	0	0	0	143	0		
Total	0	553	24	0	0	577	0	14	552	1	0	0	567	0		
% Approach	0%	95.8%	4.2%	0%	0%	-	-	2.5%	97.4%	0.2%	0%	0%	-	-		
% Total	0%	45.9%	2.0%	0%	0%	47.9%	-	1.2%	45.8%	0.1%	0%	0%	47.1%	-		
PHF	-	0.947	0.667	-	-	0.949	-	0.700	0.952	0.250	-	-	0.939	-		
Lights	0	552	24	0	0	576	-	14	546	1	0	0	561	-		
% Lights	0%	99.8%	100%	0%	0%	99.8%	-	100%	98.9%	100%	0%	0%	98.9%	-		
Articulated Trucks and Single-Unit Trucks	0	1	0	0	0	1	-	0	6	0	0	0	6	-		
% Articulated Trucks and Single-Unit Trucks	0%	0.2%	0%	0%	0%	0.2%	-	0%	1.1%	0%	0%	0%	1.1%	-		
Buses	0	0	0	0	0	0	-	0	0	0	0	0	0	-		
% Buses	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Perry Ave Northbound								North Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 4:30PM	6	0	5	0	3	14	0	0	0	0	0	1	1	0	312		
4:45PM	4	0	1	0	8	13	0	0	0	0	0	0	0	0	303		
5:00PM	4	0	4	0	10	18	0	0	0	0	0	0	0	0	294		
5:15PM	2	0	3	0	8	13	0	1	1	0	0	0	2	0	296		
Total	16	0	13	0	29	58	0	1	1	0	0	1	3	0	1205		
% Approach	27.6%	0%	22.4%	0%	50.0%	-	-	33.3%	33.3%	0%	0%	33.3%	-	-	-		
% Total	1.3%	0%	1.1%	0%	2.4%	4.8%	-	0.1%	0.1%	0%	0%	0.1%	0.2%	-	-		
PHF	0.667	-	0.650	-	0.725	0.806	-	0.250	0.250	-	-	0.250	0.375	-	0.966		
Lights	16	0	13	0	28	57	-	1	1	0	0	1	3	-	1197		
% Lights	100%	0%	100%	0%	96.6%	98.3%	-	100%	100%	0%	0%	100%	100%	-	99.3%		
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	0	-	0	0	0	0	0	0	-	7		
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.6%		
Buses	0	0	0	0	1	1	-	0	0	0	0	0	0	-	1		
% Buses	0%	0%	0%	0%	3.4%	1.7%	-	0%	0%	0%	0%	0%	0%	-	0.1%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Perry Ave - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

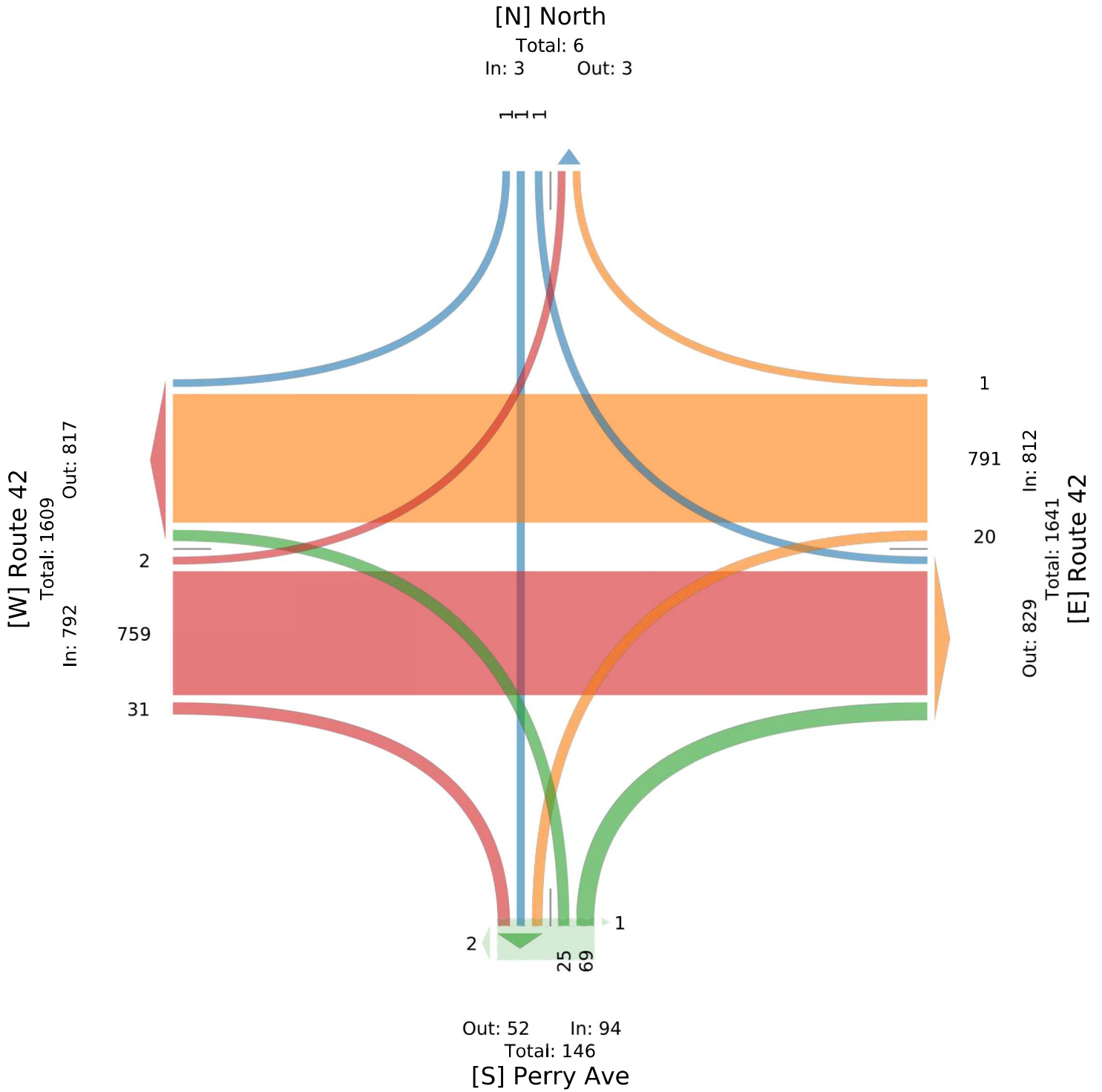
All Movements

ID: 1164014, Location: 40.77497, -82.477812



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction Time	Route 42 Eastbound							Route 42 Westbound						
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*
2024-03-12 6:00AM	0	33	2	0	0	35	0	9	28	0	0	0	37	0
6:15AM	0	39	3	0	0	42	0	11	39	0	0	0	50	0
6:30AM	0	48	5	0	0	53	0	6	52	0	0	0	58	0
6:45AM	0	35	3	0	0	38	0	17	56	0	0	0	73	0
Hourly Total	0	155	13	0	0	168	0	43	175	0	0	0	218	0
7:00AM	0	50	5	0	0	55	0	14	65	0	0	0	79	0
7:15AM	0	47	5	0	0	52	0	7	81	1	0	0	89	0
7:30AM	3	72	4	0	0	79	0	6	85	3	0	0	94	0
7:45AM	0	55	8	0	0	63	0	9	93	2	0	0	104	0
Hourly Total	3	224	22	0	0	249	0	36	324	6	0	0	366	0
8:00AM	0	52	7	0	0	59	0	14	70	2	0	0	86	0
8:15AM	1	43	10	0	0	54	0	12	62	1	1	0	76	0
8:30AM	1	77	10	0	0	88	0	13	86	2	0	0	101	0
8:45AM	2	59	10	0	2	73	0	17	75	3	0	0	95	1
Hourly Total	4	231	37	0	2	274	0	56	293	8	1	0	358	1
9:00AM	0	50	10	0	1	61	0	7	61	3	0	0	71	0
9:15AM	1	56	13	0	0	70	0	9	66	4	0	0	79	0
9:30AM	4	62	11	0	0	77	0	10	69	2	0	0	81	0
9:45AM	0	43	7	0	1	51	0	15	76	0	0	0	91	0
Hourly Total	5	211	41	0	2	259	0	41	272	9	0	0	322	0
10:00AM	0	58	10	0	1	69	0	11	59	2	0	0	72	0
10:15AM	2	86	15	0	0	103	0	13	67	1	0	1	82	0
10:30AM	3	62	4	0	0	69	0	17	77	2	0	0	96	0
10:45AM	0	62	15	0	1	78	0	12	81	2	0	0	95	0
Hourly Total	5	268	44	0	2	319	0	53	284	7	0	1	345	0
11:00AM	1	95	10	0	4	110	0	13	80	1	0	0	94	0
11:15AM	1	93	12	0	2	108	0	14	110	2	0	0	126	0
11:30AM	0	87	8	0	0	95	0	15	80	1	0	0	96	0
11:45AM	2	75	11	0	1	89	0	21	95	1	0	0	117	0
Hourly Total	4	350	41	0	7	402	0	63	365	5	0	0	433	0
12:00PM	2	96	13	0	0	111	0	31	100	1	0	0	132	0
12:15PM	0	93	20	0	0	113	0	25	108	1	0	0	134	0
12:30PM	1	94	18	0	1	114	0	9	106	1	0	0	116	0
12:45PM	1	95	5	0	0	101	0	17	80	3	0	0	100	0
Hourly Total	4	378	56	0	1	439	0	82	394	6	0	0	482	0
1:00PM	0	97	17	0	1	115	0	11	80	3	0	0	94	0
1:15PM	1	86	13	0	1	101	1	25	89	1	0	0	115	0
1:30PM	0	92	11	0	0	103	0	26	84	0	0	0	110	0
1:45PM	3	103	8	0	0	114	0	15	78	3	0	0	96	0
Hourly Total	4	378	49	0	2	433	1	77	331	7	0	0	415	0
2:00PM	1	88	13	0	3	105	0	21	85	0	0	0	106	0
2:15PM	0	102	13	0	0	115	0	20	103	0	0	0	123	0
2:30PM	0	111	14	0	3	128	0	25	95	1	0	0	121	0
2:45PM	1	102	16	0	1	120	0	22	120	1	0	0	143	0
Hourly Total	2	403	56	0	7	468	0	88	403	2	0	0	493	0
3:00PM	1	109	25	0	1	136	0	14	121	2	0	0	137	0
3:15PM	1	134	18	0	1	154	0	24	124	0	0	0	148	0
3:30PM	0	115	12	0	0	127	1	26	117	4	0	2	149	0
3:45PM	2	115	20	0	4	141	0	20	110	1	0	1	132	0
Hourly Total	4	473	75	0	6	558	1	84	472	7	0	3	566	0
4:00PM	1	124	20	0	1	146	0	36	110	0	0	1	147	0
4:15PM	0	125	13	0	3	141	0	29	115	2	0	0	146	0

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
Time	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
4:30PM	0	129	13	0	0	142	0	22	124	2	0	0	148	0		
4:45PM	0	119	14	0	0	133	0	27	127	0	0	0	154	0		
Hourly Total	1	497	60	0	4	562	0	114	476	4	0	1	595	0		
5:00PM	0	132	19	0	4	155	0	29	106	0	0	0	135	0		
5:15PM	0	126	21	0	0	147	0	26	126	0	0	0	152	0		
5:30PM	0	98	17	0	0	115	0	25	99	1	0	0	125	0		
5:45PM	0	91	13	0	0	104	0	25	93	0	0	0	118	0		
Hourly Total	0	447	70	0	4	521	0	105	424	1	0	0	530	0		
Total	36	4015	564	0	37	4652	2	842	4213	62	1	5	5123	1		
% Approach	0.8%	86.3%	12.1%	0%	0.8%	-	-	16.4%	82.2%	1.2%	0%	0.1%	-	-		
% Total	0.3%	35.4%	5.0%	0%	0.3%	41.0%	-	7.4%	37.2%	0.5%	0%	0%	45.2%	-		
Lights	36	3921	551	0	37	4545	-	835	4118	62	1	5	5021	-		
% Lights	100%	97.7%	97.7%	0%	100%	97.7%	-	99.2%	97.7%	100%	100%	100%	98.0%	-		
Articulated Trucks and Single-Unit Trucks	0	87	6	0	0	93	-	6	85	0	0	0	91	-		
% Articulated Trucks and Single-Unit Trucks	0%	2.2%	1.1%	0%	0%	2.0%	-	0.7%	2.0%	0%	0%	0%	1.8%	-		
Buses	0	7	7	0	0	14	-	1	10	0	0	0	11	-		
% Buses	0%	0.2%	1.2%	0%	0%	0.3%	-	0.1%	0.2%	0%	0%	0%	0.2%	-		
Pedestrians	-	-	-	-	-	-	2	-	-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Kroger Northbound							UH Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
2024-03-12 6:00AM	2	0	1	0	3	6	0	0	0	0	0	0	0	0	78
6:15AM	5	0	1	0	3	9	0	0	0	0	0	0	0	0	101
6:30AM	2	0	0	0	3	5	0	0	0	0	0	0	0	0	116
6:45AM	5	0	0	0	3	8	0	0	0	0	0	0	0	0	119
Hourly Total	14	0	2	0	12	28	0	0	0	0	0	0	0	0	414
7:00AM	3	0	0	0	7	10	0	0	0	0	0	0	0	0	144
7:15AM	9	0	0	0	6	15	1	0	0	0	0	0	0	0	156
7:30AM	10	0	1	0	8	19	0	1	0	0	0	0	1	0	193
7:45AM	5	0	2	0	7	14	0	0	0	0	0	1	1	0	182
Hourly Total	27	0	3	0	28	58	1	1	0	0	0	1	2	0	675
8:00AM	4	1	0	0	9	14	0	1	0	0	0	0	1	0	160
8:15AM	13	0	3	0	4	20	0	0	0	1	0	0	1	0	151
8:30AM	12	1	2	0	5	20	0	2	0	0	0	2	4	0	213
8:45AM	12	0	3	0	13	28	0	0	0	0	0	0	0	1	196
Hourly Total	41	2	8	0	31	82	0	3	0	1	0	2	6	1	720
9:00AM	12	0	3	0	8	23	1	1	0	0	0	1	2	0	157
9:15AM	10	0	2	0	10	22	0	1	0	0	0	0	1	0	172
9:30AM	5	0	3	0	4	12	0	1	1	0	0	4	6	0	176
9:45AM	14	1	0	0	10	25	0	2	0	0	0	3	5	0	172
Hourly Total	41	1	8	0	32	82	1	5	1	0	0	8	14	0	677
10:00AM	15	0	2	0	9	26	0	3	1	1	0	1	6	0	173
10:15AM	9	0	2	0	9	20	0	1	0	1	0	0	2	0	207
10:30AM	12	0	5	0	11	28	0	4	0	0	0	0	4	0	197
10:45AM	9	0	8	0	8	25	0	0	0	1	0	1	2	0	200
Hourly Total	45	0	17	0	37	99	0	8	1	3	0	2	14	0	777
11:00AM	14	0	13	0	6	33	0	1	1	0	0	1	3	1	240
11:15AM	11	0	9	0	4	24	0	2	1	1	0	1	5	0	263
11:30AM	18	0	7	0	10	35	0	1	0	0	0	2	3	0	229
11:45AM	17	0	6	0	9	32	0	2	0	0	0	1	3	0	241
Hourly Total	60	0	35	0	29	124	0	6	2	1	0	5	14	1	973
12:00PM	22	0	10	0	11	43	0	1	1	3	0	1	6	0	292
12:15PM	14	0	10	0	15	39	0	1	0	0	0	0	1	0	287
12:30PM	23	0	8	0	10	41	0	1	0	0	0	0	1	0	272
12:45PM	22	0	2	0	11	35	0	1	0	0	0	0	1	0	237
Hourly Total	81	0	30	0	47	158	0	4	1	3	0	1	9	0	1088
1:00PM	16	0	10	0	9	35	0	1	0	1	0	0	2	2	246
1:15PM	14	1	8	0	11	34	0	2	0	0	0	0	2	1	252
1:30PM	9	0	3	0	18	30	0	2	0	1	0	2	5	0	248
1:45PM	27	0	14	0	8	49	0	4	0	1	0	0	5	0	264
Hourly Total	66	1	35	0	46	148	0	9	0	3	0	2	14	3	1010
2:00PM	18	1	4	0	14	37	0	0	1	0	0	1	2	0	250
2:15PM	21	0	12	0	5	38	0	1	0	0	0	0	1	0	277
2:30PM	26	0	3	0	25	54	0	0	0	0	0	0	0	0	303
2:45PM	14	0	8	0	20	42	0	1	0	0	0	0	1	0	306
Hourly Total	79	1	27	0	64	171	0	2	1	0	0	1	4	0	1136
3:00PM	22	0	4	0	14	40	0	1	0	0	0	0	1	0	314
3:15PM	16	0	8	0	19	43	0	1	0	1	0	1	3	0	348
3:30PM	23	0	10	0	13	46	0	3	1	0	0	1	5	0	327
3:45PM	11	0	6	0	10	27	0	2	0	0	0	1	3	0	303
Hourly Total	72	0	28	0	56	156	0	7	1	1	0	3	12	0	1292
4:00PM	25	0	12	0	10	47	0	2	0	2	0	0	4	0	344
4:15PM	17	0	18	0	10	45	0	3	1	1	0	1	6	0	338

Leg Direction	Kroger Northbound							UH Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
Time															
4:30PM	16	0	19	0	7	42	0	2	2	0	0	0	4	0	336
4:45PM	21	0	9	0	8	38	0	1	1	0	0	2	4	0	329
Hourly Total	79	0	58	0	35	172	0	8	4	3	0	3	18	0	1347
5:00PM	19	0	14	0	20	53	0	0	1	0	0	0	1	0	344
5:15PM	21	0	14	0	15	50	0	1	0	0	0	0	1	1	350
5:30PM	16	0	7	0	12	35	0	0	0	0	0	0	0	0	275
5:45PM	19	0	5	0	12	36	0	0	0	0	0	0	0	0	258
Hourly Total	75	0	40	0	59	174	0	1	1	0	0	0	2	1	1227
Total	680	5	291	0	476	1452	2	54	12	15	0	28	109	6	11336
% Approach	46.8%	0.3%	20.0%	0%	32.8%	-	-	49.5%	11.0%	13.8%	0%	25.7%	-	-	-
% Total	6.0%	0%	2.6%	0%	4.2%	12.8%	-	0.5%	0.1%	0.1%	0%	0.2%	1.0%	-	-
Lights	664	5	285	0	471	1425	-	54	12	15	0	27	108	-	11099
% Lights	97.6%	100%	97.9%	0%	98.9%	98.1%	-	100%	100%	100%	0%	96.4%	99.1%	-	97.9%
Articulated Trucks and Single-Unit Trucks	5	0	6	0	2	13	-	0	0	0	0	1	1	-	198
% Articulated Trucks and Single-Unit Trucks	0.7%	0%	2.1%	0%	0.4%	0.9%	-	0%	0%	0%	0%	3.6%	0.9%	-	1.7%
Buses	11	0	0	0	3	14	-	0	0	0	0	0	0	-	39
% Buses	1.6%	0%	0%	0%	0.6%	1.0%	-	0%	0%	0%	0%	0%	0%	-	0.3%
Pedestrians	-	-	-	-	-	-	2	-	-	-	-	-	-	6	
% Pedestrians	-	-	-	-	-	-	100%	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	0%	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

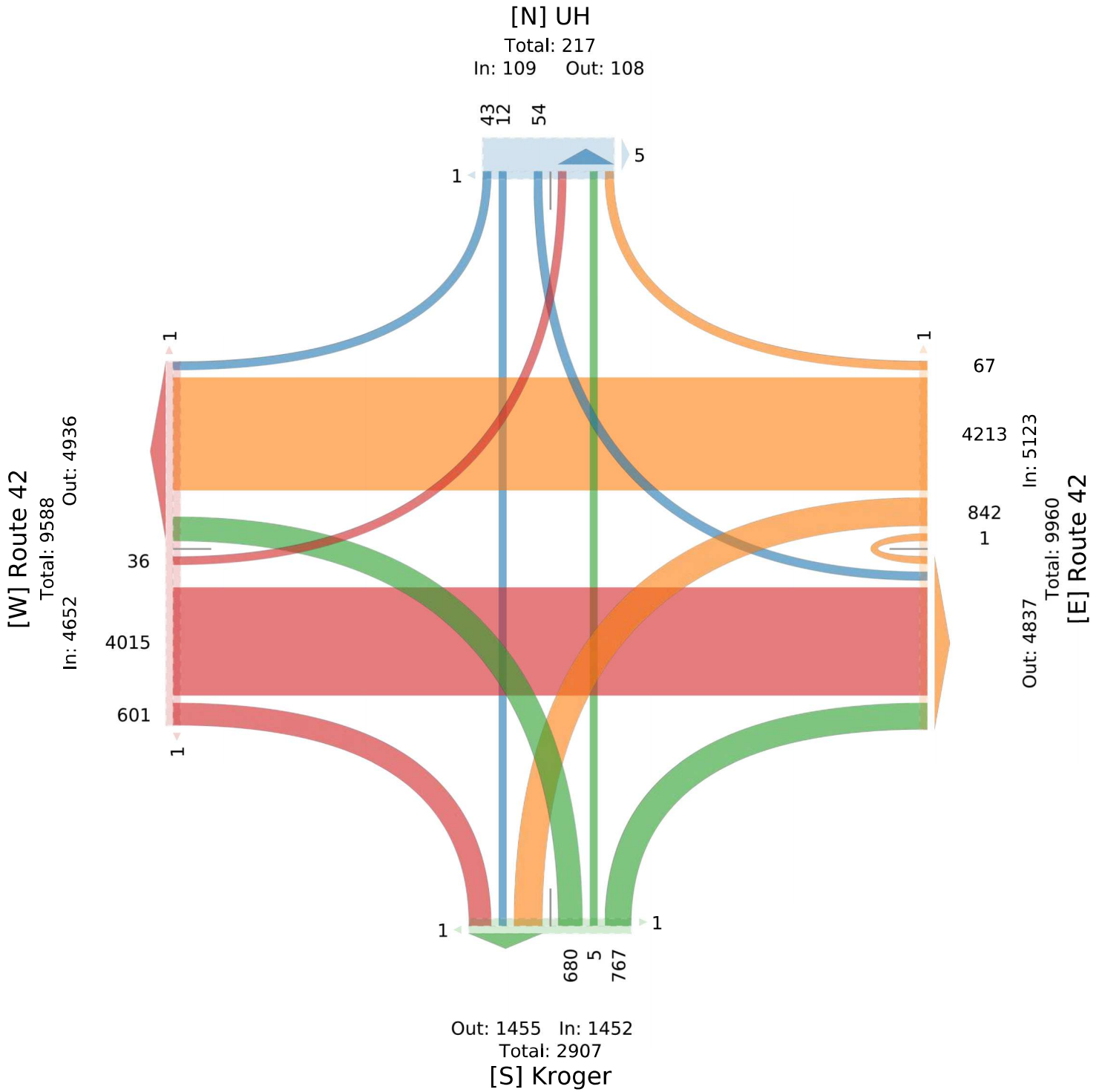
All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound							Route 42 Westbound						
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*
2024-03-12 10:00AM	0	58	10	0	1	69	0	11	59	2	0	0	72	0
10:15AM	2	86	15	0	0	103	0	13	67	1	0	1	82	0
10:30AM	3	62	4	0	0	69	0	17	77	2	0	0	96	0
10:45AM	0	62	15	0	1	78	0	12	81	2	0	0	95	0
Total	5	268	44	0	2	319	0	53	284	7	0	1	345	0
% Approach	1.6%	84.0%	13.8%	0%	0.6%	-	-	15.4%	82.3%	2.0%	0%	0.3%	-	-
% Total	0.6%	34.5%	5.7%	0%	0.3%	41.1%	-	6.8%	36.6%	0.9%	0%	0.1%	44.4%	-
PHF	0.417	0.779	0.733	-	0.500	0.774	-	0.779	0.877	0.875	-	0.250	0.898	-
Lights	5	257	43	0	2	307	-	52	276	7	0	1	336	-
% Lights	100%	95.9%	97.7%	0%	100%	96.2%	-	98.1%	97.2%	100%	0%	100%	97.4%	-
Articulated Trucks and Single-Unit Trucks	0	11	0	0	0	11	-	1	7	0	0	0	8	-
% Articulated Trucks and Single-Unit Trucks	0%	4.1%	0%	0%	0%	3.4%	-	1.9%	2.5%	0%	0%	0%	2.3%	-
Buses	0	0	1	0	0	1	-	0	1	0	0	0	1	-
% Buses	0%	0%	2.3%	0%	0%	0.3%	-	0%	0.4%	0%	0%	0%	0.3%	-
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Kroger Northbound							UH Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
2024-03-12 10:00AM	15	0	2	0	9	26	0	3	1	1	0	1	6	0	173
10:15AM	9	0	2	0	9	20	0	1	0	1	0	0	2	0	207
10:30AM	12	0	5	0	11	28	0	4	0	0	0	0	4	0	197
10:45AM	9	0	8	0	8	25	0	0	0	1	0	1	2	0	200
Total	45	0	17	0	37	99	0	8	1	3	0	2	14	0	777
% Approach	45.5%	0%	17.2%	0%	37.4%	-	-	57.1%	7.1%	21.4%	0%	14.3%	-	-	-
% Total	5.8%	0%	2.2%	0%	4.8%	12.7%	-	1.0%	0.1%	0.4%	0%	0.3%	1.8%	-	-
PHF	0.750	-	0.531	-	0.841	0.884	-	0.500	0.250	0.750	-	0.500	0.583	-	0.938
Lights	43	0	16	0	37	96	-	8	1	3	0	2	14	-	753
% Lights	95.6%	0%	94.1%	0%	100%	97.0%	-	100%	100%	100%	0%	100%	100%	-	96.9%
Articulated Trucks and Single-Unit Trucks	1	0	1	0	0	2	-	0	0	0	0	0	0	-	21
% Articulated Trucks and Single-Unit Trucks	2.2%	0%	5.9%	0%	0%	2.0%	-	0%	0%	0%	0%	0%	0%	-	2.7%
Buses	1	0	0	0	0	1	-	0	0	0	0	0	0	-	3
% Buses	2.2%	0%	0%	0%	0%	1.0%	-	0%	0%	0%	0%	0%	0%	-	0.4%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 10AM - 11 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

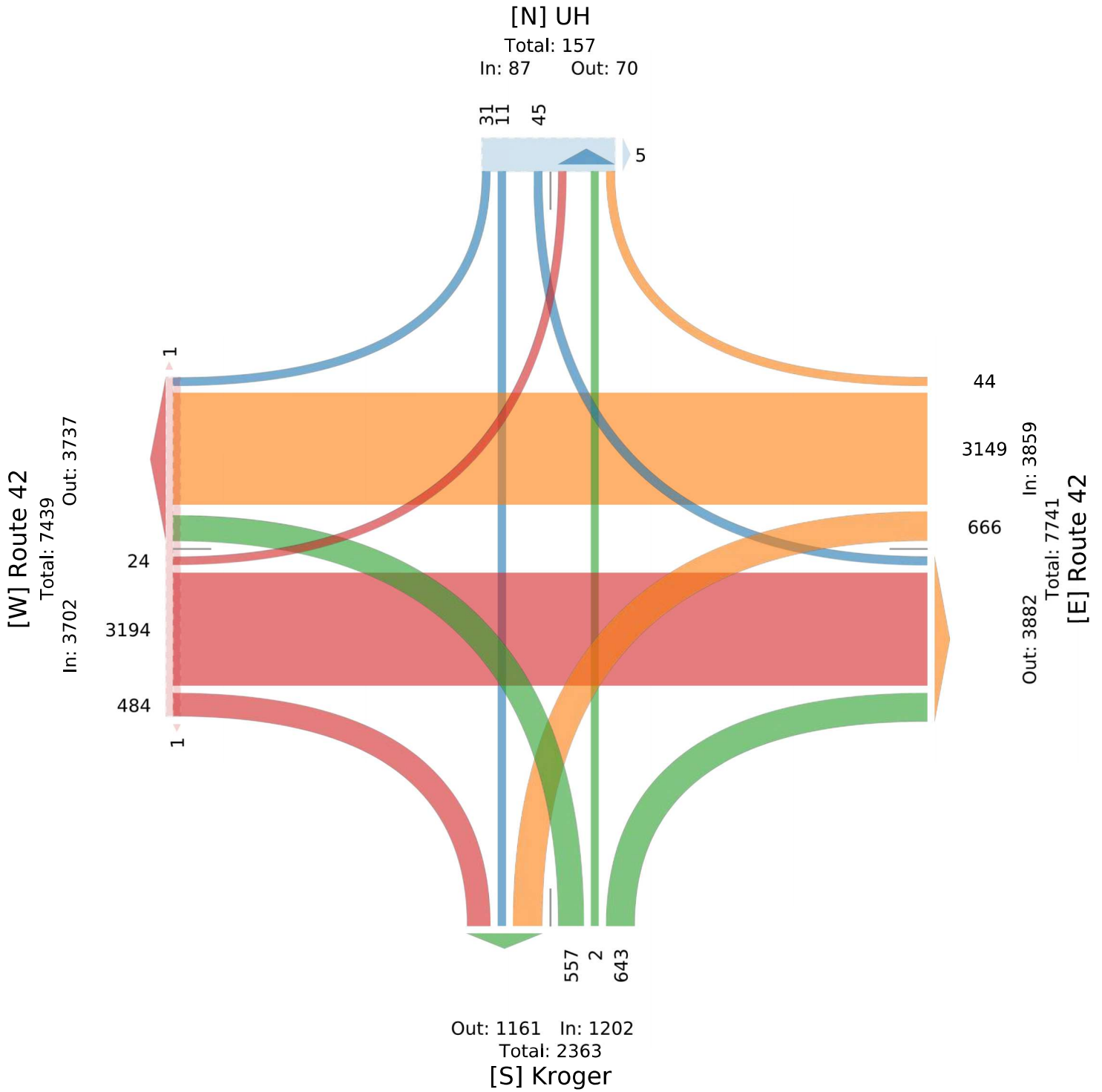
All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 11:45AM	2	75	11	0	1	89	0	21	95	1	0	0	117	0		
12:00PM	2	96	13	0	0	111	0	31	100	1	0	0	132	0		
12:15PM	0	93	20	0	0	113	0	25	108	1	0	0	134	0		
12:30PM	1	94	18	0	1	114	0	9	106	1	0	0	116	0		
Total	5	358	62	0	2	427	0	86	409	4	0	0	499	0		
% Approach	1.2%	83.8%	14.5%	0%	0.5%	-	-	17.2%	82.0%	0.8%	0%	0%	-	-		
% Total	0.5%	32.8%	5.7%	0%	0.2%	39.1%	-	7.9%	37.5%	0.4%	0%	0%	45.7%	-		
PHF	0.625	0.932	0.775	-	0.500	0.936	-	0.694	0.947	1.000	-	-	0.931	-		
Lights	5	348	59	0	2	414	-	84	398	4	0	0	486	-		
% Lights	100%	97.2%	95.2%	0%	100%	97.0%	-	97.7%	97.3%	100%	0%	0%	97.4%	-		
Articulated Trucks and Single-Unit Trucks	0	9	2	0	0	11	-	2	11	0	0	0	13	-		
% Articulated Trucks and Single-Unit Trucks	0%	2.5%	3.2%	0%	0%	2.6%	-	2.3%	2.7%	0%	0%	0%	2.6%	-		
Buses	0	1	1	0	0	2	-	0	0	0	0	0	0	-		
% Buses	0%	0.3%	1.6%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	0%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Kroger Northbound							UH Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
2024-03-12 11:45AM	17	0	6	0	9	32	0	2	0	0	0	1	3	0	241
12:00PM	22	0	10	0	11	43	0	1	1	3	0	1	6	0	292
12:15PM	14	0	10	0	15	39	0	1	0	0	0	0	1	0	287
12:30PM	23	0	8	0	10	41	0	1	0	0	0	0	1	0	272
Total	76	0	34	0	45	155	0	5	1	3	0	2	11	0	1092
% Approach	49.0%	0%	21.9%	0%	29.0%	-	-	45.5%	9.1%	27.3%	0%	18.2%	-	-	-
% Total	7.0%	0%	3.1%	0%	4.1%	14.2%	-	0.5%	0.1%	0.3%	0%	0.2%	1.0%	-	-
PHF	0.826	-	0.850	-	0.750	0.901	-	0.625	0.250	0.250	-	0.500	0.458	-	0.935
Lights	75	0	34	0	45	154	-	5	1	3	0	2	11	-	1065
% Lights	98.7%	0%	100%	0%	100%	99.4%	-	100%	100%	100%	0%	100%	100%	-	97.5%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	0	-	0	0	0	0	0	0	-	24
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	2.2%
Buses	1	0	0	0	0	1	-	0	0	0	0	0	0	-	3
% Buses	1.3%	0%	0%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	0%	-	0.3%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

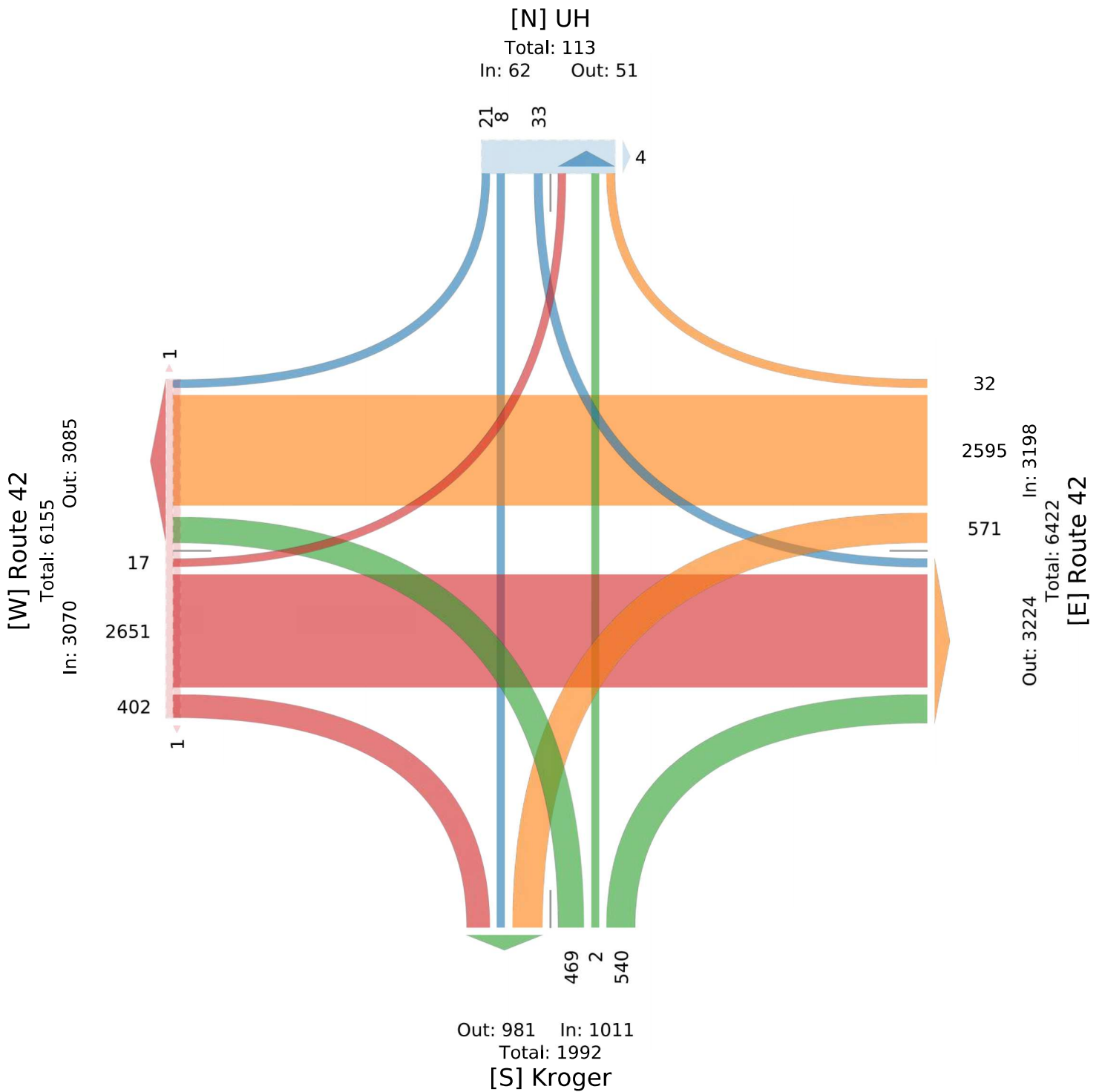
All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 4:30PM	0	129	13	0	0	142	0	22	124	2	0	0	148	0		
4:45PM	0	119	14	0	0	133	0	27	127	0	0	0	154	0		
5:00PM	0	132	19	0	4	155	0	29	106	0	0	0	135	0		
5:15PM	0	126	21	0	0	147	0	26	126	0	0	0	152	0		
Total	0	506	67	0	4	577	0	104	483	2	0	0	589	0		
% Approach	0%	87.7%	11.6%	0%	0.7%	-	-	17.7%	82.0%	0.3%	0%	0%	-	-		
% Total	0%	37.2%	4.9%	0%	0.3%	42.5%	-	7.7%	35.5%	0.1%	0%	0%	43.3%	-		
PHF	-	0.958	0.798	-	0.250	0.931	-	0.897	0.951	0.250	-	-	0.956	-		
Lights	0	504	67	0	4	575	-	103	478	2	0	0	583	-		
% Lights	0%	99.6%	100%	0%	100%	99.7%	-	99.0%	99.0%	100%	0%	0%	99.0%	-		
Articulated Trucks and Single-Unit Trucks	0	2	0	0	0	2	-	1	5	0	0	0	6	-		
% Articulated Trucks and Single-Unit Trucks	0%	0.4%	0%	0%	0%	0.3%	-	1.0%	1.0%	0%	0%	0%	1.0%	-		
Buses	0	0	0	0	0	0	-	0	0	0	0	0	0	-		
% Buses	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Kroger Northbound								UH Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 4:30PM	16	0	19	0	7	42	0	2	2	0	0	0	4	0	336		
4:45PM	21	0	9	0	8	38	0	1	1	0	0	2	4	0	329		
5:00PM	19	0	14	0	20	53	0	0	1	0	0	0	1	0	344		
5:15PM	21	0	14	0	15	50	0	1	0	0	0	0	1	1	350		
Total	77	0	56	0	50	183	0	4	4	0	0	2	10	1	1359		
% Approach	42.1%	0%	30.6%	0%	27.3%	-	-	40.0%	40.0%	0%	0%	20.0%	-	-	-		
% Total	5.7%	0%	4.1%	0%	3.7%	13.5%	-	0.3%	0.3%	0%	0%	0.1%	0.7%	-	-		
PHF	0.917	-	0.737	-	0.625	0.863	-	0.500	0.500	-	-	0.250	0.625	-	0.971		
Lights	76	0	56	0	49	181	-	4	4	0	0	2	10	-	1349		
% Lights	98.7%	0%	100%	0%	98.0%	98.9%	-	100%	100%	0%	0%	100%	100%	-	99.3%		
Articulated Trucks and Single-Unit Trucks	0	0	0	0	1	1	-	0	0	0	0	0	0	-	9		
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	2.0%	0.5%	-	0%	0%	0%	0%	0%	0%	-	0.7%		
Buses	1	0	0	0	0	1	-	0	0	0	0	0	0	-	1		
% Buses	1.3%	0%	0%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	0%	-	0.1%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Driveway Kroger/UH - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 4:30PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

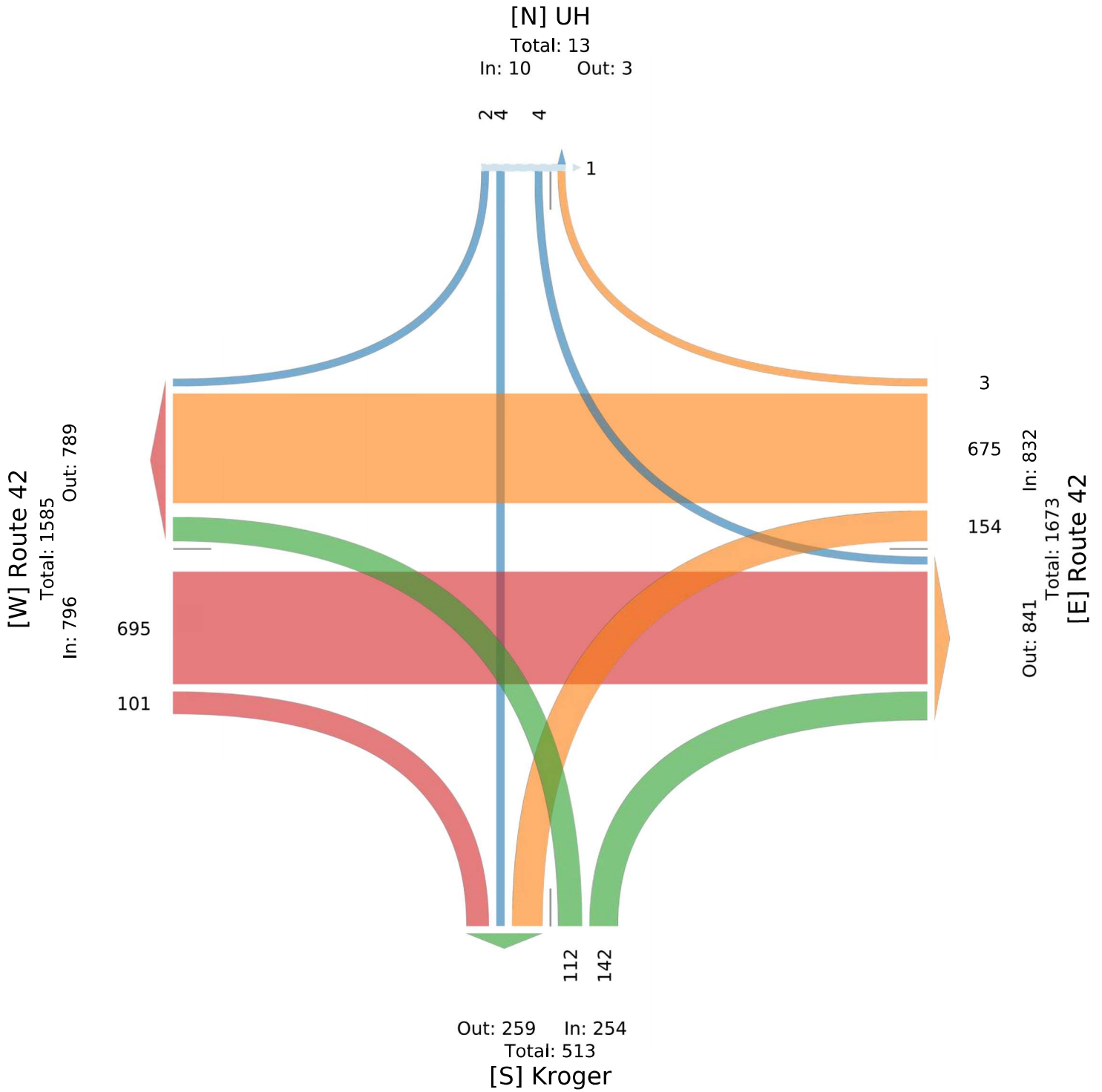
All Movements

ID: 1164011, Location: 40.776133, -82.47613



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 6:00AM	0	25	6	0	4	35	0	17	29	2	1	0	49	0		
6:15AM	3	36	4	0	2	45	0	23	39	1	0	0	63	0		
6:30AM	1	41	7	0	1	50	0	21	47	3	0	0	71	0		
6:45AM	1	27	8	0	2	38	0	26	54	6	0	3	89	0		
Hourly Total	5	129	25	0	9	168	0	87	169	12	1	3	272	0		
7:00AM	2	47	5	0	2	56	0	33	68	4	0	0	105	0		
7:15AM	2	41	8	0	3	54	0	47	71	4	0	0	122	0		
7:30AM	5	61	1	0	10	77	0	41	76	7	0	5	129	0		
7:45AM	7	43	6	0	6	62	0	35	82	6	0	9	132	0		
Hourly Total	16	192	20	0	21	249	0	156	297	21	0	14	488	0		
8:00AM	11	42	7	0	3	63	0	25	56	25	0	6	112	0		
8:15AM	4	43	4	0	2	53	0	20	63	6	0	0	89	0		
8:30AM	3	61	9	0	7	80	0	31	65	6	0	1	103	0		
8:45AM	13	56	9	0	1	79	0	35	68	9	0	1	113	0		
Hourly Total	31	202	29	0	13	275	0	111	252	46	0	8	417	0		
9:00AM	6	37	12	0	5	60	0	30	62	8	0	1	101	0		
9:15AM	4	49	10	0	4	67	0	26	58	6	0	0	90	0		
9:30AM	5	56	6	0	1	68	0	39	56	11	0	0	106	0		
9:45AM	6	40	7	0	5	58	0	25	69	7	0	1	102	0		
Hourly Total	21	182	35	0	15	253	0	120	245	32	0	2	399	0		
10:00AM	8	59	2	0	0	69	0	30	56	7	0	1	94	0		
10:15AM	6	80	8	0	4	98	0	24	61	9	0	2	96	0		
10:30AM	4	61	12	0	4	81	0	26	70	9	0	1	106	0		
10:45AM	6	59	5	0	3	73	0	23	78	4	0	2	107	0		
Hourly Total	24	259	27	0	11	321	0	103	265	29	0	6	403	0		
11:00AM	16	85	5	0	4	110	0	31	70	11	0	1	113	0		
11:15AM	16	75	7	0	1	99	0	21	93	4	0	6	124	0		
11:30AM	17	73	8	0	2	100	0	31	64	13	0	3	111	0		
11:45AM	16	63	2	0	4	85	0	29	84	17	0	2	132	0		
Hourly Total	65	296	22	0	11	394	0	112	311	45	0	12	480	0		
12:00PM	17	81	9	0	3	110	0	45	94	12	0	8	159	0		
12:15PM	11	90	18	0	1	120	0	30	93	10	0	10	143	0		
12:30PM	28	68	11	0	7	114	0	42	79	11	0	5	137	0		
12:45PM	21	68	6	0	6	101	0	27	77	6	0	5	115	0		
Hourly Total	77	307	44	0	17	445	0	144	343	39	0	28	554	0		
1:00PM	19	80	10	0	5	114	0	32	66	12	0	5	115	0		
1:15PM	20	79	5	0	5	109	0	22	85	12	0	3	122	0		
1:30PM	18	78	13	0	4	113	0	32	82	18	0	3	135	0		
1:45PM	12	100	7	0	6	125	0	32	68	13	0	2	115	0		
Hourly Total	69	337	35	0	20	461	0	118	301	55	0	13	487	0		
2:00PM	9	79	12	0	1	101	0	50	80	15	0	4	149	0		
2:15PM	13	93	6	0	2	114	0	49	81	16	0	2	148	0		
2:30PM	20	105	13	0	1	139	0	50	86	16	0	5	157	0		
2:45PM	17	88	12	0	2	119	0	45	104	24	0	10	183	0		
Hourly Total	59	365	43	0	6	473	0	194	351	71	0	21	637	0		
3:00PM	18	95	10	0	3	126	0	60	108	22	0	3	193	0		
3:15PM	23	112	12	0	3	150	0	53	115	23	0	9	200	0		
3:30PM	19	110	10	0	3	142	0	68	121	32	0	2	223	0		
3:45PM	23	95	6	0	3	127	0	56	93	10	0	13	172	0		
Hourly Total	83	412	38	0	12	545	0	237	437	87	0	27	788	0		
4:00PM	16	109	7	0	2	134	0	63	128	18	0	5	214	0		
4:15PM	25	119	9	0	0	153	0	41	108	17	0	8	174	0		

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
Time																
4:30PM	19	112	10	0	3	144	0	61	120	16	0	6	203	0		
4:45PM	23	100	4	0	2	129	0	46	115	21	0	4	186	0		
Hourly Total	83	440	30	0	7	560	0	211	471	72	0	23	777	0		
5:00PM	31	100	10	0	2	143	0	51	111	24	0	4	190	0		
5:15PM	19	112	12	0	0	143	0	33	116	16	0	8	173	0		
5:30PM	23	84	10	0	1	118	0	43	101	14	0	7	165	0		
5:45PM	24	68	8	0	2	102	0	42	90	10	0	7	149	0		
Hourly Total	97	364	40	0	5	506	0	169	418	64	0	26	677	0		
Total	630	3485	388	0	147	4650	0	1762	3860	573	1	183	6379	0		
% Approach	13.5%	74.9%	8.3%	0%	3.2%	-	-	27.6%	60.5%	9.0%	0%	2.9%	-	-		
% Total	3.8%	20.9%	2.3%	0%	0.9%	27.9%	-	10.6%	23.1%	3.4%	0%	1.1%	38.2%	-		
Lights	624	3392	385	0	147	4548	-	1732	3769	565	1	181	6248	-		
% Lights	99.0%	97.3%	99.2%	0%	100%	97.8%	-	98.3%	97.6%	98.6%	100%	98.9%	97.9%	-		
Articulated Trucks and Single-Unit Trucks	5	84	3	0	0	92	-	26	81	5	0	1	113	-		
% Articulated Trucks and Single-Unit Trucks	0.8%	2.4%	0.8%	0%	0%	2.0%	-	1.5%	2.1%	0.9%	0%	0.5%	1.8%	-		
Buses	1	9	0	0	0	10	-	4	10	3	0	1	18	-		
% Buses	0.2%	0.3%	0%	0%	0%	0.2%	-	0.2%	0.3%	0.5%	0%	0.5%	0.3%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Stewart Rd Northbound							Stewart Rd Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
2024-03-12 6:00AM	4	6	5	0	19	34	0	8	8	2	0	3	21	0	139
6:15AM	3	9	14	0	22	48	0	5	7	2	0	3	17	0	173
6:30AM	1	8	10	0	36	55	0	4	13	5	0	2	24	0	200
6:45AM	12	8	18	0	27	65	0	6	13	5	0	4	28	0	220
Hourly Total	20	31	47	0	104	202	0	23	41	14	0	12	90	0	732
7:00AM	3	9	13	0	32	57	0	7	26	6	0	2	41	0	259
7:15AM	5	12	33	0	30	80	0	17	22	4	0	8	51	0	307
7:30AM	11	16	26	0	31	84	0	11	29	3	0	4	47	0	337
7:45AM	10	26	20	0	17	73	0	7	21	6	0	5	39	0	306
Hourly Total	29	63	92	0	110	294	0	42	98	19	0	19	178	0	1209
8:00AM	8	23	19	0	18	68	0	17	23	14	0	5	59	0	302
8:15AM	6	5	19	0	19	49	0	10	16	7	0	2	35	0	226
8:30AM	12	10	23	0	14	59	0	5	15	16	0	6	42	0	284
8:45AM	9	8	27	0	30	74	0	8	10	8	0	2	28	0	294
Hourly Total	35	46	88	0	81	250	0	40	64	45	0	15	164	0	1106
9:00AM	5	14	24	0	21	64	0	6	13	3	0	3	25	0	250
9:15AM	12	12	12	0	15	51	0	6	14	4	0	4	28	0	236
9:30AM	13	14	18	0	16	61	0	5	10	5	0	5	25	0	260
9:45AM	7	16	19	0	9	51	0	7	14	5	0	4	30	0	241
Hourly Total	37	56	73	0	61	227	0	24	51	17	0	16	108	0	987
10:00AM	9	15	17	0	13	54	0	9	9	3	0	6	27	0	244
10:15AM	15	11	19	0	23	68	0	12	13	6	0	4	35	0	297
10:30AM	11	9	8	0	32	60	0	4	12	1	0	4	21	0	268
10:45AM	5	15	24	0	17	61	0	6	13	10	0	3	32	0	273
Hourly Total	40	50	68	0	85	243	0	31	47	20	0	17	115	0	1082
11:00AM	10	11	20	0	24	65	0	7	14	6	0	9	36	0	324
11:15AM	4	17	14	0	20	55	0	14	18	13	0	7	52	0	330
11:30AM	12	16	16	0	25	69	0	11	19	7	0	13	50	0	330
11:45AM	7	18	13	0	32	70	0	14	18	11	0	6	49	0	336
Hourly Total	33	62	63	0	101	259	0	46	69	37	0	35	187	0	1320
12:00PM	7	17	21	0	16	61	0	14	8	5	0	13	40	0	370
12:15PM	18	19	23	0	20	80	0	9	26	13	0	8	56	0	399
12:30PM	12	16	16	0	18	62	0	14	25	17	0	4	60	0	373
12:45PM	8	15	19	0	21	63	0	18	14	14	0	4	50	0	329
Hourly Total	45	67	79	0	75	266	0	55	73	49	0	29	206	0	1471
1:00PM	11	15	23	0	18	67	0	11	23	6	0	2	42	0	338
1:15PM	12	15	27	0	27	81	0	11	21	12	0	4	48	0	360
1:30PM	7	16	29	0	16	68	0	12	15	12	0	9	48	1	364
1:45PM	11	23	32	0	11	77	0	11	18	6	0	7	42	0	359
Hourly Total	41	69	111	0	72	293	0	45	77	36	0	22	180	1	1421
2:00PM	9	18	29	0	11	67	0	18	18	7	0	3	46	0	363
2:15PM	9	25	32	0	15	81	0	16	19	8	0	13	56	0	399
2:30PM	7	17	21	0	22	67	0	12	28	12	0	1	53	0	416
2:45PM	8	17	19	0	19	63	0	18	24	19	0	3	64	0	429
Hourly Total	33	77	101	0	67	278	0	64	89	46	0	20	219	0	1607
3:00PM	10	19	29	0	17	75	0	31	27	13	0	1	72	0	466
3:15PM	5	36	27	0	20	88	0	33	37	19	0	4	93	0	531
3:30PM	11	20	47	0	16	94	0	18	37	8	0	1	64	0	523
3:45PM	9	36	44	0	27	116	0	20	43	14	0	5	82	0	497
Hourly Total	35	111	147	0	80	373	0	102	144	54	0	11	311	0	2017
4:00PM	8	31	39	0	11	89	0	22	40	12	0	3	77	0	514
4:15PM	11	30	46	0	9	96	0	24	41	14	0	3	82	0	505

Leg Direction	Stewart Rd Northbound							Stewart Rd Southbound							Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*	
Time															
4:30PM	8	26	44	0	8	86	0	15	25	19	0	4	63	0	496
4:45PM	11	27	38	0	9	85	0	23	32	14	0	7	76	0	476
Hourly Total	38	114	167	0	37	356	0	84	138	59	0	17	298	0	1991
5:00PM	6	24	34	0	8	72	0	14	33	16	0	8	71	0	476
5:15PM	6	26	44	0	14	90	0	19	22	9	0	6	56	0	462
5:30PM	7	29	31	0	19	86	0	12	21	9	0	2	44	0	413
5:45PM	12	16	38	0	15	81	0	14	29	12	0	0	55	0	387
Hourly Total	31	95	147	0	56	329	0	59	105	46	0	16	226	0	1738
Total	417	841	1183	0	929	3370	0	615	996	442	0	229	2282	1	16681
% Approach	12.4%	25.0%	35.1%	0%	27.6%	-	-	27.0%	43.6%	19.4%	0%	10.0%	-	-	-
% Total	2.5%	5.0%	7.1%	0%	5.6%	20.2%	-	3.7%	6.0%	2.6%	0%	1.4%	13.7%	-	-
Lights	414	832	1161	0	914	3321	-	608	991	437	0	227	2263	-	16380
% Lights	99.3%	98.9%	98.1%	0%	98.4%	98.5%	-	98.9%	99.5%	98.9%	0%	99.1%	99.2%	-	98.2%
Articulated Trucks and Single-Unit Trucks	3	4	17	0	13	37	-	3	1	3	0	2	9	-	251
% Articulated Trucks and Single-Unit Trucks	0.7%	0.5%	1.4%	0%	1.4%	1.1%	-	0.5%	0.1%	0.7%	0%	0.9%	0.4%	-	1.5%
Buses	0	5	5	0	2	12	-	4	4	2	0	0	10	-	50
% Buses	0%	0.6%	0.4%	0%	0.2%	0.4%	-	0.7%	0.4%	0.5%	0%	0%	0.4%	-	0.3%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



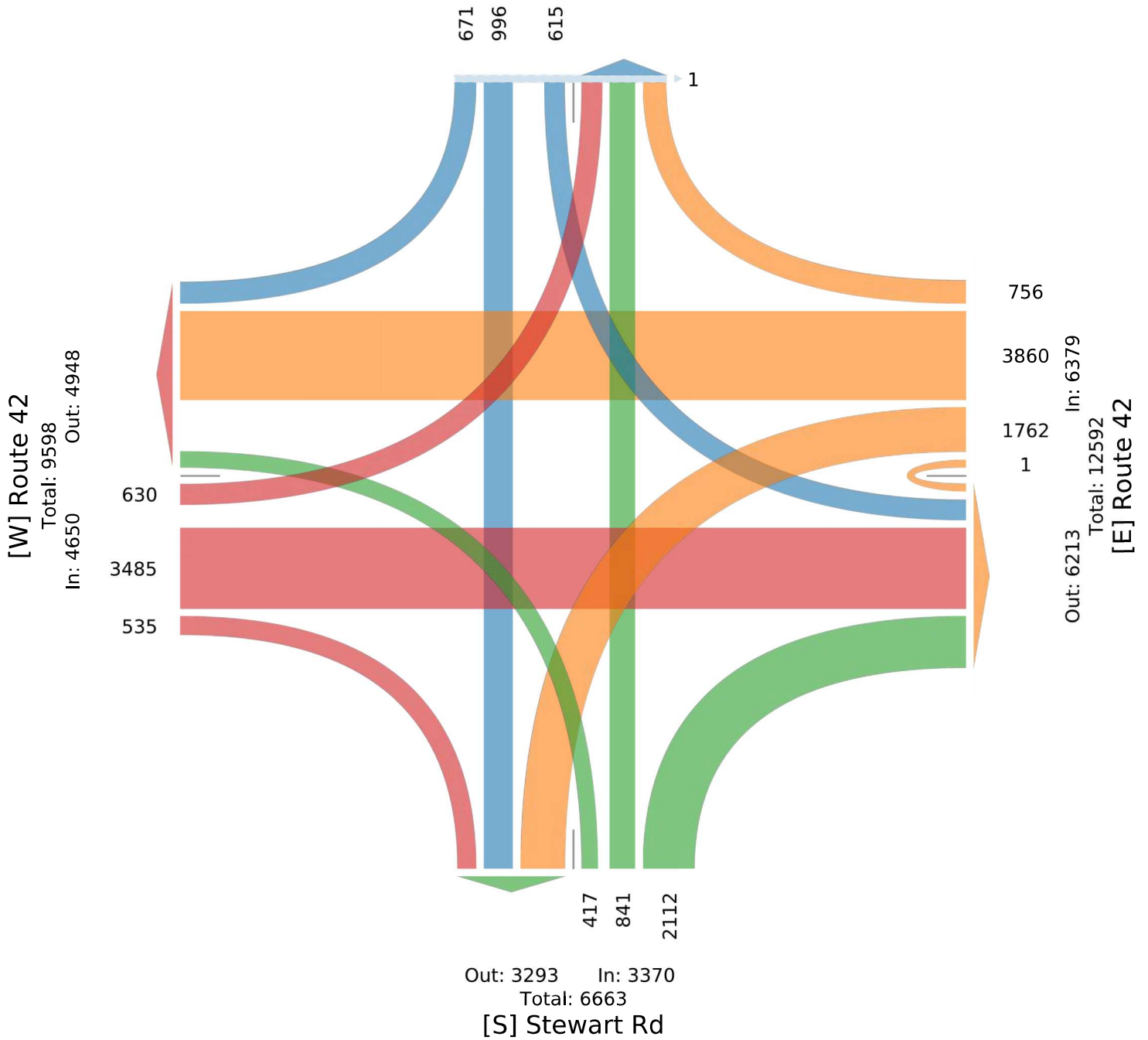
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Stewart Rd

Total: 4509

In: 2282 Out: 2227



Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:15AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 7:15AM	2	41	8	0	3	54	0	47	71	4	0	0	122	0		
7:30AM	5	61	1	0	10	77	0	41	76	7	0	5	129	0		
7:45AM	7	43	6	0	6	62	0	35	82	6	0	9	132	0		
8:00AM	11	42	7	0	3	63	0	25	56	25	0	6	112	0		
Total	25	187	22	0	22	256	0	148	285	42	0	20	495	0		
% Approach	9.8%	73.0%	8.6%	0%	8.6%	-	-	29.9%	57.6%	8.5%	0%	4.0%	-	-		
% Total	2.0%	14.9%	1.8%	0%	1.8%	20.4%	-	11.8%	22.8%	3.4%	0%	1.6%	39.5%	-		
PHF	0.568	0.766	0.688	-	0.550	0.831	-	0.787	0.869	0.420	-	0.556	0.938	-		
Lights	25	175	22	0	22	244	-	145	280	40	0	20	485	-		
% Lights	100%	93.6%	100%	0%	100%	95.3%	-	98.0%	98.2%	95.2%	0%	100%	98.0%	-		
Articulated Trucks and Single-Unit Trucks	0	10	0	0	0	10	-	2	4	0	0	0	6	-		
% Articulated Trucks and Single-Unit Trucks	0%	5.3%	0%	0%	0%	3.9%	-	1.4%	1.4%	0%	0%	0%	1.2%	-		
Buses	0	2	0	0	0	2	-	1	1	2	0	0	4	-		
% Buses	0%	1.1%	0%	0%	0%	0.8%	-	0.7%	0.4%	4.8%	0%	0%	0.8%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:15AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Stewart Rd Northbound								Stewart Rd Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 7:15AM	5	12	33	0	30	80	0	17	22	4	0	8	51	0	307		
7:30AM	11	16	26	0	31	84	0	11	29	3	0	4	47	0	337		
7:45AM	10	26	20	0	17	73	0	7	21	6	0	5	39	0	306		
8:00AM	8	23	19	0	18	68	0	17	23	14	0	5	59	0	302		
Total	34	77	98	0	96	305	0	52	95	27	0	22	196	0	1252		
% Approach	11.1%	25.2%	32.1%	0%	31.5%	-	-	26.5%	48.5%	13.8%	0%	11.2%	-	-	-		
% Total	2.7%	6.2%	7.8%	0%	7.7%	24.4%	-	4.2%	7.6%	2.2%	0%	1.8%	15.7%	-	-		
PHF	0.773	0.740	0.742	-	0.774	0.908	-	0.765	0.819	0.482	-	0.688	0.831	-	0.929		
Lights	34	77	95	0	95	301	-	52	94	27	0	22	195	-	1225		
% Lights	100%	100%	96.9%	0%	99.0%	98.7%	-	100%	98.9%	100%	0%	100%	99.5%	-	97.8%		
Articulated Trucks and Single-Unit Trucks	0	0	3	0	1	4	-	0	0	0	0	0	0	-	20		
% Articulated Trucks and Single-Unit Trucks	0%	0%	3.1%	0%	1.0%	1.3%	-	0%	0%	0%	0%	0%	0%	-	1.6%		
Buses	0	0	0	0	0	0	-	0	1	0	0	0	1	-	7		
% Buses	0%	0%	0%	0%	0%	0%	-	0%	1.1%	0%	0%	0%	0.5%	-	0.6%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:15AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



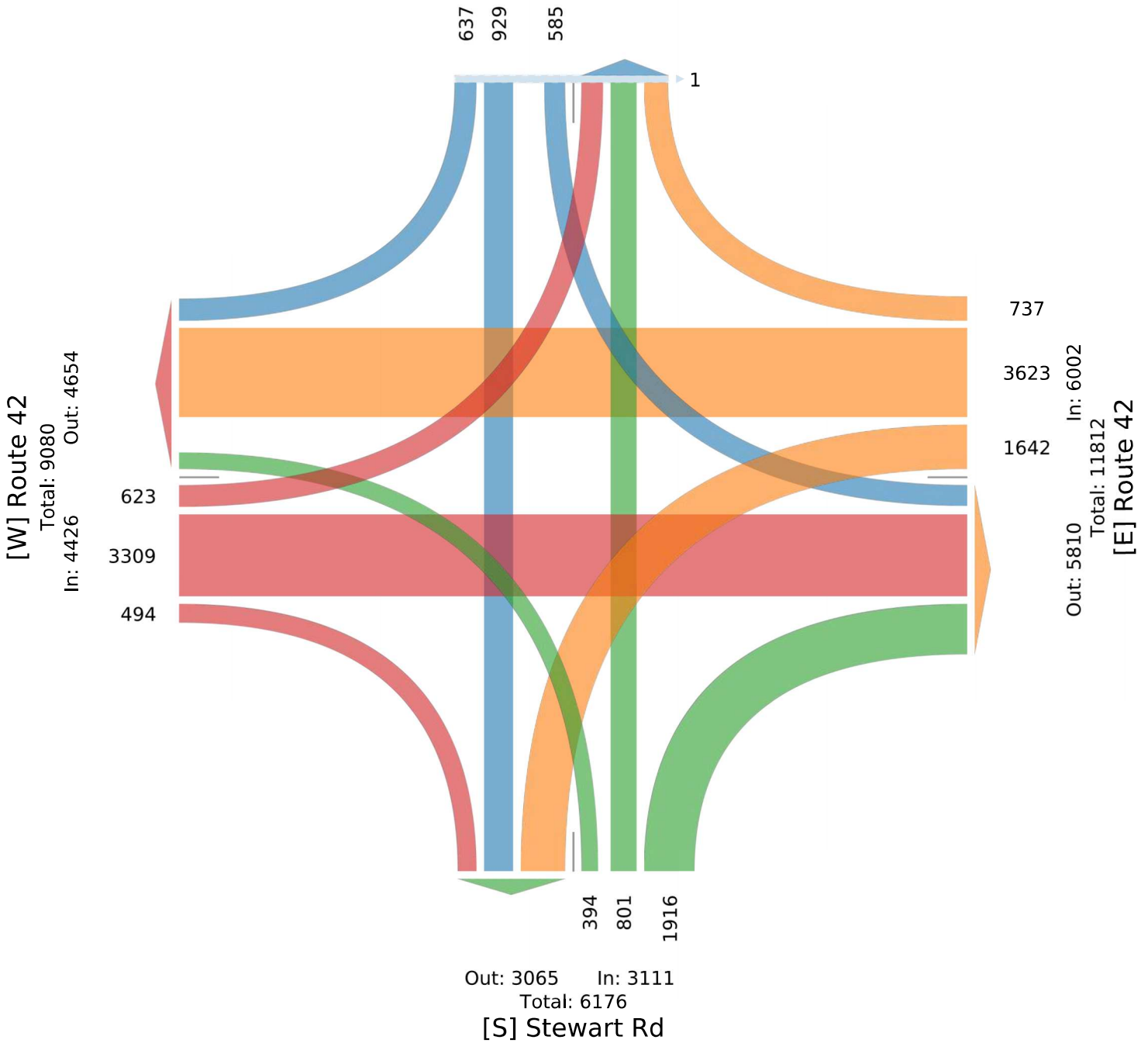
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Stewart Rd

Total: 4312

In: 2151 Out: 2161



Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 11:45AM	16	63	2	0	4	85	0	29	84	17	0	2	132	0		
12:00PM	17	81	9	0	3	110	0	45	94	12	0	8	159	0		
12:15PM	11	90	18	0	1	120	0	30	93	10	0	10	143	0		
12:30PM	28	68	11	0	7	114	0	42	79	11	0	5	137	0		
Total	72	302	40	0	15	429	0	146	350	50	0	25	571	0		
% Approach	16.8%	70.4%	9.3%	0%	3.5%	-	-	25.6%	61.3%	8.8%	0%	4.4%	-	-		
% Total	4.9%	20.4%	2.7%	0%	1.0%	29.0%	-	9.9%	23.7%	3.4%	0%	1.7%	38.6%	-		
PHF	0.643	0.839	0.556	-	0.536	0.894	-	0.811	0.931	0.735	-	0.625	0.898	-		
Lights	71	294	40	0	15	420	-	143	338	49	0	24	554	-		
% Lights	98.6%	97.4%	100%	0%	100%	97.9%	-	97.9%	96.6%	98.0%	0%	96.0%	97.0%	-		
Articulated Trucks and Single-Unit Trucks	0	8	0	0	0	8	-	3	12	1	0	1	17	-		
% Articulated Trucks and Single-Unit Trucks	0%	2.6%	0%	0%	0%	1.9%	-	2.1%	3.4%	2.0%	0%	4.0%	3.0%	-		
Buses	1	0	0	0	0	1	-	0	0	0	0	0	0	-		
% Buses	1.4%	0%	0%	0%	0%	0.2%	-	0%	0%	0%	0%	0%	0%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Stewart Rd Northbound								Stewart Rd Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 11:45AM	7	18	13	0	32	70	0	14	18	11	0	6	49	0	336		
12:00PM	7	17	21	0	16	61	0	14	8	5	0	13	40	0	370		
12:15PM	18	19	23	0	20	80	0	9	26	13	0	8	56	0	399		
12:30PM	12	16	16	0	18	62	0	14	25	17	0	4	60	0	373		
Total	44	70	73	0	86	273	0	51	77	46	0	31	205	0	1478		
% Approach	16.1%	25.6%	26.7%	0%	31.5%	-	-	24.9%	37.6%	22.4%	0%	15.1%	-	-	-		
% Total	3.0%	4.7%	4.9%	0%	5.8%	18.5%	-	3.5%	5.2%	3.1%	0%	2.1%	13.9%	-	-		
PHF	0.611	0.921	0.793	-	0.672	0.853	-	0.911	0.740	0.676	-	0.596	0.854	-	0.926		
Lights	44	67	73	0	84	268	-	50	76	46	0	29	201	-	1443		
% Lights	100%	95.7%	100%	0%	97.7%	98.2%	-	98.0%	98.7%	100%	0%	93.5%	98.0%	-	97.6%		
Articulated Trucks and Single-Unit Trucks	0	2	0	0	2	4	-	1	0	0	0	2	3	-	32		
% Articulated Trucks and Single-Unit Trucks	0%	2.9%	0%	0%	2.3%	1.5%	-	2.0%	0%	0%	0%	6.5%	1.5%	-	2.2%		
Buses	0	1	0	0	0	1	-	0	1	0	0	0	1	-	3		
% Buses	0%	1.4%	0%	0%	0%	0.4%	-	0%	1.3%	0%	0%	0%	0.5%	-	0.2%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 11:45AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



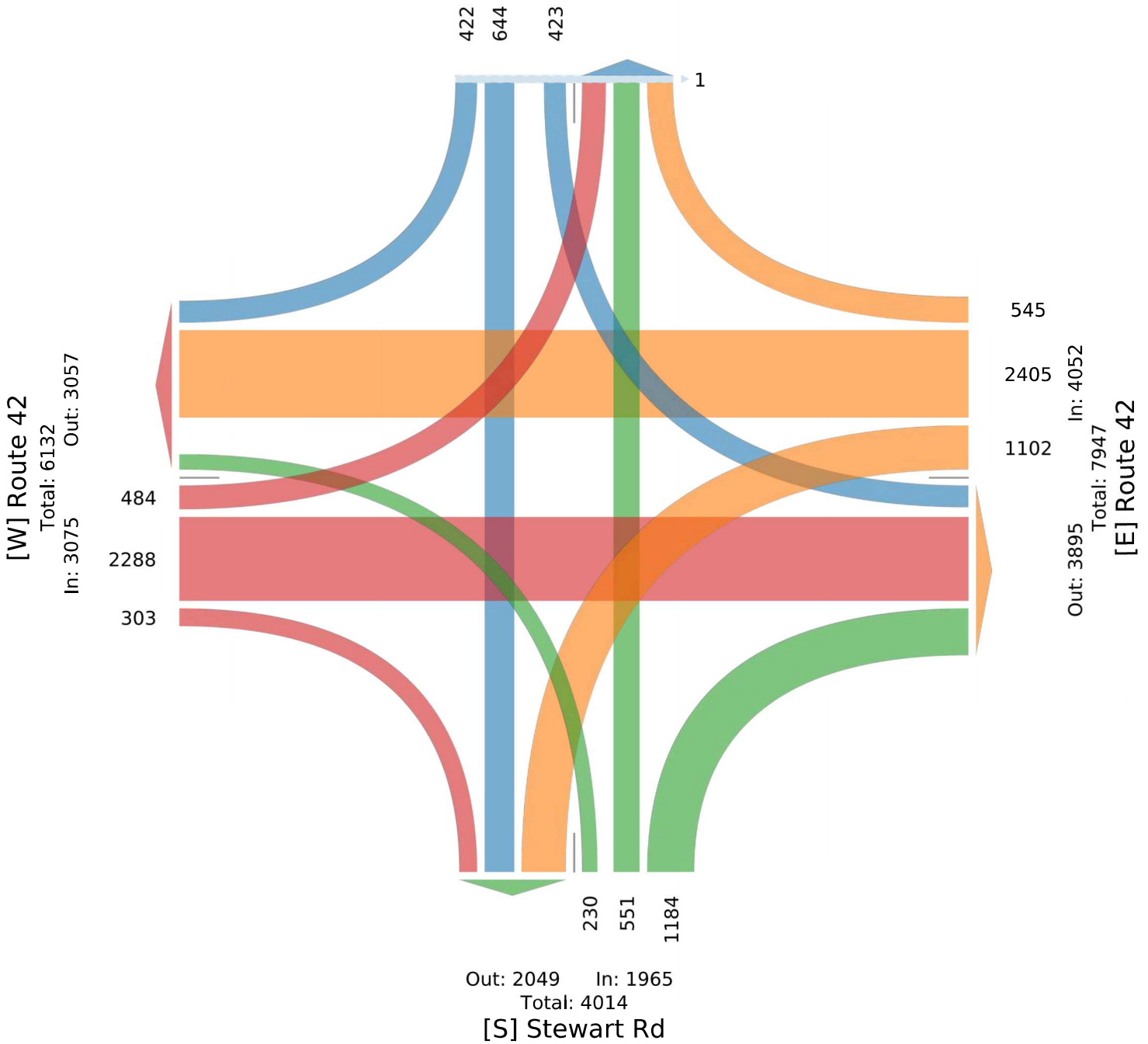
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Stewart Rd

Total: 3069

In: 1489 Out: 1580



Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound								Route 42 Westbound							
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*		
2024-03-12 3:15PM	23	112	12	0	3	150	0	53	115	23	0	9	200	0		
3:30PM	19	110	10	0	3	142	0	68	121	32	0	2	223	0		
3:45PM	23	95	6	0	3	127	0	56	93	10	0	13	172	0		
4:00PM	16	109	7	0	2	134	0	63	128	18	0	5	214	0		
Total	81	426	35	0	11	553	0	240	457	83	0	29	809	0		
% Approach	14.6%	77.0%	6.3%	0%	2.0%	-	-	29.7%	56.5%	10.3%	0%	3.6%	-	-		
% Total	3.9%	20.6%	1.7%	0%	0.5%	26.8%	-	11.6%	22.1%	4.0%	0%	1.4%	39.2%	-		
PHF	0.880	0.951	0.729	-	0.917	0.922	-	0.882	0.893	0.648	-	0.558	0.907	-		
Lights	80	422	35	0	11	548	-	237	450	83	0	28	798	-		
% Lights	98.8%	99.1%	100%	0%	100%	99.1%	-	98.8%	98.5%	100%	0%	96.6%	98.6%	-		
Articulated Trucks and Single-Unit Trucks	1	4	0	0	0	5	-	2	6	0	0	0	8	-		
% Articulated Trucks and Single-Unit Trucks	1.2%	0.9%	0%	0%	0%	0.9%	-	0.8%	1.3%	0%	0%	0%	1.0%	-		
Buses	0	0	0	0	0	0	-	1	1	0	0	1	3	-		
% Buses	0%	0%	0%	0%	0%	0%	-	0.4%	0.2%	0%	0%	3.4%	0.4%	-		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Stewart Rd Northbound								Stewart Rd Southbound								Int
	L	T	R	U	RR	App	Ped*	L	T	R	U	RR	App	Ped*			
2024-03-12 3:15PM	5	36	27	0	20	88	0	33	37	19	0	4	93	0	531		
3:30PM	11	20	47	0	16	94	0	18	37	8	0	1	64	0	523		
3:45PM	9	36	44	0	27	116	0	20	43	14	0	5	82	0	497		
4:00PM	8	31	39	0	11	89	0	22	40	12	0	3	77	0	514		
Total	33	123	157	0	74	387	0	93	157	53	0	13	316	0	2065		
% Approach	8.5%	31.8%	40.6%	0%	19.1%	-	-	29.4%	49.7%	16.8%	0%	4.1%	-	-	-		
% Total	1.6%	6.0%	7.6%	0%	3.6%	18.7%	-	4.5%	7.6%	2.6%	0%	0.6%	15.3%	-	-		
PHF	0.750	0.854	0.835	-	0.685	0.834	-	0.705	0.913	0.697	-	0.650	0.849	-	0.972		
Lights	33	120	155	0	72	380	-	91	157	52	0	13	313	-	2039		
% Lights	100%	97.6%	98.7%	0%	97.3%	98.2%	-	97.8%	100%	98.1%	0%	100%	99.1%	-	98.7%		
Articulated Trucks and Single-Unit Trucks	0	1	1	0	1	3	-	1	0	0	0	0	1	-	17		
% Articulated Trucks and Single-Unit Trucks	0%	0.8%	0.6%	0%	1.4%	0.8%	-	1.1%	0%	0%	0%	0%	0.3%	-	0.8%		
Buses	0	2	1	0	1	4	-	1	0	1	0	0	2	-	9		
% Buses	0%	1.6%	0.6%	0%	1.4%	1.0%	-	1.1%	0%	1.9%	0%	0%	0.6%	-	0.4%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & Stewart Rd - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3:15PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164012, Location: 40.776831, -82.474777



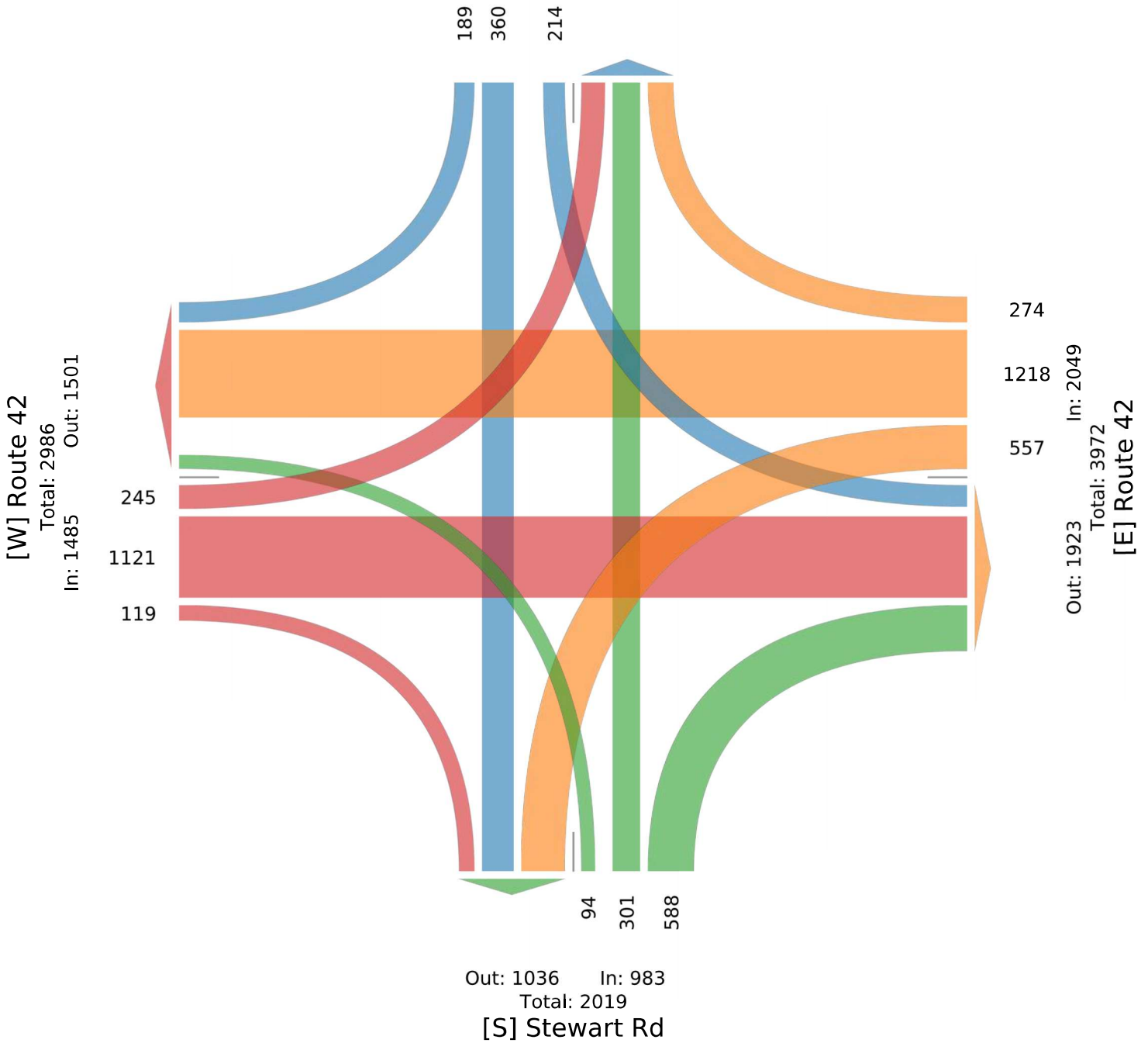
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Stewart Rd

Total: 1583

In: 763 Out: 820



Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Ramps Northbound						Ramps Southbound						Int
	L	T	R	U	App Ped*		L	T	R	U	App Ped*		L	T	R	U	App Ped*		L	T	R	U	App Ped*		
2024-03-12 6:00AM	0	49	12	0	61	0	3	41	0	0	44	0	0	0	24	0	24	0	0	0	13	0	13	0	142
6:15AM	0	67	9	0	76	0	2	54	0	0	56	0	0	0	24	0	24	0	0	0	11	0	11	0	167
6:30AM	0	76	14	0	90	0	4	64	0	0	68	0	0	0	29	0	29	0	0	0	11	0	11	0	198
6:45AM	0	70	10	0	80	0	1	63	0	0	64	0	0	0	39	0	39	0	0	0	22	0	22	0	205
Hourly Total	0	262	45	0	307	0	10	222	0	0	232	0	0	0	116	0	116	0	0	0	57	0	57	0	712
7:00AM	0	91	9	0	100	0	4	82	0	0	86	0	0	0	43	0	43	0	0	0	23	0	23	0	252
7:15AM	0	104	18	0	122	0	1	96	0	0	97	0	0	0	56	0	56	1	0	0	34	0	34	0	309
7:30AM	0	111	16	0	127	0	8	102	0	0	110	0	0	0	50	0	50	0	0	0	20	0	20	0	307
7:45AM	0	75	15	0	90	0	4	102	0	0	106	0	0	0	46	0	46	0	0	0	31	0	31	0	273
Hourly Total	0	381	58	0	439	0	17	382	0	0	399	0	0	0	195	0	195	1	0	0	108	0	108	0	1141
8:00AM	0	81	17	0	98	0	2	85	0	0	87	0	0	0	29	0	29	0	0	0	29	0	29	0	243
8:15AM	0	80	11	0	91	0	2	61	0	0	63	0	0	0	30	0	30	0	0	0	27	0	27	0	211
8:30AM	0	94	14	0	108	0	1	84	0	0	85	0	0	0	32	0	32	0	0	0	23	0	23	0	248
8:45AM	0	99	22	0	121	0	4	85	0	0	89	0	0	0	41	0	41	0	0	0	32	0	32	0	283
Hourly Total	0	354	64	0	418	0	9	315	0	0	324	0	0	0	132	0	132	0	0	0	111	0	111	0	985
9:00AM	0	90	9	0	99	0	5	62	0	0	67	0	0	0	27	0	27	0	0	0	32	0	32	0	225
9:15AM	0	72	12	0	84	0	3	71	0	0	74	0	0	0	45	0	45	0	0	0	20	0	20	0	223
9:30AM	0	82	13	0	95	0	2	75	0	0	77	0	0	0	39	0	39	0	0	0	35	0	35	0	246
9:45AM	0	72	5	0	77	0	1	78	0	0	79	0	0	0	33	0	33	0	0	0	26	0	26	0	215
Hourly Total	0	316	39	0	355	0	11	286	0	0	297	0	0	0	144	0	144	0	0	0	113	0	113	0	909
10:00AM	0	81	22	0	103	0	6	59	0	0	65	0	0	0	27	0	27	0	0	0	29	0	29	0	224
10:15AM	0	113	27	0	140	0	11	72	0	0	83	0	0	0	38	0	38	0	0	0	33	0	33	0	294
10:30AM	0	86	17	0	103	0	2	78	0	0	80	0	0	0	30	0	30	0	0	0	31	0	31	0	244
10:45AM	0	91	11	0	102	0	7	87	0	2	96	0	0	0	37	0	37	0	0	0	20	0	20	0	255
Hourly Total	0	371	77	0	448	0	26	296	0	2	324	0	0	0	132	0	132	0	0	0	113	0	113	0	1017
11:00AM	0	109	27	0	136	0	2	82	0	0	84	0	0	0	33	0	33	0	0	0	34	0	34	0	287
11:15AM	0	98	20	0	118	0	2	88	0	0	90	0	0	0	44	0	44	0	0	0	38	0	38	0	290
11:30AM	0	105	23	0	128	0	5	80	0	0	85	0	0	0	50	0	50	0	0	0	32	0	32	0	295
11:45AM	0	107	12	0	119	0	2	98	0	0	100	0	0	0	41	0	41	0	0	0	43	0	43	0	303
Hourly Total	0	419	82	0	501	0	11	348	0	0	359	0	0	0	168	0	168	0	0	0	147	0	147	0	1175
12:00PM	0	114	16	0	130	0	6	111	0	0	117	0	0	0	51	0	51	0	0	0	48	0	48	0	346
12:15PM	0	122	20	0	142	0	2	99	0	0	101	0	0	0	38	0	38	0	0	0	39	0	39	0	320
12:30PM	0	96	22	0	118	0	3	98	0	0	101	0	0	0	44	0	44	0	0	0	45	0	45	0	308
12:45PM	0	111	17	0	128	0	3	83	0	0	86	0	0	0	38	0	38	0	0	0	28	0	28	0	280
Hourly Total	0	443	75	0	518	0	14	391	0	0	405	0	0	0	171	0	171	0	0	0	160	0	160	0	1254
1:00PM	0	112	19	0	131	0	3	84	0	0	87	0	0	0	45	0	45	0	0	0	41	0	41	0	304
1:15PM	0	127	15	0	142	0	1	76	0	0	77	0	0	0	56	0	56	0	0	0	27	0	27	0	302
1:30PM	0	114	22	0	136	0	1	95	0	0	96	0	0	0	51	0	51	0	0	0	38	0	38	0	321
1:45PM	0	132	19	0	151	0	1	83	0	0	84	0	0	0	47	0	47	0	0	0	35	0	35	0	317
Hourly Total	0	485	75	0	560	0	6	338	0	0	344	0	0	0	199	0	199	0	0	0	141	0	141	0	1244
2:00PM	0	115	19	0	134	0	5	101	0	0	106	0	0	0	75	0	75	0	0	0	51	0	51	0	366
2:15PM	0	129	23	0	152	0	2	86	0	0	88	0	0	0	53	0	53	0	0	0	64	0	64	0	357
2:30PM	0	132	27	0	159	0	4	114	0	0	118	0	0	0	78	0	78	0	0	0	63	0	63	0	418
2:45PM	0	118	31	0	149	0	8	121	0	0	129	0	0	0	72	0	72	0	0	0	68	0	68	0	418
Hourly Total	0	494	100	0	594	0	19	422	0	0	441	0	0	0	278	0	278	0	0	0	246	0	246	0	1559
3:00PM	0	140	30	0	170	0	8	117	0	0	125	0	0	0	85	0	85	0	0	0	79	0	79	0	459
3:15PM	0	159	36	0	195	0	5	137	0	0	142	0	0	0	73	0	73	0	0	0	60	0	60	0	470
3:30PM	0	166	28	0	194	0	5	129	0	0	134	0	0	0	89	0	89	0	0	0	89	0	89	0	506
3:45PM	0	158	22	0	180	0	8	122	0	0	130	0	0	0	89	0	89	0	0	0	53	0	53	0	452
Hourly Total	0	623	116	0	739	0	26	505	0	0	531	0	0	0	336	0	336	0	0	0	281	0	281	0	1887
4:00PM	0	155	23	0	178	0	4	146	0	0	150	0	0	0	102	0	102	0	0	0	67	0	67	0	497
4:15PM	0	172	32	0	204	0	3	111	0	0	114	0	0	0	74	0	74	0	0	0	56	0	56	0	448

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Ramps Northbound						Ramps Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
4:30PM	0	154	37	0	191	0	6	130	0	0	136	0	0	0	94	0	94	0	0	0	73	0	73	0	494
4:45PM	0	143	24	0	167	0	3	129	0	0	132	0	0	0	69	0	69	0	0	0	63	0	63	0	431
Hourly Total	0	624	116	0	740	0	16	516	0	0	532	0	0	0	339	0	339	0	0	0	259	0	259	0	1870
5:00PM	0	152	23	0	175	0	2	134	0	0	136	0	0	0	42	0	42	0	0	0	54	0	54	0	407
5:15PM	0	137	37	0	174	0	4	124	0	0	128	0	0	0	40	0	40	0	0	0	53	0	53	0	395
5:30PM	0	118	21	0	139	0	1	104	0	0	105	0	0	0	36	0	36	0	0	0	60	0	60	0	340
5:45PM	0	106	20	0	126	0	2	114	0	0	116	0	0	0	26	0	26	0	0	0	31	0	31	0	299
Hourly Total	0	513	101	0	614	0	9	476	0	0	485	0	0	0	144	0	144	0	0	0	198	0	198	0	1441
Total	0	5285	948	0	6233	0	174	4497	0	2	4673	0	0	0	2354	0	2354	1	0	0	1934	0	1934	0	15194
% Approach	0%	84.8%	15.2%	0%	-	-	3.7%	96.2%	0%	0%	-	-	0%	0%	100%	0%	-	-	0%	0%	100%	0%	-	-	-
% Total	0%	34.8%	6.2%	0%	41.0%	-	1.1%	29.6%	0%	0%	30.8%	-	0%	0%	15.5%	0%	15.5%	-	0%	0%	12.7%	0%	12.7%	-	-
Lights	0	5191	916	0	6107	-	160	4400	0	2	4562	-	0	0	2268	0	2268	-	0	0	1898	0	1898	-	14835
% Lights	0%	98.2%	96.6%	0%	98.0%	-	92.0%	97.8%	0%	100%	97.6%	-	0%	0%	96.3%	0%	96.3%	-	0%	0%	98.1%	0%	98.1%	-	97.6%
Articulated Trucks and Single-Unit Trucks	0	79	30	0	109	-	13	78	0	0	91	-	0	0	78	0	78	-	0	0	33	0	33	-	311
% Articulated Trucks and Single-Unit Trucks	0%	1.5%	3.2%	0%	1.7%	-	7.5%	1.7%	0%	0%	1.9%	-	0%	0%	3.3%	0%	3.3%	-	0%	0%	1.7%	0%	1.7%	-	2.0%
Buses	0	15	2	0	17	-	1	19	0	0	20	-	0	0	8	0	8	-	0	0	3	0	3	-	48
% Buses	0%	0.3%	0.2%	0%	0.3%	-	0.6%	0.4%	0%	0%	0.4%	-	0%	0%	0.3%	0%	0.3%	-	0%	0%	0.2%	0%	0.2%	-	0.3%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

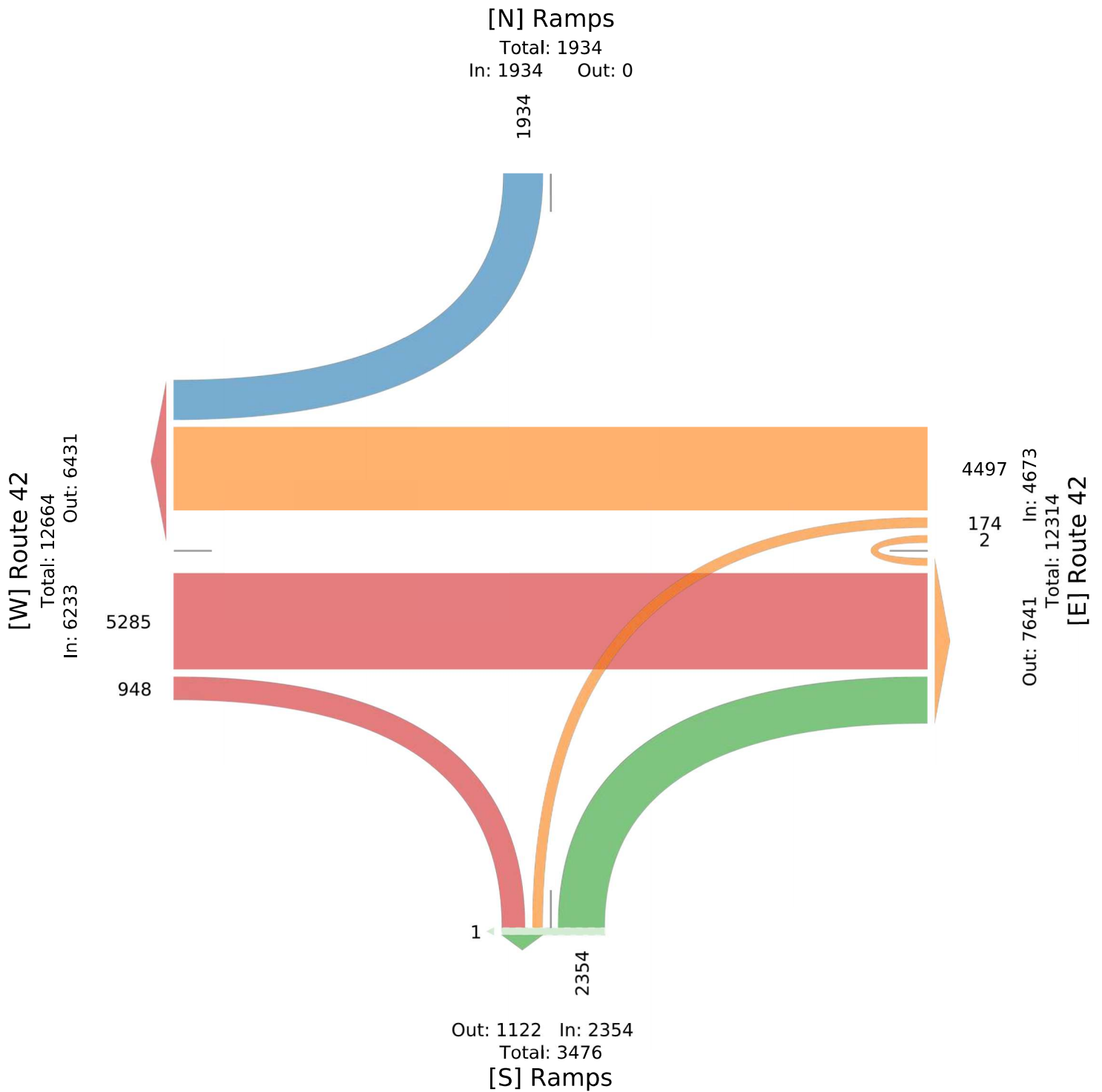
All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US



Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound					Route 42 Westbound					Ramps Northbound					Ramps Southbound					Int				
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*					
2024-03-12 7:00AM	0	91	9	0	100	0	4	82	0	0	86	0	0	0	43	0	43	0	0	0	23	0	23	0	252
7:15AM	0	104	18	0	122	0	1	96	0	0	97	0	0	0	56	0	56	1	0	0	34	0	34	0	309
7:30AM	0	111	16	0	127	0	8	102	0	0	110	0	0	0	50	0	50	0	0	0	20	0	20	0	307
7:45AM	0	75	15	0	90	0	4	102	0	0	106	0	0	0	46	0	46	0	0	0	31	0	31	0	273
Total	0	381	58	0	439	0	17	382	0	0	399	0	0	0	195	0	195	1	0	0	108	0	108	0	1141
% Approach	0%	86.8%	13.2%	0%	-	-	4.3%	95.7%	0%	0%	-	-	0%	0%	100%	0%	-	-	0%	0%	100%	0%	-	-	-
% Total	0%	33.4%	5.1%	0%	38.5%	-	1.5%	33.5%	0%	0%	35.0%	-	0%	0%	17.1%	0%	17.1%	-	0%	0%	9.5%	0%	9.5%	-	-
PHF	-	0.858	0.806	-	0.864	-	0.531	0.936	-	-	0.907	-	-	-	0.871	-	0.871	-	-	-	0.794	-	0.794	-	0.923
Lights	0	369	53	0	422	-	15	369	0	0	384	-	0	0	192	0	192	-	0	0	106	0	106	-	1104
% Lights	0%	96.9%	91.4%	0%	96.1%	-	88.2%	96.6%	0%	0%	96.2%	-	0%	0%	98.5%	0%	98.5%	-	0%	0%	98.1%	0%	98.1%	-	96.8%
Articulated Trucks and Single-Unit Trucks	0	12	5	0	17	-	2	8	0	0	10	-	0	0	3	0	3	-	0	0	2	0	2	-	32
% Articulated Trucks and Single-Unit Trucks	0%	3.1%	8.6%	0%	3.9%	-	11.8%	2.1%	0%	0%	2.5%	-	0%	0%	1.5%	0%	1.5%	-	0%	0%	1.9%	0%	1.9%	-	2.8%
Buses	0	0	0	0	0	-	0	5	0	0	5	-	0	0	0	0	0	-	0	0	0	0	0	-	5
% Buses	0%	0%	0%	0%	0%	-	0%	1.3%	0%	0%	1.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

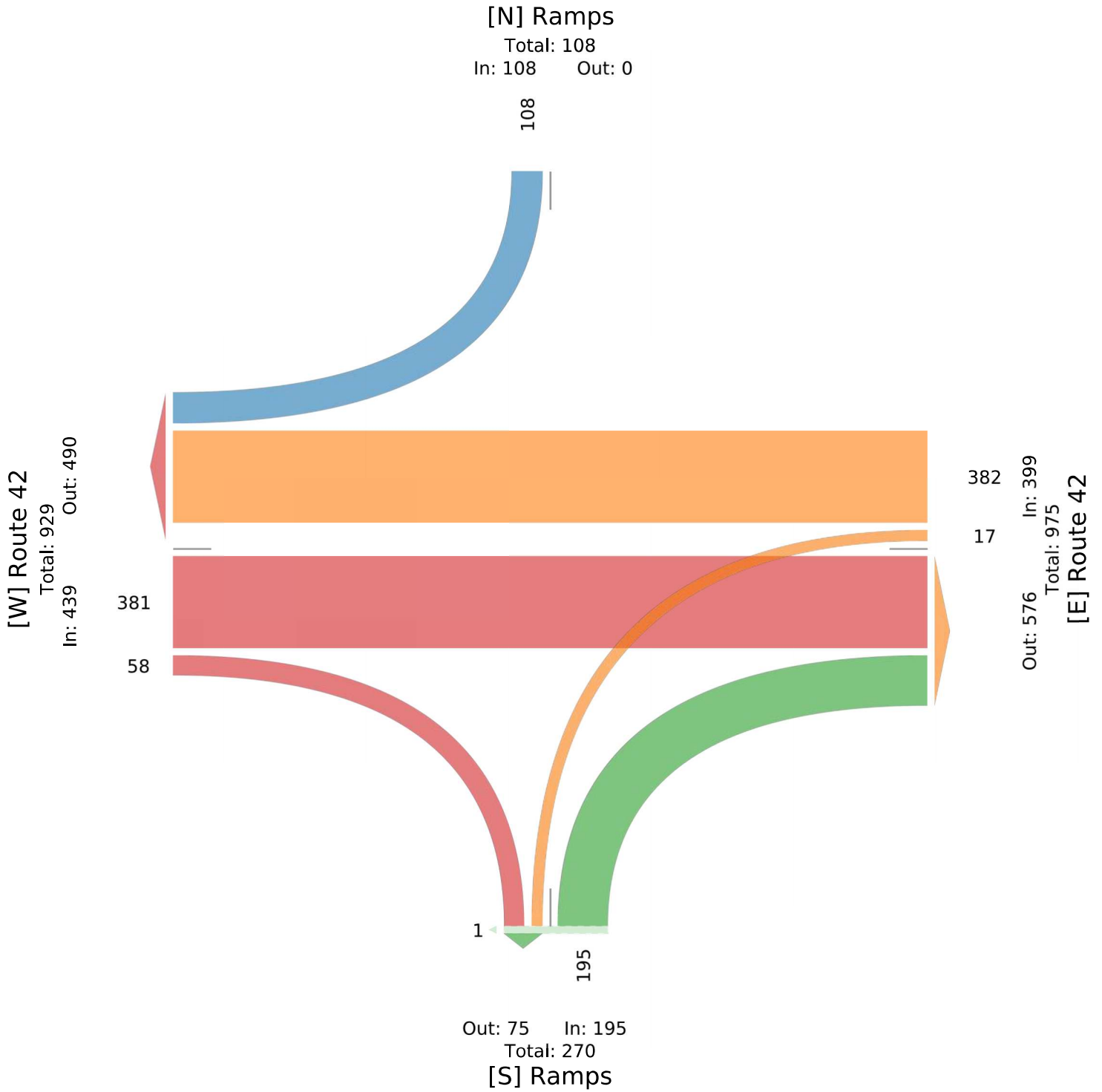
All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Ramps Northbound						Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 11:45AM	0	107	12	0	119	0	2	98	0	0	100	0	0	0	41	0	41	0	0	0	43	0	43	0	303
12:00PM	0	114	16	0	130	0	6	111	0	0	117	0	0	0	51	0	51	0	0	0	48	0	48	0	346
12:15PM	0	122	20	0	142	0	2	99	0	0	101	0	0	0	38	0	38	0	0	0	39	0	39	0	320
12:30PM	0	96	22	0	118	0	3	98	0	0	101	0	0	0	44	0	44	0	0	0	45	0	45	0	308
Total	0	439	70	0	509	0	13	406	0	0	419	0	0	0	174	0	174	0	0	0	175	0	175	0	1277
% Approach	0%	86.2%	13.8%	0%	-	-	3.1%	96.9%	0%	0%	-	-	0%	0%	100%	0%	-	-	0%	0%	100%	0%	-	-	-
% Total	0%	34.4%	5.5%	0%	39.9%	-	1.0%	31.8%	0%	0%	32.8%	-	0%	0%	13.6%	0%	13.6%	-	0%	0%	13.7%	0%	13.7%	-	-
PHF	-	0.900	0.795	-	0.896	-	0.542	0.914	-	-	0.895	-	-	-	0.853	-	0.853	-	-	-	0.911	-	0.911	-	0.923
Lights	0	429	69	0	498	-	12	391	0	0	403	-	0	0	166	0	166	-	0	0	172	0	172	-	1239
% Lights	0%	97.7%	98.6%	0%	97.8%	-	92.3%	96.3%	0%	0%	96.2%	-	0%	0%	95.4%	0%	95.4%	-	0%	0%	98.3%	0%	98.3%	-	97.0%
Articulated Trucks and Single-Unit Trucks	0	10	1	0	11	-	1	15	0	0	16	-	0	0	8	0	8	-	0	0	3	0	3	-	38
% Articulated Trucks and Single-Unit Trucks	0%	2.3%	1.4%	0%	2.2%	-	7.7%	3.7%	0%	0%	3.8%	-	0%	0%	4.6%	0%	4.6%	-	0%	0%	1.7%	0%	1.7%	-	3.0%
Buses	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Buses	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

Midday Peak (11:45 AM - 12:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

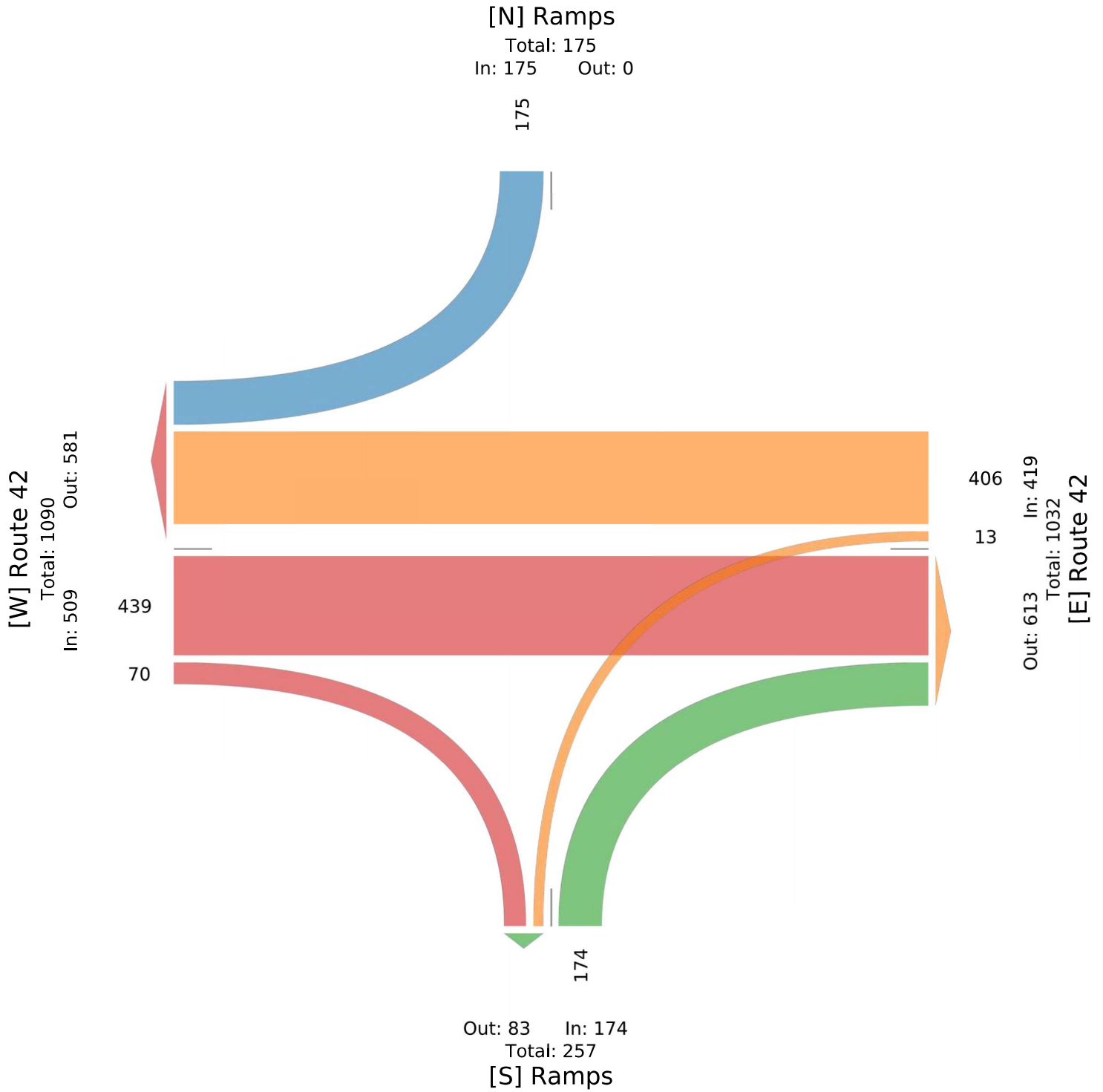
All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Ramps Northbound						Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 3:15PM	0	159	36	0	195	0	5	137	0	0	142	0	0	0	73	0	73	0	0	0	60	0	60	0	470
3:30PM	0	166	28	0	194	0	5	129	0	0	134	0	0	0	89	0	89	0	0	0	89	0	89	0	506
3:45PM	0	158	22	0	180	0	8	122	0	0	130	0	0	0	89	0	89	0	0	0	53	0	53	0	452
4:00PM	0	155	23	0	178	0	4	146	0	0	150	0	0	0	102	0	102	0	0	0	67	0	67	0	497
Total	0	638	109	0	747	0	22	534	0	0	556	0	0	0	353	0	353	0	0	0	269	0	269	0	1925
% Approach	0%	85.4%	14.6%	0%	-	-	4.0%	96.0%	0%	0%	-	-	0%	0%	100%	0%	-	-	0%	0%	100%	0%	-	-	-
% Total	0%	33.1%	5.7%	0%	38.8%	-	1.1%	27.7%	0%	0%	28.9%	-	0%	0%	18.3%	0%	18.3%	-	0%	0%	14.0%	0%	14.0%	-	-
PHF	-	0.961	0.757	-	0.958	-	0.688	0.914	-	-	0.927	-	-	-	0.865	-	0.865	-	-	-	0.756	-	0.756	-	0.951
Lights	0	630	106	0	736	-	20	528	0	0	548	-	0	0	347	0	347	-	0	0	266	0	266	-	1897
% Lights	0%	98.7%	97.2%	0%	98.5%	-	90.9%	98.9%	0%	0%	98.6%	-	0%	0%	98.3%	0%	98.3%	-	0%	0%	98.9%	0%	98.9%	-	98.5%
Articulated Trucks and Single-Unit Trucks	0	5	2	0	7	-	2	4	0	0	6	-	0	0	5	0	5	-	0	0	2	0	2	-	20
% Articulated Trucks and Single-Unit Trucks	0%	0.8%	1.8%	0%	0.9%	-	9.1%	0.7%	0%	0%	1.1%	-	0%	0%	1.4%	0%	1.4%	-	0%	0%	0.7%	0%	0.7%	-	1.0%
Buses	0	3	1	0	4	-	0	2	0	0	2	-	0	0	1	0	1	-	0	0	1	0	1	-	8
% Buses	0%	0.5%	0.9%	0%	0.5%	-	0%	0.4%	0%	0%	0.4%	-	0%	0%	0.3%	0%	0.3%	-	0%	0%	0.4%	0%	0.4%	-	0.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 EB Ramps - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

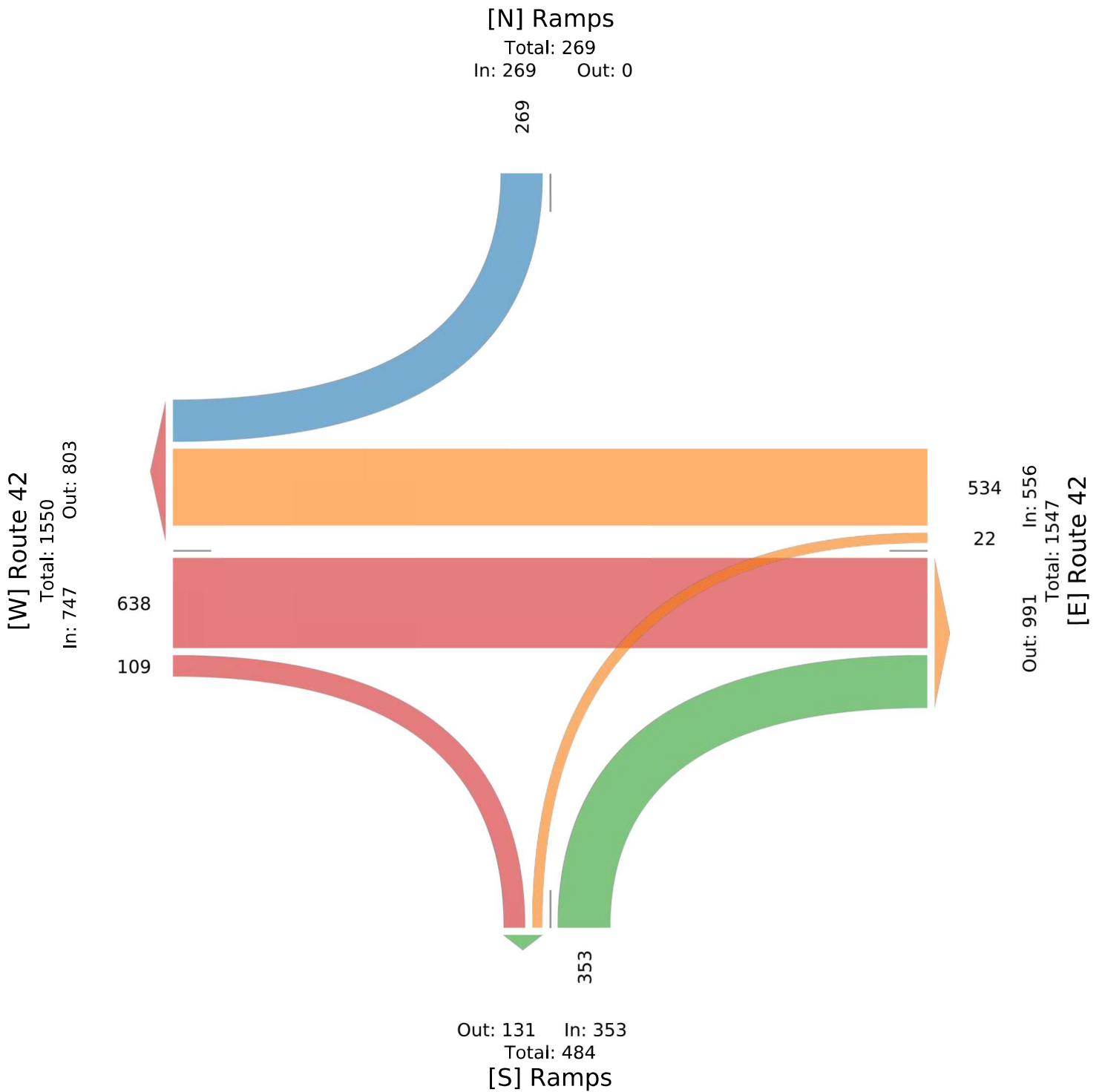
All Movements

ID: 1164016, Location: 40.778491, -82.471642



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,

Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Rt 30 WB Ramps Northbound						Rt 30 WB Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 6:00AM	20	50	0	0	70	0	0	23	32	0	55	0	0	0	2	0	2	0	0	0	17	0	17	0	144
6:15AM	33	63	0	0	96	0	0	41	36	0	77	0	0	0	2	0	2	0	0	0	13	0	13	0	188
6:30AM	38	71	0	0	109	0	0	45	55	0	100	0	0	0	4	0	4	0	0	0	22	0	22	0	235
6:45AM	42	73	0	0	115	0	0	47	48	0	95	0	0	0	6	0	6	0	0	0	19	0	19	0	235
Hourly Total	133	257	0	0	390	0	0	156	171	0	327	0	0	0	14	0	14	0	0	0	71	0	71	0	802
7:00AM	51	87	0	0	138	0	0	59	54	0	113	0	0	0	10	0	10	0	1	0	26	0	27	0	288
7:15AM	50	98	0	0	148	0	0	71	70	0	141	0	0	0	4	0	4	1	4	0	18	0	22	0	315
7:30AM	46	121	0	0	167	0	0	89	99	0	188	0	0	1	7	0	8	0	2	0	27	0	29	0	392
7:45AM	24	96	0	0	120	0	0	74	98	0	172	0	0	0	3	0	3	0	0	0	32	0	32	0	327
Hourly Total	171	402	0	0	573	0	0	293	321	0	614	0	0	1	24	0	25	1	7	0	103	0	110	0	1322
8:00AM	36	76	0	0	112	0	0	52	60	0	112	0	1	0	4	0	5	0	0	0	35	0	35	0	264
8:15AM	49	66	0	0	115	0	0	40	54	0	94	0	0	0	3	0	3	0	1	0	21	0	22	0	234
8:30AM	48	81	0	0	129	0	0	59	48	0	107	0	0	0	6	0	6	0	0	0	23	0	23	0	265
8:45AM	43	97	0	0	140	0	0	64	55	0	119	0	0	0	5	0	5	0	1	0	19	0	20	0	284
Hourly Total	176	320	0	0	496	0	0	215	217	0	432	0	1	0	18	0	19	0	2	0	98	0	100	0	1047
9:00AM	38	91	0	0	129	0	0	45	47	0	92	0	2	0	4	0	6	0	1	0	22	0	23	0	250
9:15AM	32	82	0	0	114	0	0	59	59	0	118	0	1	0	3	0	4	0	1	0	13	0	14	0	250
9:30AM	36	93	0	0	129	0	0	52	41	0	93	0	0	1	5	0	6	0	0	0	21	0	21	0	249
9:45AM	30	80	0	0	110	0	0	62	48	0	110	0	0	0	4	0	4	0	0	0	19	0	19	0	243
Hourly Total	136	346	0	0	482	0	0	218	195	0	413	0	3	1	16	0	20	0	2	0	75	0	77	0	992
10:00AM	30	83	0	1	114	0	0	47	30	0	77	0	1	2	5	0	8	0	1	0	19	0	20	0	219
10:15AM	45	102	0	0	147	0	0	58	43	0	101	0	0	0	1	0	1	0	1	0	19	0	20	0	269
10:30AM	45	80	0	0	125	0	0	59	44	0	103	0	0	0	4	0	4	0	1	0	19	0	20	0	252
10:45AM	41	93	0	0	134	0	0	75	53	0	128	0	0	1	3	0	4	0	1	0	20	0	21	0	287
Hourly Total	161	358	0	1	520	0	0	239	170	0	409	0	1	3	13	0	17	0	4	0	77	0	81	0	1027
11:00AM	37	105	0	0	142	0	0	61	44	0	105	0	0	0	5	0	5	0	2	0	24	0	26	0	278
11:15AM	38	111	0	0	149	0	0	76	40	0	116	0	0	0	1	0	1	0	0	0	16	0	16	0	282
11:30AM	46	109	0	0	155	0	0	51	39	0	90	0	0	0	4	0	4	0	0	0	25	0	25	0	274
11:45AM	34	116	0	0	150	0	0	68	53	0	121	0	0	0	0	0	0	0	0	0	25	0	25	0	296
Hourly Total	155	441	0	0	596	0	0	256	176	0	432	0	0	0	10	0	10	0	2	0	90	0	92	0	1130
12:00PM	43	124	0	0	167	0	0	97	49	0	146	0	0	1	2	0	3	0	0	0	28	0	28	0	344
12:15PM	54	100	0	0	154	0	0	75	52	0	127	0	0	0	4	0	4	1	0	0	26	0	26	0	311
12:30PM	38	102	0	0	140	0	0	76	45	0	121	0	2	0	1	0	3	1	4	0	21	0	25	0	289
12:45PM	50	106	0	0	156	0	0	67	59	0	126	0	0	0	5	0	5	0	1	0	18	0	19	0	306
Hourly Total	185	432	0	0	617	0	0	315	205	0	520	0	2	1	12	0	15	2	5	0	93	0	98	0	1250
1:00PM	56	110	0	0	166	0	0	56	43	0	99	0	3	0	5	0	8	0	1	0	22	0	23	0	296
1:15PM	63	122	0	0	185	0	0	60	43	0	103	0	1	0	4	0	5	0	1	0	26	0	27	0	320
1:30PM	43	116	0	0	159	0	0	59	59	0	118	0	0	0	3	0	3	0	1	0	31	0	32	0	312
1:45PM	49	136	0	0	185	0	0	65	60	0	125	0	1	0	3	0	4	1	2	0	17	0	19	0	333
Hourly Total	211	484	0	0	695	0	0	240	205	0	445	0	5	0	15	0	20	1	5	0	96	0	101	0	1261
2:00PM	46	144	0	0	190	0	0	76	53	0	129	0	2	0	3	0	5	0	1	0	26	0	27	0	351
2:15PM	47	148	0	0	195	0	0	67	60	0	127	0	0	0	6	0	6	0	0	0	24	0	24	0	352
2:30PM	56	162	0	0	218	0	0	87	67	0	154	0	0	0	5	0	5	0	1	0	24	0	25	0	402
2:45PM	49	143	0	0	192	0	0	103	95	0	198	0	0	1	6	0	7	0	1	0	34	0	35	1	432
Hourly Total	198	597	0	0	795	0	0	333	275	0	608	0	2	1	20	0	23	0	3	0	108	0	111	1	1537
3:00PM	57	177	0	0	234	0	0	91	77	0	168	0	0	0	6	0	6	0	1	0	27	0	28	0	436
3:15PM	51	168	0	0	219	0	0	110	89	0	199	0	0	1	10	0	11	0	1	0	35	0	36	0	465
3:30PM	56	211	0	0	267	0	0	107	75	0	182	0	0	1	8	0	9	0	1	0	29	0	30	0	488
3:45PM	45	199	0	0	244	0	0	91	77	0	168	0	0	1	3	0	4	0	2	0	35	0	37	0	453
Hourly Total	209	755	0	0	964	0	0	399	318	0	717	0	0	3	27	0	30	0	5	0	126	0	131	0	1842
4:00PM	50	220	0	0	270	0	0	106	67	0	173	0	0	0	1	0	1	0	0	0	41	0	41	0	485
4:15PM	61	186	0	0	247	0	0	85	73	0	158	0	0	0	4	0	4	0	1	0	31	0	32	0	441
4:30PM	52	201	0	0	253	0	0	92	85	0	177	0	0	0	8	0	8	0	0	0	38	0	38	0	476
4:45PM	65	144	0	0	209	0	0	100	91	0	191	0	0	0	6	0	6	0	1	0	40	0	41	0	447
Hourly Total	228	751	0	0	979	0	0	383	316	0	699	0	0	0	19	0	19	0	2	0	150	0	152	0	1849

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Rt 30 WB Ramps Northbound						Rt 30 WB Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
5:00PM	64	192	0	0	256	0	0	86	51	0	137	0	0	0	1	0	1	0	1	0	43	0	44	0	438
5:15PM	72	165	0	0	237	0	0	101	65	0	166	0	0	0	4	0	4	0	0	0	31	0	31	0	438
5:30PM	60	127	0	0	187	0	0	62	59	0	121	0	0	0	4	0	4	0	0	0	44	0	44	0	356
5:45PM	55	125	0	0	180	0	0	73	46	0	119	0	0	0	6	0	6	0	0	0	40	0	40	0	345
Hourly Total	251	609	0	0	860	0	0	322	221	0	543	0	0	0	15	0	15	0	0	0	158	0	159	0	1577
Total	2214	5752	0	1	7967	0	0	3369	2790	0	6159	0	14	10	203	0	227	4	38	0	1245	0	1283	1	15636
% Approach	27.8%	72.2%	0%	0%	-	-	0%	54.7%	45.3%	0%	-	-	6.2%	4.4%	89.4%	0%	-	-	3.0%	0%	97.0%	0%	-	-	-
% Total	14.2%	36.8%	0%	0%	51.0%	-	0%	21.5%	17.8%	0%	39.4%	-	0.1%	0.1%	1.3%	0%	1.5%	-	0.2%	0%	8.0%	0%	8.2%	-	-
Lights	2176	5566	0	1	7743	-	0	3298	2656	0	5954	-	12	10	191	0	213	-	36	0	1218	0	1254	-	15164
% Lights	98.3%	96.8%	0%	100%	97.2%	-	0%	97.9%	95.2%	0%	96.7%	-	85.7%	100%	94.1%	0%	93.8%	-	94.7%	0%	97.8%	0%	97.7%	-	97.0%
Articulated Trucks and Single-Unit Trucks	31	173	0	0	204	-	0	54	116	0	170	-	2	0	10	0	12	-	2	0	26	0	28	-	414
% Articulated Trucks and Single-Unit Trucks	1.4%	3.0%	0%	0%	2.6%	-	0%	1.6%	4.2%	0%	2.8%	-	14.3%	0%	4.9%	0%	5.3%	-	5.3%	0%	2.1%	0%	2.2%	-	2.6%
Buses	7	13	0	0	20	-	0	17	18	0	35	-	0	0	2	0	2	-	0	0	1	0	1	-	58
% Buses	0.3%	0.2%	0%	0%	0.3%	-	0%	0.5%	0.6%	0%	0.6%	-	0%	0%	1.0%	0%	0.9%	-	0%	0%	0.1%	0%	0.1%	-	0.4%
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	4	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-100%	-	-	-	-	-	-	0%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	1	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-100%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



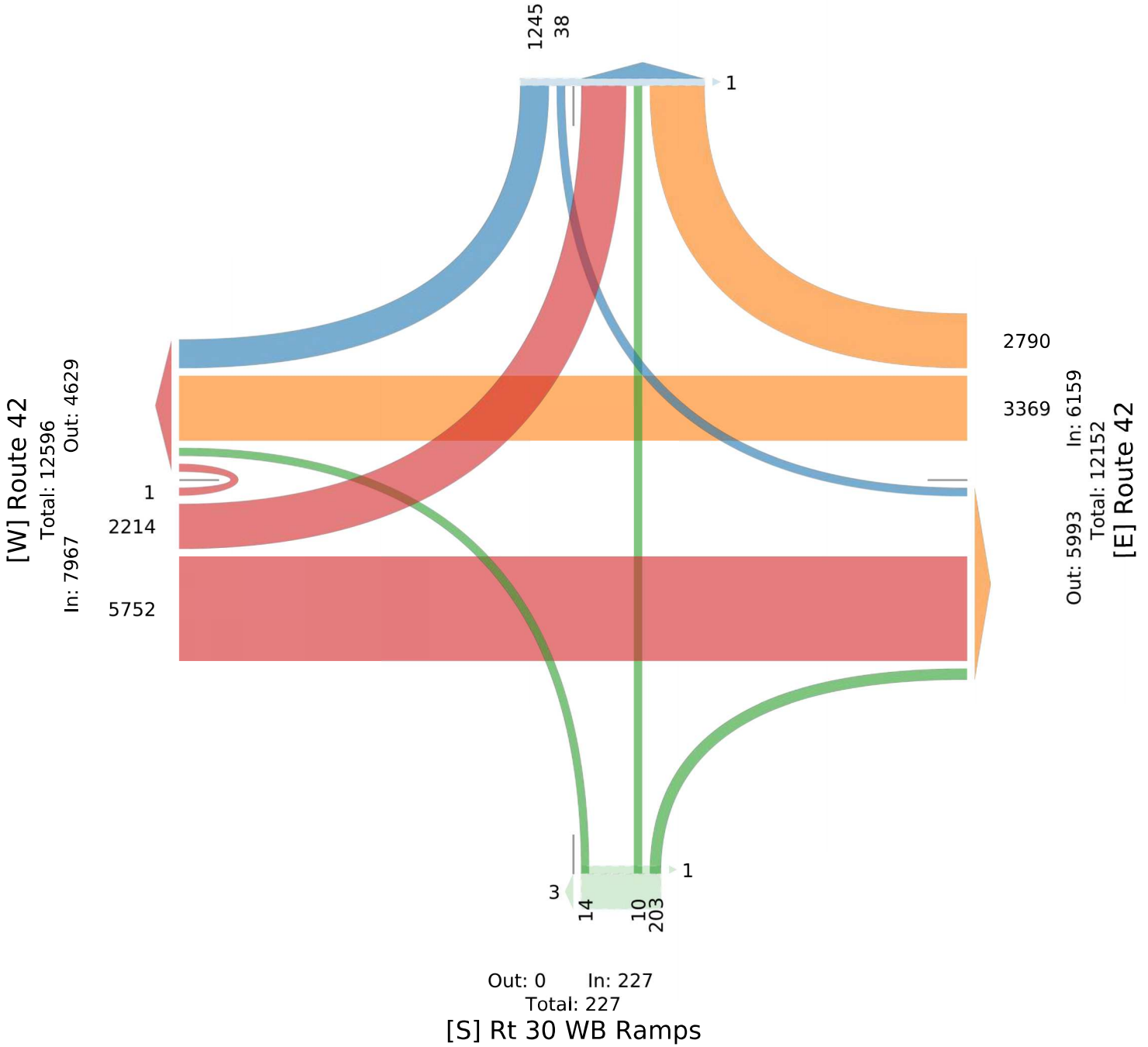
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US

[N] Rt 30 WB Ramps

Total: 6297

In: 1283 Out: 5014



Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Rt 30 WB Ramps Northbound						Rt 30 WB Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 7:00AM	51	87	0	0	138	0	0	59	54	0	113	0	0	0	10	0	10	0	1	0	26	0	27	0	288
7:15AM	50	98	0	0	148	0	0	71	70	0	141	0	0	0	4	0	4	1	4	0	18	0	22	0	315
7:30AM	46	121	0	0	167	0	0	89	99	0	188	0	0	1	7	0	8	0	2	0	27	0	29	0	392
7:45AM	24	96	0	0	120	0	0	74	98	0	172	0	0	0	3	0	3	0	0	0	32	0	32	0	327
Total	171	402	0	0	573	0	0	293	321	0	614	0	0	1	24	0	25	1	7	0	103	0	110	0	1322
% Approach	29.8%	70.2%	0%	0%	-	-	0%	47.7%	52.3%	0%	-	-	0%	4.0%	96.0%	0%	-	-	6.4%	0%	93.6%	0%	-	-	-
% Total	12.9%	30.4%	0%	0%	43.3%	-	0%	22.2%	24.3%	0%	46.4%	-	0%	0.1%	1.8%	0%	1.9%	-	0.5%	0%	7.8%	0%	8.3%	-	-
PHF	0.838	0.831	-	-	0.858	-	-	0.823	0.811	-	0.816	-	-	0.250	0.600	-	0.625	-	0.438	-	0.805	-	0.859	-	0.843
Lights	167	387	0	0	554	-	0	284	304	0	588	-	0	1	21	0	22	-	7	0	99	0	106	-	1270
% Lights	97.7%	96.3%	0%	0%	96.7%	-	0%	96.9%	94.7%	0%	95.8%	-	0%	100%	87.5%	0%	88.0%	-	100%	0%	96.1%	0%	96.4%	-	96.1%
Articulated Trucks and Single-Unit Trucks	3	13	0	0	16	-	0	5	12	0	17	-	0	0	2	0	2	-	0	0	4	0	4	-	39
% Articulated Trucks and Single-Unit Trucks	1.8%	3.2%	0%	0%	2.8%	-	0%	1.7%	3.7%	0%	2.8%	-	0%	0%	8.3%	0%	8.0%	-	0%	0%	3.9%	0%	3.6%	-	3.0%
Buses	1	2	0	0	3	-	0	4	5	0	9	-	0	0	1	0	1	-	0	0	0	0	0	-	13
% Buses	0.6%	0.5%	0%	0%	0.5%	-	0%	1.4%	1.6%	0%	1.5%	-	0%	0%	4.2%	0%	4.0%	-	0%	0%	0%	0%	0%	-	1.0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581

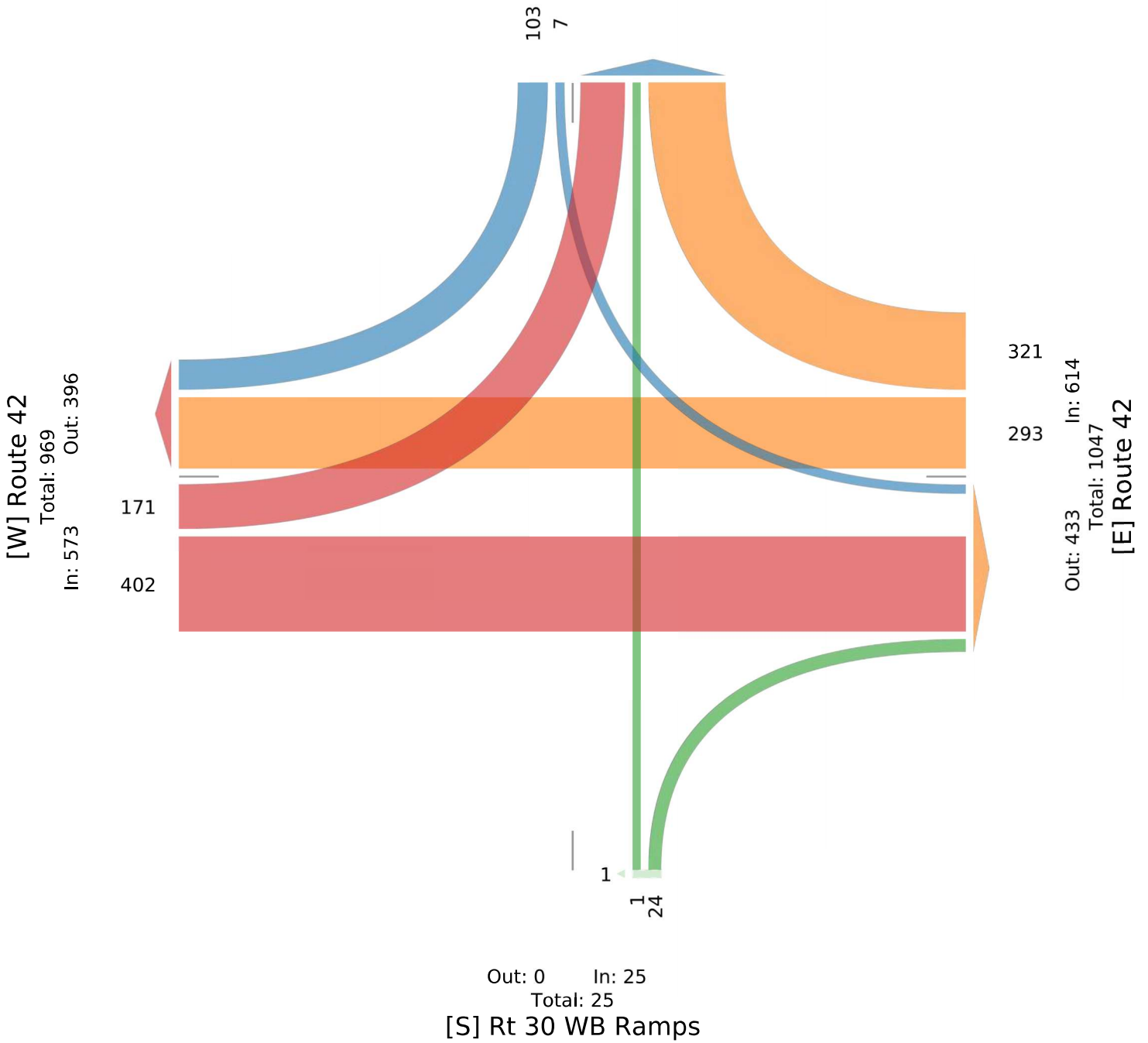


Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Rt 30 WB Ramps

Total: 603
In: 110 Out: 493



Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Rt 30 WB Ramps Northbound						Rt 30 WB Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 1:00PM	56	110	0	0	166	0	0	56	43	0	99	0	3	0	5	0	8	0	1	0	22	0	23	0	296
1:15PM	63	122	0	0	185	0	0	60	43	0	103	0	1	0	4	0	5	0	1	0	26	0	27	0	320
1:30PM	43	116	0	0	159	0	0	59	59	0	118	0	0	0	3	0	3	0	1	0	31	0	32	0	312
1:45PM	49	136	0	0	185	0	0	65	60	0	125	0	1	0	3	0	4	1	2	0	17	0	19	0	333
Total	211	484	0	0	695	0	0	240	205	0	445	0	5	0	15	0	20	1	5	0	96	0	101	0	1261
% Approach	30.4%	69.6%	0%	0%	-	-	0%	53.9%	46.1%	0%	-	-	25.0%	0%	75.0%	0%	-	-	5.0%	0%	95.0%	0%	-	-	-
% Total	16.7%	38.4%	0%	0%	55.1%	-	0%	19.0%	16.3%	0%	35.3%	-	0.4%	0%	1.2%	0%	1.6%	-	0.4%	0%	7.6%	0%	8.0%	-	-
PHF	0.837	0.890	-	-	0.939	-	-	0.923	0.854	-	0.890	-	0.417	-	0.750	-	0.625	-	0.625	-	0.774	-	0.789	-	0.947
Lights	206	466	0	0	672	-	0	237	191	0	428	-	5	0	13	0	18	-	4	0	92	0	96	-	1214
% Lights	97.6%	96.3%	0%	0%	96.7%	-	0%	98.8%	93.2%	0%	96.2%	-	100%	0%	86.7%	0%	90.0%	-	80.0%	0%	95.8%	0%	95.0%	-	96.3%
Articulated Trucks and Single-Unit Trucks	4	18	0	0	22	-	0	3	12	0	15	-	0	0	2	0	2	-	1	0	4	0	5	-	44
% Articulated Trucks and Single-Unit Trucks	1.9%	3.7%	0%	0%	3.2%	-	0%	1.3%	5.9%	0%	3.4%	-	0%	0%	13.3%	0%	10.0%	-	20.0%	0%	4.2%	0%	5.0%	-	3.5%
Buses	1	0	0	0	1	-	0	0	2	0	2	-	0	0	0	0	0	-	0	0	0	0	0	-	3
% Buses	0.5%	0%	0%	0%	0.1%	-	0%	0%	1.0%	0%	0.4%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

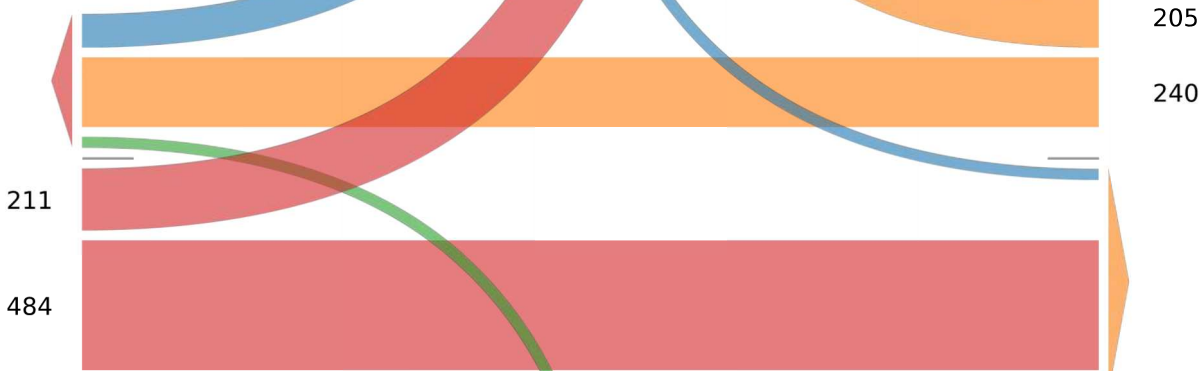
[N] Rt 30 WB Ramps

Total: 517

In: 101 Out: 416

96 5

[W] Route 42
Total: 1036
In: 695 Out: 341



[E] Route 42
Out: 504 In: 445
Total: 949

Out: 0 In: 20
Total: 20

[S] Rt 30 WB Ramps

Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						Rt 30 WB Ramps Northbound						Rt 30 WB Ramps Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 3:15PM	51	168	0	0	219	0	0	110	89	0	199	0	0	1	10	0	11	0	1	0	35	0	36	0	465
3:30PM	56	211	0	0	267	0	0	107	75	0	182	0	0	1	8	0	9	0	1	0	29	0	30	0	488
3:45PM	45	199	0	0	244	0	0	91	77	0	168	0	0	1	3	0	4	0	2	0	35	0	37	0	453
4:00PM	50	220	0	0	270	0	0	106	67	0	173	0	0	0	1	0	1	0	0	0	41	0	41	0	485
Total	202	798	0	0	1000	0	0	414	308	0	722	0	0	3	22	0	25	0	4	0	140	0	144	0	1891
% Approach	20.2%	79.8%	0%	0%	-	-	0%	57.3%	42.7%	0%	-	-	0%	12.0%	88.0%	0%	-	-	2.8%	0%	97.2%	0%	-	-	-
% Total	10.7%	42.2%	0%	0%	52.9%	-	0%	21.9%	16.3%	0%	38.2%	-	0%	0.2%	1.2%	0%	1.3%	-	0.2%	0%	7.4%	0%	7.6%	-	-
PHF	0.902	0.907	-	-	0.926	-	-	0.941	0.865	-	0.907	-	-	0.750	0.550	-	0.568	-	0.500	-	0.854	-	0.878	-	0.969
Lights	198	785	0	0	983	-	0	411	292	0	703	-	0	3	20	0	23	-	4	0	138	0	142	-	1851
% Lights	98.0%	98.4%	0%	0%	98.3%	-	0%	99.3%	94.8%	0%	97.4%	-	0%	100%	90.9%	0%	92.0%	-	100%	0%	98.6%	0%	98.6%	-	97.9%
Articulated Trucks and Single-Unit Trucks	2	12	0	0	14	-	0	1	14	0	15	-	0	0	1	0	1	-	0	0	2	0	2	-	32
% Articulated Trucks and Single-Unit Trucks	1.0%	1.5%	0%	0%	1.4%	-	0%	0.2%	4.5%	0%	2.1%	-	0%	0%	4.5%	0%	4.0%	-	0%	0%	1.4%	0%	1.4%	-	1.7%
Buses	2	1	0	0	3	-	0	2	2	0	4	-	0	0	1	0	1	-	0	0	0	0	0	-	8
% Buses	1.0%	0.1%	0%	0%	0.3%	-	0%	0.5%	0.6%	0%	0.6%	-	0%	0%	4.5%	0%	4.0%	-	0%	0%	0%	0%	0%	-	0.4%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 42 & Rt 30 WB Ramps - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164004, Location: 40.779831, -82.469581



Provided by: Tri-State Traffic Data, Inc.

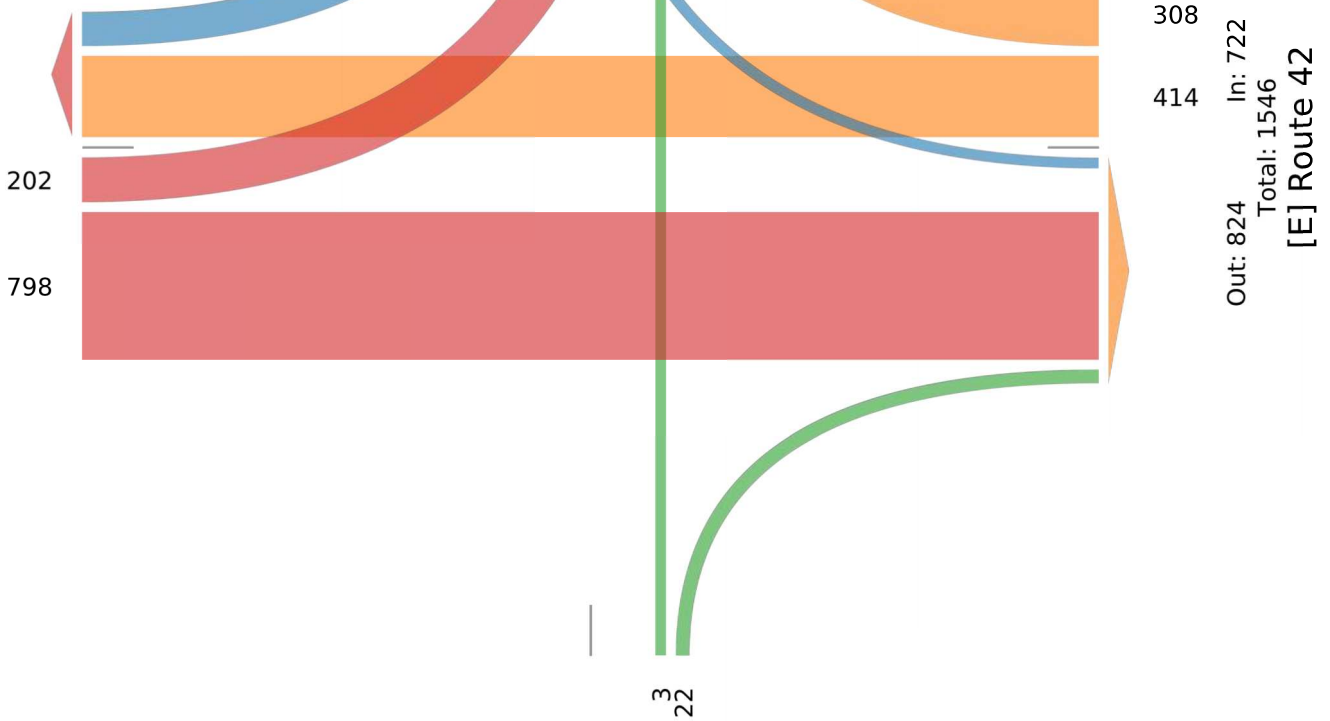
184 Baker Road, Coatesville, PA, 19320, US

[N] Rt 30 WB Ramps

Total: 657
In: 144 Out: 513

140
4

[W] Route 42
Total: 1554
In: 1000 Out: 554



Out: 0 In: 25
Total: 25

[S] Rt 30 WB Ramps

Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						McElroy Rd Northbound						Int
	T	R	U	RR	App	Ped*	L	T	U	App	Ped*	L	R	U	RR	App	Ped*		
2024-03-12 6:00AM	45	1	0	3	49	0	4	49	0	53	0	10	5	0	8	23	0	125	
6:15AM	52	11	0	0	63	0	13	69	0	82	0	10	3	0	13	26	0	171	
6:30AM	62	13	0	3	78	0	15	88	0	103	0	20	3	0	7	30	0	211	
6:45AM	50	20	0	2	72	0	17	82	0	99	0	7	3	0	17	27	0	198	
Hourly Total	209	45	0	8	262	0	49	288	0	337	0	47	14	0	45	106	0	705	
7:00AM	76	24	0	4	104	0	15	100	0	115	0	18	7	0	7	32	0	251	
7:15AM	74	32	0	3	109	0	49	129	0	178	0	23	9	0	11	43	0	330	
7:30AM	101	28	0	0	129	0	51	148	0	199	0	38	18	0	16	72	0	400	
7:45AM	86	8	0	3	97	0	15	129	0	144	0	34	8	0	20	62	0	303	
Hourly Total	337	92	0	10	439	0	130	506	0	636	0	113	42	0	54	209	0	1284	
8:00AM	74	5	0	1	80	0	15	96	0	111	0	14	2	0	15	31	0	222	
8:15AM	56	7	0	0	63	0	6	97	0	103	0	7	2	0	13	22	0	188	
8:30AM	75	8	0	1	84	0	15	98	0	113	0	10	1	0	17	28	0	225	
8:45AM	89	7	0	0	96	0	18	107	0	125	0	8	7	0	13	28	0	249	
Hourly Total	294	27	0	2	323	0	54	398	0	452	0	39	12	0	58	109	0	884	
9:00AM	68	15	0	1	84	0	8	70	0	78	0	13	8	0	18	39	0	201	
9:15AM	88	6	0	0	94	0	11	103	0	114	0	13	6	0	11	30	0	238	
9:30AM	85	5	0	0	90	0	11	83	0	94	0	12	3	1	17	33	0	217	
9:45AM	74	7	0	0	81	0	10	87	0	97	0	10	1	0	9	20	0	198	
Hourly Total	315	33	0	1	349	0	40	343	0	383	0	48	18	1	55	122	0	854	
10:00AM	76	6	0	0	82	0	17	64	0	81	0	13	7	0	10	30	0	193	
10:15AM	92	5	0	2	99	0	13	87	0	100	0	16	6	0	15	37	0	236	
10:30AM	78	9	0	0	87	0	5	89	0	94	0	13	1	0	17	31	0	212	
10:45AM	77	10	0	1	88	0	13	91	0	104	0	22	8	0	4	34	0	226	
Hourly Total	323	30	0	3	356	0	48	331	0	379	0	64	22	0	46	132	0	867	
11:00AM	101	6	0	0	107	0	10	91	0	101	0	16	1	0	13	30	0	238	
11:15AM	90	13	0	1	104	0	9	99	0	108	0	12	6	0	11	29	0	241	
11:30AM	103	9	0	2	114	0	10	80	0	90	0	16	8	0	6	30	0	234	
11:45AM	95	11	0	1	107	0	15	110	0	125	0	17	8	0	14	39	0	271	
Hourly Total	389	39	0	4	432	0	44	380	0	424	0	61	23	0	44	128	0	984	
12:00PM	97	17	0	0	114	0	13	117	0	130	0	15	8	0	11	34	0	278	
12:15PM	89	4	0	3	96	0	23	102	0	125	0	17	5	0	9	31	0	252	
12:30PM	89	9	0	0	98	0	10	101	0	111	0	16	7	0	9	32	0	241	
12:45PM	95	10	0	1	106	0	8	104	0	112	0	12	2	0	13	27	0	245	
Hourly Total	370	40	0	4	414	0	54	424	0	478	0	60	22	0	42	124	0	1016	
1:00PM	96	8	0	0	104	0	10	88	0	98	0	13	8	0	13	34	0	236	
1:15PM	111	17	0	0	128	0	17	85	0	102	0	7	7	0	11	25	0	255	
1:30PM	103	12	0	1	116	0	17	100	0	117	0	8	11	0	15	34	0	267	
1:45PM	124	10	0	0	134	0	14	99	0	113	1	22	6	0	11	39	0	286	
Hourly Total	434	47	0	1	482	0	58	372	0	430	1	50	32	0	50	132	0	1044	
2:00PM	124	19	0	1	144	0	13	111	0	124	0	8	12	0	11	31	0	299	
2:15PM	123	27	0	1	151	0	18	99	0	117	0	14	12	0	12	38	0	306	
2:30PM	133	32	0	0	165	0	18	101	0	119	0	51	47	0	15	113	0	397	
2:45PM	126	11	0	1	138	0	21	130	0	151	0	49	22	0	17	88	0	377	
Hourly Total	506	89	0	3	598	0	70	441	0	511	0	122	93	0	55	270	0	1379	
3:00PM	147	11	0	2	160	0	15	137	0	152	0	27	7	0	16	50	0	362	
3:15PM	152	25	0	1	178	0	34	169	0	203	0	23	17	0	10	50	0	431	
3:30PM	188	19	0	0	207	0	23	153	0	176	0	16	17	0	13	46	0	429	
3:45PM	172	27	0	2	201	0	36	143	0	179	0	26	15	0	17	58	0	438	
Hourly Total	659	82	0	5	746	0	108	602	0	710	0	92	56	0	56	204	0	1660	
4:00PM	172	25	0	1	198	0	31	146	0	177	0	22	21	0	20	63	0	438	
4:15PM	162	41	0	0	203	0	25	118	0	143	0	27	21	0	11	59	0	405	

Leg Direction	Route 42 Eastbound							Route 42 Westbound					McElroy Rd Northbound					Int			
	T	R	U	RR	App	Ped*		L	T	U	App	Ped*		L	R	U	RR		App	Ped*	
4:30PM	179	21	0	2	202	0		28	150	0	178	0		22	21	0	7	50	0		430
4:45PM	135	16	0	2	153	0		37	129	0	166	0		42	16	0	14	72	0		391
Hourly Total	648	103	0	5	756	0		121	543	0	664	0		113	79	0	52	244	0		1664
5:00PM	144	17	0	0	161	0		27	113	0	140	0		20	13	0	16	49	0		350
5:15PM	147	23	0	1	171	0		20	146	0	166	0		18	20	0	13	51	0		388
5:30PM	114	18	0	1	133	1		31	101	0	132	0		22	4	0	16	42	1		307
5:45PM	111	17	0	1	129	0		24	107	0	131	0		21	9	0	12	42	0		302
Hourly Total	516	75	0	3	594	1		102	467	0	569	0		81	46	0	57	184	1		1347
Total	5000	702	0	49	5751	1		878	5095	0	5973	1		890	459	1	614	1964	1		13688
% Approach	86.9%	12.2%	0%	0.9%	-	-		14.7%	85.3%	0%	-	-		45.3%	23.4%	0.1%	31.3%	-	-		-
% Total	36.5%	5.1%	0%	0.4%	42.0%	-		6.4%	37.2%	0%	43.6%	-		6.5%	3.4%	0%	4.5%	14.3%	-		-
Lights	4817	696	0	47	5560	-		849	4901	0	5750	-		869	448	1	601	1919	-		13229
% Lights	96.3%	99.1%	0%	95.9%	96.7%	-		96.7%	96.2%	0%	96.3%	-		97.6%	97.6%	100%	97.9%	97.7%	-		96.6%
Articulated Trucks and Single-Unit Trucks	160	1	0	1	162	-		14	177	0	191	-		6	7	0	8	21	-		374
% Articulated Trucks and Single-Unit Trucks	3.2%	0.1%	0%	2.0%	2.8%	-		1.6%	3.5%	0%	3.2%	-		0.7%	1.5%	0%	1.3%	1.1%	-		2.7%
Buses	23	5	0	1	29	-		15	17	0	32	-		15	4	0	5	24	-		85
% Buses	0.5%	0.7%	0%	2.0%	0.5%	-		1.7%	0.3%	0%	0.5%	-		1.7%	0.9%	0%	0.8%	1.2%	-		0.6%
Pedestrians	-	-	-	-	-	1		-	-	-	-	1		-	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	100%		-	-	-	-	100%		-	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	0		-	-	-	-	0		-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%		-	-	-	-	0%		-	-	-	-	-	-	0%	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

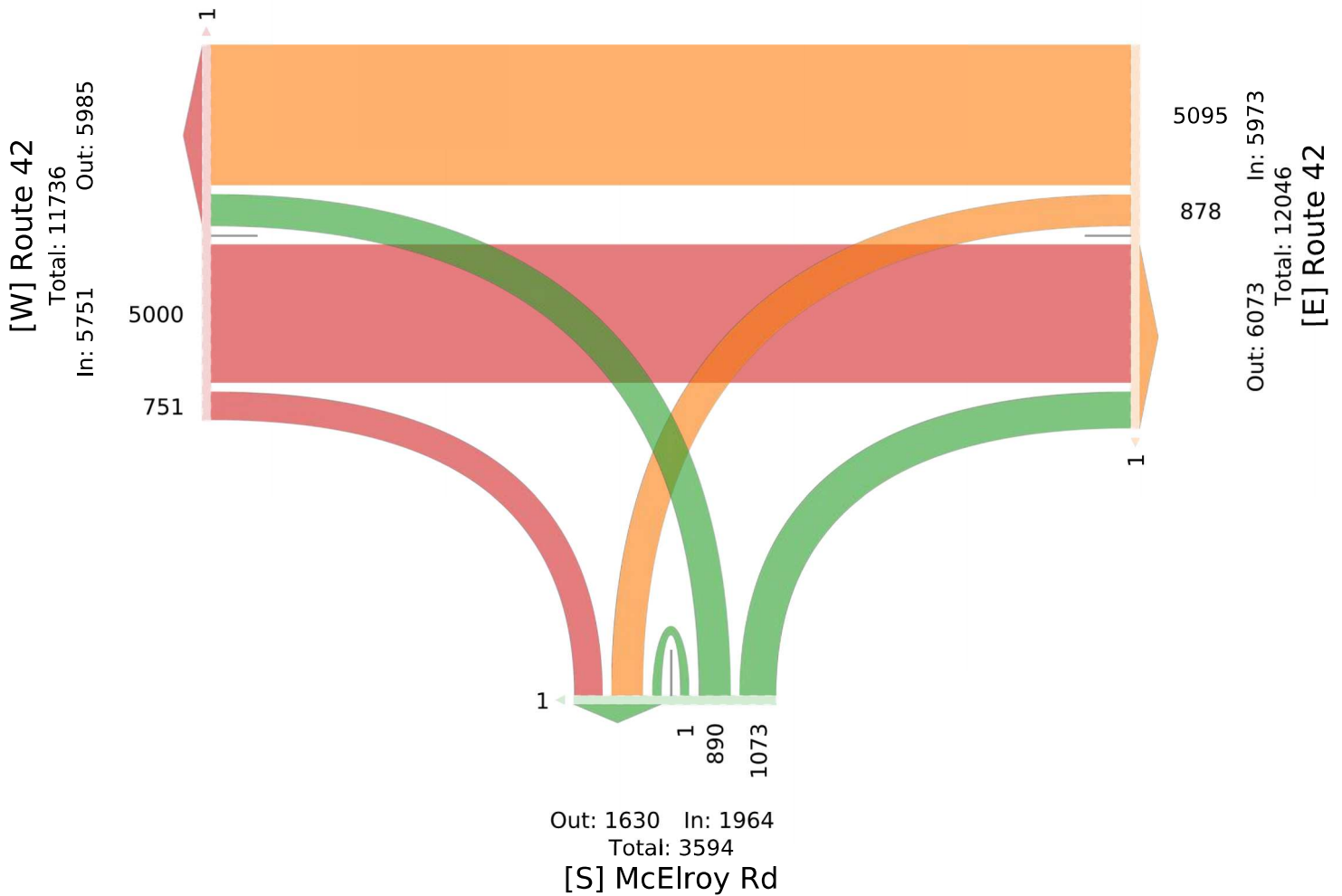
All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound							Route 42 Westbound							McElroy Rd Northbound							Int
	T	R	U	RR	App	Ped*		L	T	U	App	Ped*		L	R	U	RR	App	Ped*			
2024-03-12 7:00AM	76	24	0	4	104	0		15	100	0	115	0		18	7	0	7	32	0		251	
7:15AM	74	32	0	3	109	0		49	129	0	178	0		23	9	0	11	43	0		330	
7:30AM	101	28	0	0	129	0		51	148	0	199	0		38	18	0	16	72	0		400	
7:45AM	86	8	0	3	97	0		15	129	0	144	0		34	8	0	20	62	0		303	
Total	337	92	0	10	439	0		130	506	0	636	0		113	42	0	54	209	0		1284	
% Approach	76.8%	21.0%	0%	2.3%	-	-		20.4%	79.6%	0%	-	-		54.1%	20.1%	0%	25.8%	-	-		-	
% Total	26.2%	7.2%	0%	0.8%	34.2%	-		10.1%	39.4%	0%	49.5%	-		8.8%	3.3%	0%	4.2%	16.3%	-		-	
PHF	0.834	0.719	-	0.625	0.851	-		0.637	0.855	-	0.799	-		0.743	0.583	-	0.675	0.726	-		0.803	
Lights	320	91	0	10	421	-		124	485	0	609	-		107	41	0	53	201	-		1231	
% Lights	95.0%	98.9%	0%	100%	95.9%	-		95.4%	95.8%	0%	95.8%	-		94.7%	97.6%	0%	98.1%	96.2%	-		95.9%	
Articulated Trucks and Single-Unit Trucks	15	0	0	0	15	-		2	19	0	21	-		1	0	0	0	1	-		37	
% Articulated Trucks and Single-Unit Trucks	4.5%	0%	0%	0%	3.4%	-		1.5%	3.8%	0%	3.3%	-		0.9%	0%	0%	0%	0.5%	-		2.9%	
Buses	2	1	0	0	3	-		4	2	0	6	-		5	1	0	1	7	-		16	
% Buses	0.6%	1.1%	0%	0%	0.7%	-		3.1%	0.4%	0%	0.9%	-		4.4%	2.4%	0%	1.9%	3.3%	-		1.2%	
Pedestrians	-	-	-	-	-	0		-	-	-	-	0		-	-	-	-	-	-		0	
% Pedestrians	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-	-		-	
Bicycles on Crosswalk	-	-	-	-	-	0		-	-	-	-	0		-	-	-	-	-	-		0	
% Bicycles on Crosswalk	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-	-		-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

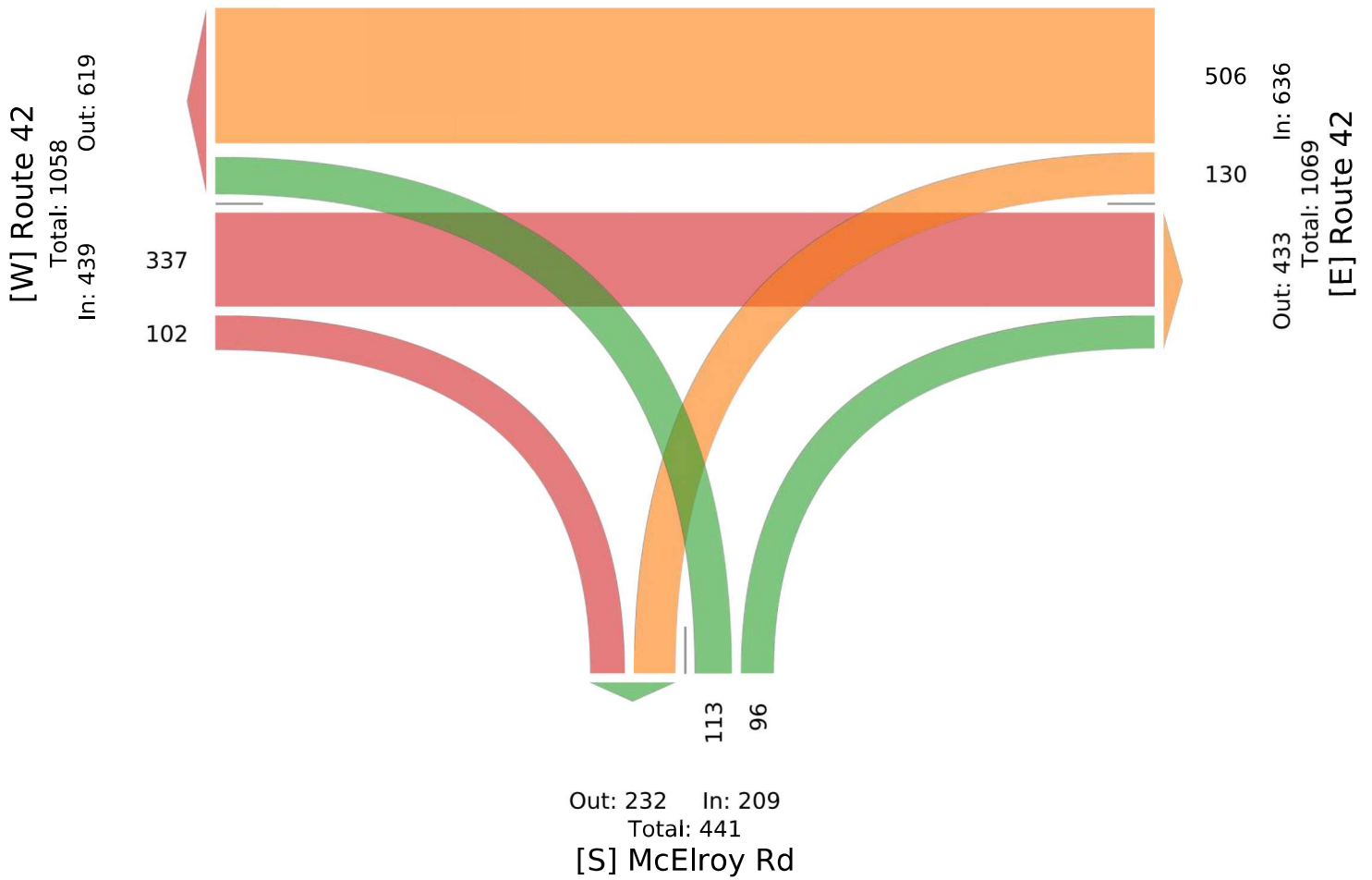
All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound						Route 42 Westbound						McElroy Rd Northbound						Int
	T	R	U	RR	App	Ped*	L	T	U	App	Ped*	L	R	U	RR	App	Ped*		
2024-03-12 1:00PM	96	8	0	0	104	0	10	88	0	98	0	13	8	0	13	34	0	236	
1:15PM	111	17	0	0	128	0	17	85	0	102	0	7	7	0	11	25	0	255	
1:30PM	103	12	0	1	116	0	17	100	0	117	0	8	11	0	15	34	0	267	
1:45PM	124	10	0	0	134	0	14	99	0	113	1	22	6	0	11	39	0	286	
Total	434	47	0	1	482	0	58	372	0	430	1	50	32	0	50	132	0	1044	
% Approach	90.0%	9.8%	0%	0.2%	-	-	13.5%	86.5%	0%	-	-	37.9%	24.2%	0%	37.9%	-	-	-	
% Total	41.6%	4.5%	0%	0.1%	46.2%	-	5.6%	35.6%	0%	41.2%	-	4.8%	3.1%	0%	4.8%	12.6%	-	-	
PHF	0.875	0.691	-	0.250	0.899	-	0.853	0.930	-	0.919	-	0.568	0.727	-	0.833	0.846	-	0.913	
Lights	418	47	0	1	466	-	55	357	0	412	-	49	30	0	50	129	-	1007	
% Lights	96.3%	100%	0%	100%	96.7%	-	94.8%	96.0%	0%	95.8%	-	98.0%	93.8%	0%	100%	97.7%	-	96.5%	
Articulated Trucks and Single-Unit Trucks	15	0	0	0	15	-	3	14	0	17	-	0	2	0	0	2	-	34	
% Articulated Trucks and Single-Unit Trucks	3.5%	0%	0%	0%	3.1%	-	5.2%	3.8%	0%	4.0%	-	0%	6.3%	0%	0%	1.5%	-	3.3%	
Buses	1	0	0	0	1	-	0	1	0	1	-	1	0	0	0	1	-	3	
% Buses	0.2%	0%	0%	0%	0.2%	-	0%	0.3%	0%	0.2%	-	2.0%	0%	0%	0%	0.8%	-	0.3%	
Pedestrians	-	-	-	-	-	0	-	-	-	-	1	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-	-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

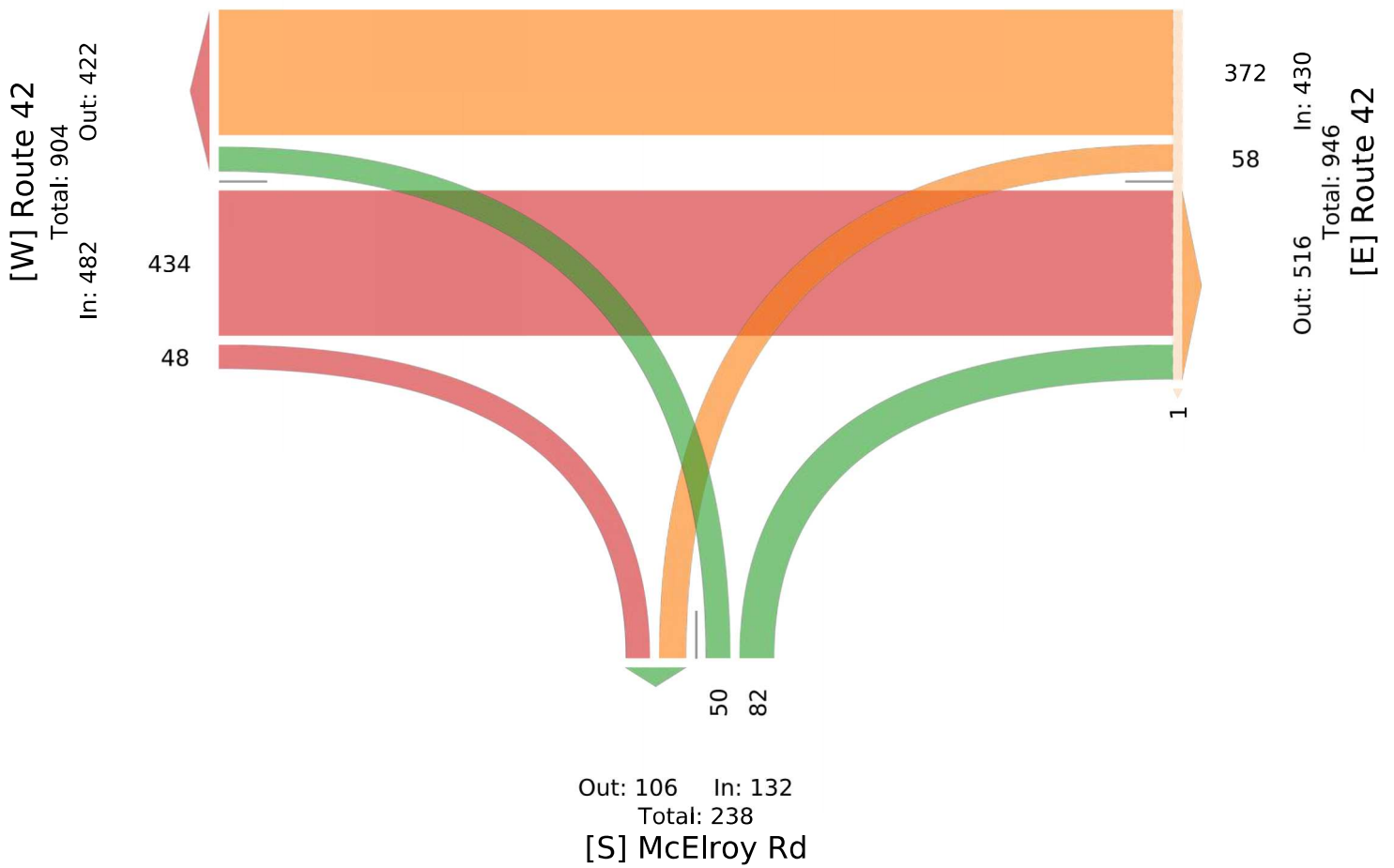
All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 42 Eastbound							Route 42 Westbound							McElroy Rd Northbound							Int
	T	R	U	RR	App	Ped*		L	T	U	App	Ped*		L	R	U	RR	App	Ped*			
2024-03-12 3:15PM	152	25	0	1	178	0		34	169	0	203	0		23	17	0	10	50	0		431	
3:30PM	188	19	0	0	207	0		23	153	0	176	0		16	17	0	13	46	0		429	
3:45PM	172	27	0	2	201	0		36	143	0	179	0		26	15	0	17	58	0		438	
4:00PM	172	25	0	1	198	0		31	146	0	177	0		22	21	0	20	63	0		438	
Total	684	96	0	4	784	0		124	611	0	735	0		87	70	0	60	217	0		1736	
% Approach	87.2%	12.2%	0%	0.5%	-	-		16.9%	83.1%	0%	-	-		40.1%	32.3%	0%	27.6%	-	-		-	
% Total	39.4%	5.5%	0%	0.2%	45.2%	-		7.1%	35.2%	0%	42.3%	-		5.0%	4.0%	0%	3.5%	12.5%	-		-	
PHF	0.910	0.889	-	0.500	0.947	-		0.861	0.904	-	0.905	-		0.837	0.833	-	0.750	0.861	-		0.991	
Lights	670	94	0	4	768	-		121	592	0	713	-		86	70	0	59	215	-		1696	
% Lights	98.0%	97.9%	0%	100%	98.0%	-		97.6%	96.9%	0%	97.0%	-		98.9%	100%	0%	98.3%	99.1%	-		97.7%	
Articulated Trucks and Single-Unit Trucks	13	0	0	0	13	-		1	14	0	15	-		0	0	0	1	1	-		29	
% Articulated Trucks and Single-Unit Trucks	1.9%	0%	0%	0%	1.7%	-		0.8%	2.3%	0%	2.0%	-		0%	0%	0%	1.7%	0.5%	-		1.7%	
Buses	1	2	0	0	3	-		2	5	0	7	-		1	0	0	0	1	-		11	
% Buses	0.1%	2.1%	0%	0%	0.4%	-		1.6%	0.8%	0%	1.0%	-		1.1%	0%	0%	0%	0.5%	-		0.6%	
Pedestrians	-	-	-	-	-	0		-	-	-	-	0		-	-	-	-	-	-		0	
% Pedestrians	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-	-		-	
Bicycles on Crosswalk	-	-	-	-	-	0		-	-	-	-	0		-	-	-	-	-	-		0	
% Bicycles on Crosswalk	-	-	-	-	-	-		-	-	-	-	-		-	-	-	-	-	-		-	

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, RR: Right on red, T: Thru, U: U-Turn

Route 42 & McElroy Rd - TMC

Tue Mar 12, 2024

PM Peak (3:15 PM - 4:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

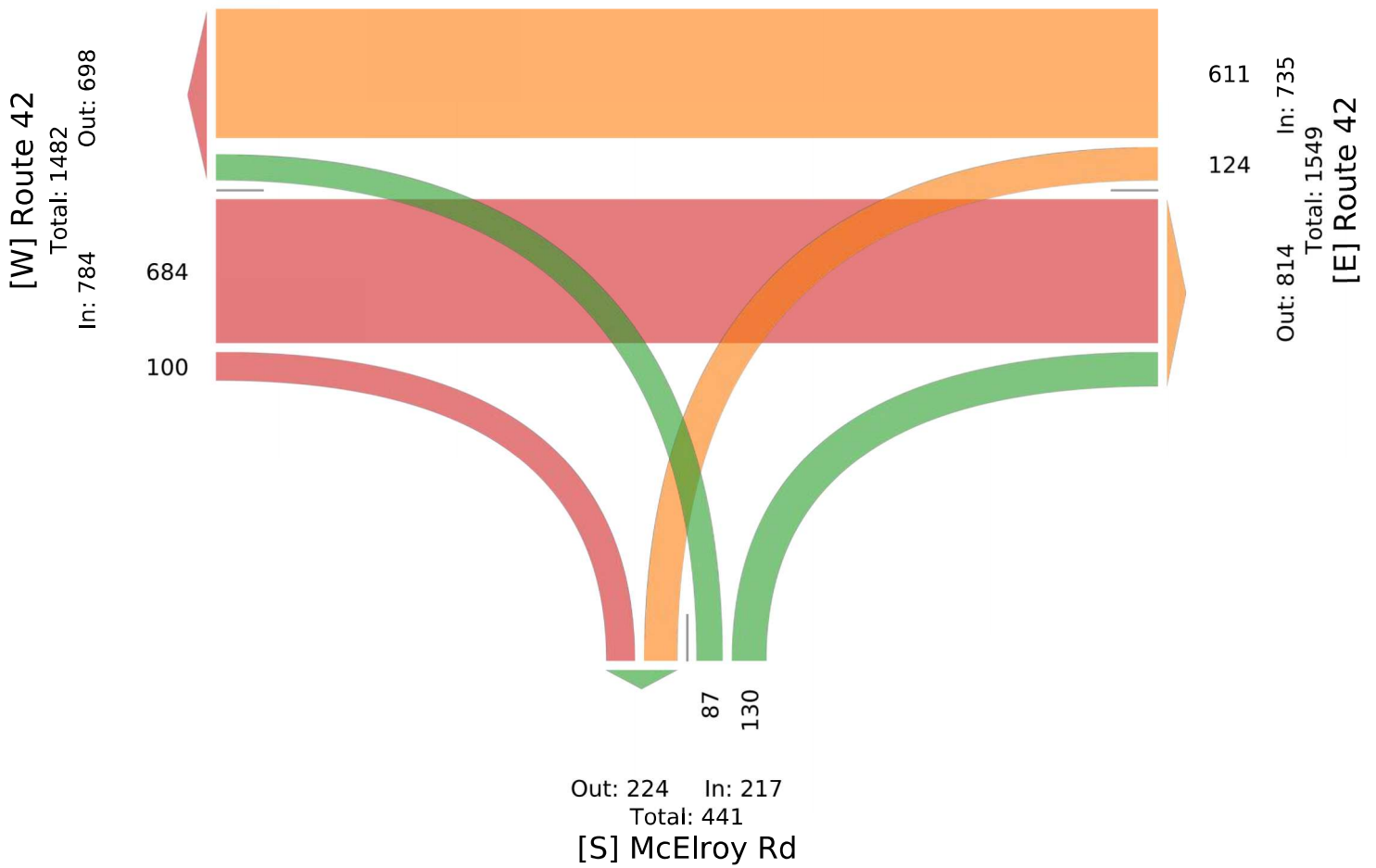
All Movements

ID: 1164002, Location: 40.782322, -82.4651



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 30 Ramps Eastbound					Route 30 Ramps Westbound					Beale Rd Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2024-03-12 6:00AM	0	10	0	10	0	50	3	0	53	0	7	6	0	13	0	76
6:15AM	0	8	0	8	0	73	2	0	75	0	6	7	0	13	0	96
6:30AM	1	10	0	11	0	96	3	0	99	0	15	16	0	31	0	141
6:45AM	0	10	0	10	0	91	2	0	93	0	7	7	0	14	0	117
Hourly Total	1	38	0	39	0	310	10	0	320	0	35	36	0	71	0	430
7:00AM	0	18	0	18	0	101	4	0	105	0	9	4	0	13	0	136
7:15AM	1	14	0	15	0	115	5	0	120	0	10	10	0	20	0	155
7:30AM	1	14	0	15	0	138	8	1	147	0	14	7	0	21	0	183
7:45AM	2	20	0	22	0	117	4	0	121	0	10	14	0	24	0	167
Hourly Total	4	66	0	70	0	471	21	1	493	0	43	35	0	78	0	641
8:00AM	0	24	0	24	0	90	7	0	97	0	12	6	0	18	0	139
8:15AM	0	9	0	9	0	102	4	0	106	0	13	7	0	20	0	135
8:30AM	1	13	0	14	0	91	13	0	104	0	11	14	0	25	0	143
8:45AM	1	10	0	11	0	88	13	0	101	0	11	6	0	17	0	129
Hourly Total	2	56	0	58	0	371	37	0	408	0	47	33	0	80	0	546
9:00AM	1	15	0	16	0	89	11	0	100	0	8	8	0	16	0	132
9:15AM	0	7	0	7	0	103	6	0	109	0	8	6	0	14	0	130
9:30AM	1	13	0	14	0	82	12	0	94	0	8	10	0	18	0	126
9:45AM	1	10	0	11	0	82	11	0	93	0	9	4	0	13	0	117
Hourly Total	3	45	0	48	0	356	40	0	396	0	33	28	0	61	0	505
10:00AM	2	11	0	13	0	51	12	0	63	0	9	6	0	15	0	91
10:15AM	0	12	0	12	0	81	6	0	87	0	8	7	0	15	0	114
10:30AM	2	9	0	11	0	80	10	0	90	0	14	11	0	25	0	126
10:45AM	0	12	0	12	0	74	20	0	94	0	8	7	0	15	0	121
Hourly Total	4	44	0	48	0	286	48	0	334	0	39	31	0	70	0	452
11:00AM	1	12	0	13	0	72	9	0	81	0	13	2	0	15	0	109
11:15AM	0	10	0	10	0	67	12	0	79	0	6	10	0	16	0	105
11:30AM	2	18	0	20	0	66	20	0	86	0	7	8	0	15	0	121
11:45AM	2	18	0	20	0	76	14	0	90	0	7	9	0	16	0	126
Hourly Total	5	58	0	63	0	281	55	0	336	0	33	29	0	62	0	461
12:00PM	3	15	0	18	0	81	13	0	94	0	14	11	0	25	0	137
12:15PM	0	14	0	14	0	86	21	0	107	0	11	9	0	20	0	141
12:30PM	0	14	0	14	0	72	13	0	85	0	11	6	0	17	0	116
12:45PM	0	13	0	13	0	97	14	0	111	0	9	5	0	14	0	138
Hourly Total	3	56	0	59	0	336	61	0	397	0	45	31	0	76	0	532
1:00PM	3	13	0	16	0	79	19	0	98	0	10	5	0	15	0	129
1:15PM	0	18	0	18	0	88	17	0	105	0	13	4	0	17	0	140
1:30PM	0	19	0	19	0	85	18	0	103	0	17	8	0	25	0	147
1:45PM	0	12	0	12	0	92	14	0	106	0	11	8	0	19	0	137
Hourly Total	3	62	0	65	0	344	68	0	412	0	51	25	0	76	0	553
2:00PM	1	18	0	19	0	79	18	0	97	0	10	4	0	14	0	130
2:15PM	2	13	0	15	0	88	20	0	108	0	13	9	0	22	0	145
2:30PM	0	14	0	14	0	90	35	0	125	0	11	12	0	23	0	162
2:45PM	1	19	0	20	0	122	22	0	144	0	16	10	0	26	0	190
Hourly Total	4	64	0	68	0	379	95	0	474	0	50	35	0	85	0	627
3:00PM	2	21	0	23	0	109	25	0	134	0	9	12	0	21	0	178
3:15PM	3	20	0	23	0	122	21	0	143	0	17	12	0	29	0	195
3:30PM	3	17	0	20	0	110	24	0	134	0	12	10	0	22	0	176
3:45PM	2	17	0	19	0	101	23	0	124	0	19	9	0	28	0	171
Hourly Total	10	75	0	85	0	442	93	0	535	0	57	43	0	100	0	720
4:00PM	0	29	0	29	0	90	26	0	116	0	14	9	0	23	0	168
4:15PM	4	18	0	22	0	104	27	0	131	0	17	8	0	25	0	178

Leg Direction	Route 30 Ramps Eastbound					Route 30 Ramps Westbound					Beale Rd Southbound					
Time	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	Int
4:30PM	3	25	0	28	0	101	27	0	128	0	16	9	0	25	0	181
4:45PM	4	28	0	32	0	109	33	0	142	0	14	8	0	22	0	196
Hourly Total	11	100	0	111	0	404	113	0	517	0	61	34	0	95	0	723
5:00PM	5	27	0	32	0	97	20	0	117	0	19	9	0	28	0	177
5:15PM	1	13	0	14	0	115	26	0	141	0	17	15	0	32	0	187
5:30PM	4	36	0	40	0	98	22	0	120	0	8	10	0	18	0	178
5:45PM	1	28	0	29	0	84	22	0	106	0	12	10	0	22	0	157
Hourly Total	11	104	0	115	0	394	90	0	484	0	56	44	0	100	0	699
Total	61	768	0	829	0	4374	731	1	5106	0	550	404	0	954	0	6889
% Approach	7.4%	92.6%	0%	-	-	85.7%	14.3%	0%	-	-	57.7%	42.3%	0%	-	-	-
% Total	0.9%	11.1%	0%	12.0%	-	63.5%	10.6%	0%	74.1%	-	8.0%	5.9%	0%	13.8%	-	-
Lights	59	742	0	801	-	4199	720	1	4920	-	543	401	0	944	-	6665
% Lights	96.7%	96.6%	0%	96.6%	-	96.0%	98.5%	100%	96.4%	-	98.7%	99.3%	0%	99.0%	-	96.7%
Articulated Trucks and Single-Unit Trucks	2	26	0	28	-	161	4	0	165	-	7	2	0	9	-	202
% Articulated Trucks and Single-Unit Trucks	3.3%	3.4%	0%	3.4%	-	3.7%	0.5%	0%	3.2%	-	1.3%	0.5%	0%	0.9%	-	2.9%
Buses	0	0	0	0	-	14	7	0	21	-	0	1	0	1	-	22
% Buses	0%	0%	0%	0%	-	0.3%	1.0%	0%	0.4%	-	0%	0.2%	0%	0.1%	-	0.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Beale Rd

Total: 1746

In: 954 Out: 792

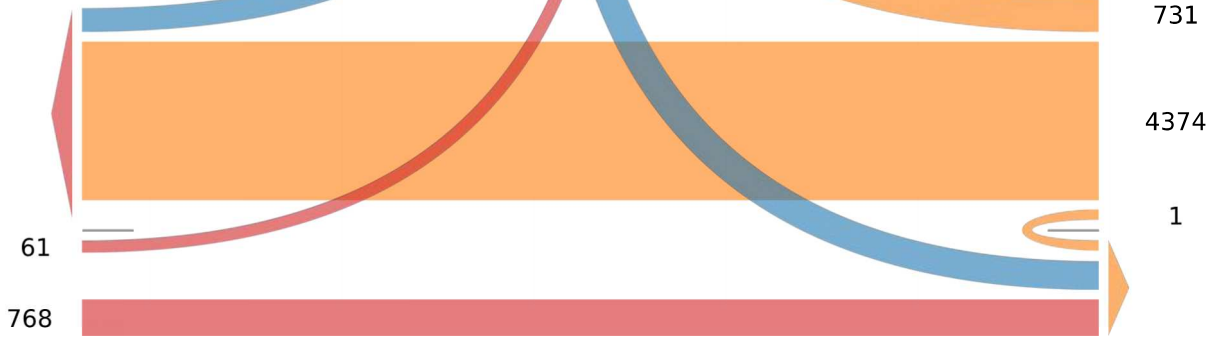
404
550

[W] Route 30 Ramps

Total: 5607

In: 829 Out: 4778

61
768



731
4374
1

Out: 1319 In: 5106

Total: 6425

[E] Route 30 Ramps

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

AM Peak (7:15 AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 30 Ramps Eastbound					Route 30 Ramps Westbound					Beale Rd Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2024-03-12 7:15AM	1	14	0	15	0	115	5	0	120	0	10	10	0	20	0	155
7:30AM	1	14	0	15	0	138	8	1	147	0	14	7	0	21	0	183
7:45AM	2	20	0	22	0	117	4	0	121	0	10	14	0	24	0	167
8:00AM	0	24	0	24	0	90	7	0	97	0	12	6	0	18	0	139
Total	4	72	0	76	0	460	24	1	485	0	46	37	0	83	0	644
% Approach	5.3%	94.7%	0%	-	-	94.8%	4.9%	0.2%	-	-	55.4%	44.6%	0%	-	-	-
% Total	0.6%	11.2%	0%	11.8%	-	71.4%	3.7%	0.2%	75.3%	-	7.1%	5.7%	0%	12.9%	-	-
PHF	0.500	0.750	-	0.792	-	0.833	0.750	0.250	0.825	-	0.821	0.661	-	0.865	-	0.880
Lights	4	69	0	73	-	438	23	1	462	-	46	37	0	83	-	618
% Lights	100%	95.8%	0%	96.1%	-	95.2%	95.8%	100%	95.3%	-	100%	100%	0%	100%	-	96.0%
Articulated Trucks and Single-Unit Trucks	0	3	0	3	-	19	0	0	19	-	0	0	0	0	-	22
% Articulated Trucks and Single-Unit Trucks	0%	4.2%	0%	3.9%	-	4.1%	0%	0%	3.9%	-	0%	0%	0%	0%	-	3.4%
Buses	0	0	0	0	-	3	1	0	4	-	0	0	0	0	-	4
% Buses	0%	0%	0%	0%	-	0.7%	4.2%	0%	0.8%	-	0%	0%	0%	0%	-	0.6%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

AM Peak (7:15 AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

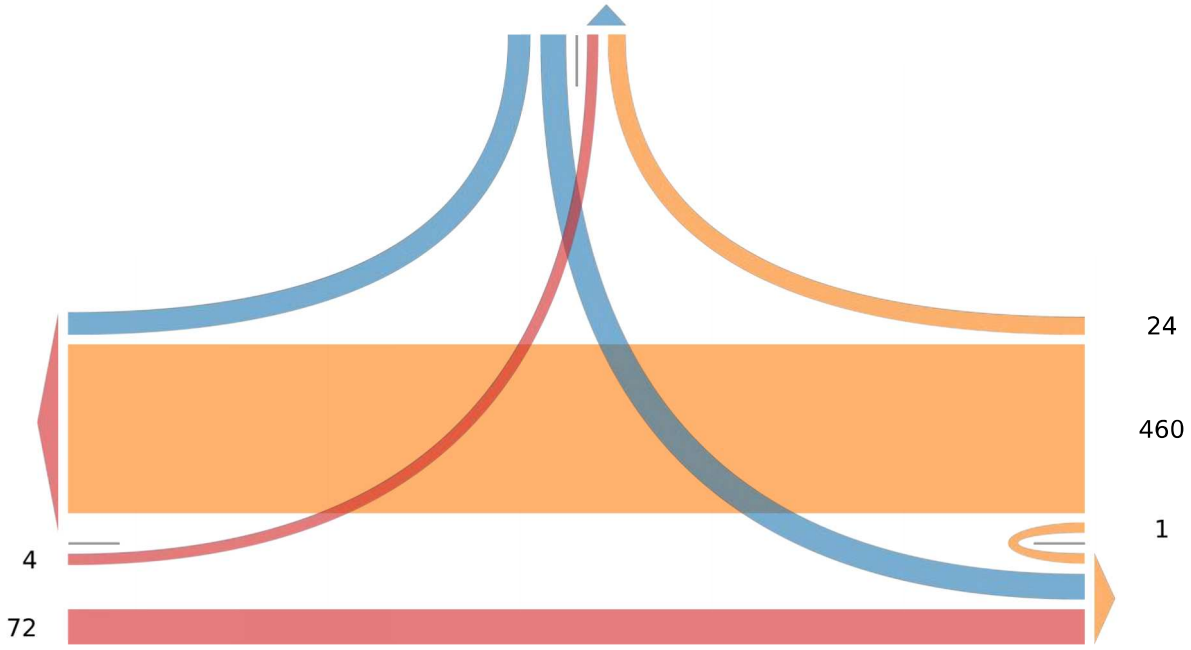
[N] Beale Rd

Total: 111

In: 83 Out: 28

37 46

[W] Route 30 Ramps
Total: 573
In: 76 Out: 497



[E] Route 30 Ramps
Total: 604
In: 485 Out: 119

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

Midday Peak (12:45 PM - 1:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 30 Ramps Eastbound					Route 30 Ramps Westbound					Beale Rd Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
Time																
2024-03-12 12:45PM	0	13	0	13	0	97	14	0	111	0	9	5	0	14	0	138
1:00PM	3	13	0	16	0	79	19	0	98	0	10	5	0	15	0	129
1:15PM	0	18	0	18	0	88	17	0	105	0	13	4	0	17	0	140
1:30PM	0	19	0	19	0	85	18	0	103	0	17	8	0	25	0	147
Total	3	63	0	66	0	349	68	0	417	0	49	22	0	71	0	554
% Approach	4.5%	95.5%	0%	-	-	83.7%	16.3%	0%	-	-	69.0%	31.0%	0%	-	-	-
% Total	0.5%	11.4%	0%	11.9%	-	63.0%	12.3%	0%	75.3%	-	8.8%	4.0%	0%	12.8%	-	-
PHF	0.250	0.829	-	0.868	-	0.899	0.895	-	0.939	-	0.721	0.688	-	0.710	-	0.942
Lights	3	62	0	65	-	334	67	0	401	-	48	22	0	70	-	536
% Lights	100%	98.4%	0%	98.5%	-	95.7%	98.5%	0%	96.2%	-	98.0%	100%	0%	98.6%	-	96.8%
Articulated Trucks and Single-Unit Trucks	0	1	0	1	-	14	1	0	15	-	1	0	0	1	-	17
% Articulated Trucks and Single-Unit Trucks	0%	1.6%	0%	1.5%	-	4.0%	1.5%	0%	3.6%	-	2.0%	0%	0%	1.4%	-	3.1%
Buses	0	0	0	0	-	1	0	0	1	-	0	0	0	0	-	1
% Buses	0%	0%	0%	0%	-	0.3%	0%	0%	0.2%	-	0%	0%	0%	0%	-	0.2%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

Midday Peak (12:45 PM - 1:45 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Beale Rd

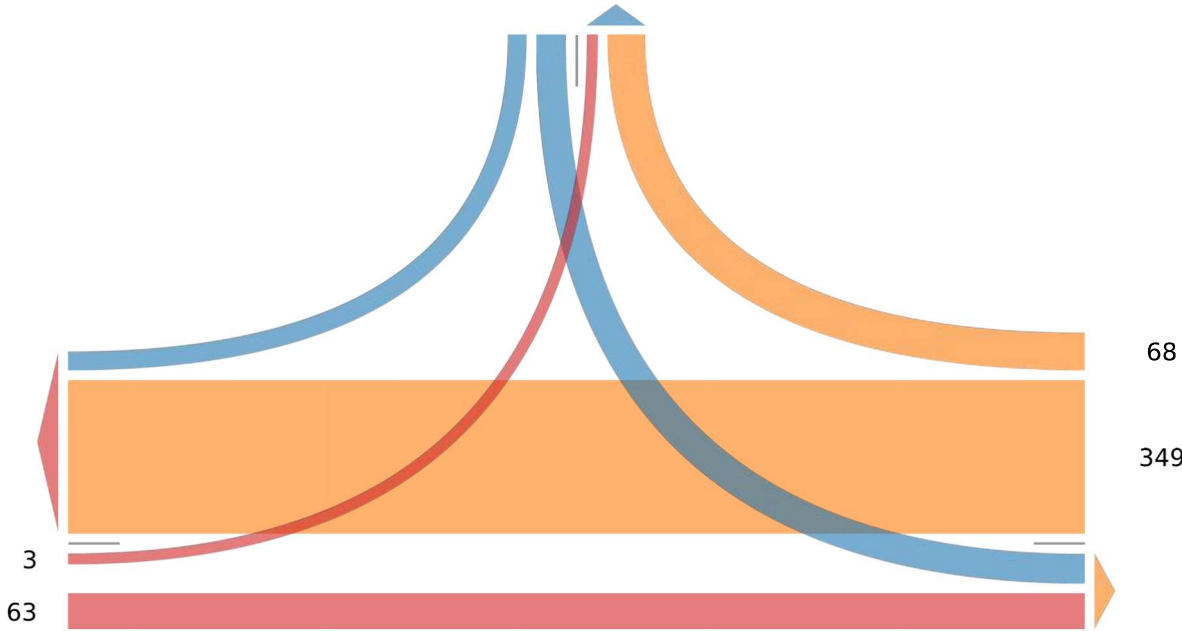
Total: 142

In: 71 Out: 71

22 49

[W] Route 30 Ramps

Total: 437
In: 66 Out: 371



Out: 112 In: 417
Total: 529

[E] Route 30 Ramps

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Route 30 Ramps Eastbound					Route 30 Ramps Westbound					Beale Rd Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2024-03-12 4:30PM	3	25	0	28	0	101	27	0	128	0	16	9	0	25	0	181
4:45PM	4	28	0	32	0	109	33	0	142	0	14	8	0	22	0	196
5:00PM	5	27	0	32	0	97	20	0	117	0	19	9	0	28	0	177
5:15PM	1	13	0	14	0	115	26	0	141	0	17	15	0	32	0	187
Total	13	93	0	106	0	422	106	0	528	0	66	41	0	107	0	741
% Approach	12.3%	87.7%	0%	-	-	79.9%	20.1%	0%	-	-	61.7%	38.3%	0%	-	-	-
% Total	1.8%	12.6%	0%	14.3%	-	57.0%	14.3%	0%	71.3%	-	8.9%	5.5%	0%	14.4%	-	-
PHF	0.650	0.830	-	0.828	-	0.917	0.803	-	0.930	-	0.868	0.683	-	0.836	-	0.945
Lights	13	91	0	104	-	415	106	0	521	-	66	40	0	106	-	731
% Lights	100%	97.8%	0%	98.1%	-	98.3%	100%	0%	98.7%	-	100%	97.6%	0%	99.1%	-	98.7%
Articulated Trucks and Single-Unit Trucks	0	2	0	2	-	7	0	0	7	-	0	0	0	0	-	9
% Articulated Trucks and Single-Unit Trucks	0%	2.2%	0%	1.9%	-	1.7%	0%	0%	1.3%	-	0%	0%	0%	0%	-	1.2%
Buses	0	0	0	0	-	0	0	0	0	-	0	1	0	1	-	1
% Buses	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	2.4%	0%	0.9%	-	0.1%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Route 30 Ramps & Beale Rd - TMC

Tue Mar 12, 2024

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164006, Location: 40.780585, -82.47038



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

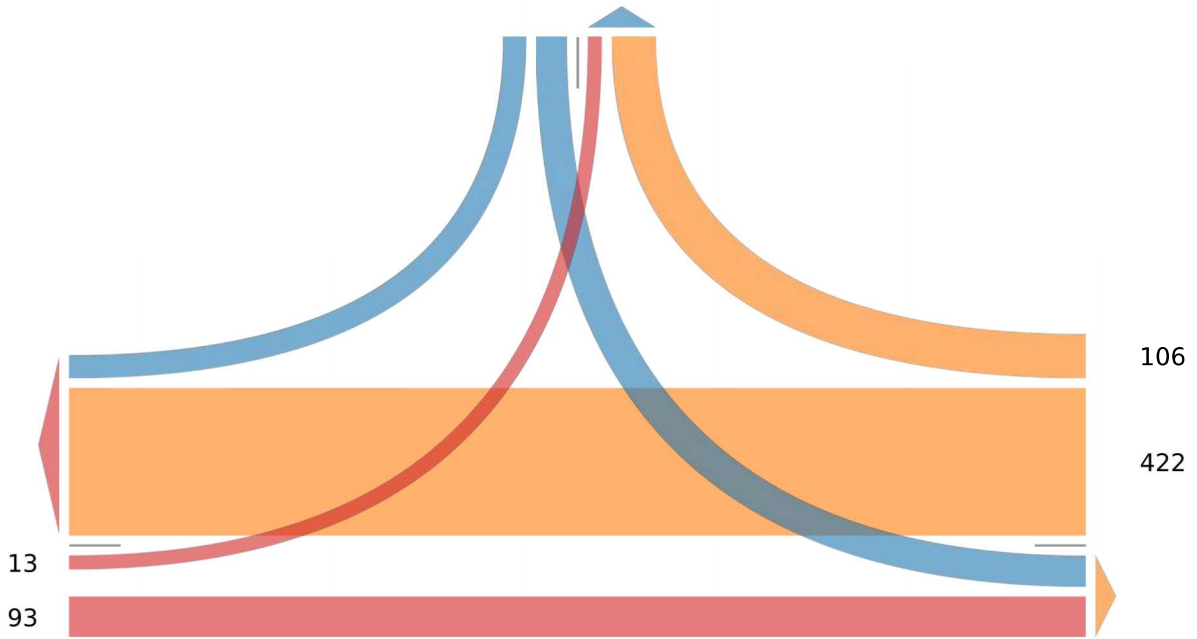
[N] Beale Rd

Total: 226
In: 107 Out: 119

41 66

[W] Route 30 Ramps

Total: 569
In: 106 Out: 463



Out: 159 In: 528
Total: 687

[E] Route 30 Ramps

Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Eastbound					Beale Rd Northbound					Beale Rd Southbound					Int
	L	R	U	App	Ped*	L	T	U	App	Ped*	T	R	U	App	Ped*	
2024-03-12 6:00AM	0	1	0	1	0	0	3	0	3	0	12	0	0	12	0	16
6:15AM	0	2	0	2	0	0	2	0	2	0	12	0	0	12	0	16
6:30AM	0	2	0	2	0	1	3	0	4	0	30	0	0	30	0	36
6:45AM	0	4	0	4	0	0	2	0	2	0	12	0	0	12	0	18
Hourly Total	0	9	0	9	0	1	10	0	11	0	66	0	0	66	0	86
7:00AM	0	3	0	3	0	0	2	0	2	0	10	1	0	11	0	16
7:15AM	2	7	0	9	0	0	6	0	6	0	22	1	0	23	0	38
7:30AM	0	2	0	2	0	2	7	0	9	0	23	0	0	23	0	34
7:45AM	0	2	0	2	0	2	5	0	7	0	20	0	0	20	0	29
Hourly Total	2	14	0	16	0	4	20	0	24	0	75	2	0	77	0	117
8:00AM	1	4	0	5	0	0	3	0	3	0	16	0	0	16	0	24
8:15AM	1	4	0	5	0	1	5	0	6	0	18	0	0	18	0	29
8:30AM	1	2	0	3	0	0	14	0	14	0	21	3	0	24	0	41
8:45AM	0	1	0	1	0	0	14	0	14	0	19	1	0	20	0	35
Hourly Total	3	11	0	14	0	1	36	0	37	0	74	4	0	78	0	129
9:00AM	0	2	0	2	0	1	10	0	11	0	15	0	0	15	0	28
9:15AM	0	5	0	5	0	1	8	0	9	0	9	0	0	9	0	23
9:30AM	1	5	0	6	0	1	10	0	11	0	14	0	0	14	0	31
9:45AM	0	2	0	2	0	2	11	0	13	0	13	1	0	14	0	29
Hourly Total	1	14	0	15	0	5	39	0	44	0	51	1	0	52	0	111
10:00AM	0	1	0	1	0	5	9	0	14	0	10	0	0	10	0	25
10:15AM	1	3	0	4	0	0	6	0	6	0	12	0	0	12	0	22
10:30AM	0	3	0	3	0	1	11	0	12	0	22	1	0	23	0	38
10:45AM	2	4	0	6	0	1	21	0	22	0	12	1	0	13	0	41
Hourly Total	3	11	0	14	0	7	47	0	54	0	56	2	0	58	0	126
11:00AM	1	1	0	2	0	1	11	0	12	0	17	0	0	17	0	31
11:15AM	1	3	0	4	0	0	11	0	11	0	13	0	0	13	0	28
11:30AM	0	5	0	5	0	0	18	0	18	0	5	2	0	7	0	30
11:45AM	0	2	0	2	0	0	14	0	14	0	17	1	0	18	0	34
Hourly Total	2	11	0	13	0	1	54	0	55	0	52	3	0	55	0	123
12:00PM	1	1	0	2	0	2	16	0	18	0	21	0	0	21	0	41
12:15PM	0	4	0	4	0	3	17	0	20	0	17	0	0	17	0	41
12:30PM	3	4	0	7	0	1	11	0	12	0	14	0	0	14	0	33
12:45PM	1	1	0	2	0	3	12	0	15	0	13	3	0	16	0	33
Hourly Total	5	10	0	15	0	9	56	0	65	0	65	3	0	68	0	148
1:00PM	4	2	0	6	0	2	21	0	23	0	16	0	0	16	0	45
1:15PM	1	2	0	3	0	0	19	0	19	0	19	2	0	21	0	43
1:30PM	2	2	0	4	0	1	17	0	18	0	25	0	0	25	0	47
1:45PM	1	2	0	3	0	1	12	0	13	0	16	3	0	19	0	35
Hourly Total	8	8	0	16	0	4	69	0	73	0	76	5	0	81	0	170
2:00PM	3	2	0	5	0	1	16	0	17	1	13	1	0	14	0	36
2:15PM	1	2	0	3	0	3	21	0	24	0	26	2	0	28	0	55
2:30PM	1	6	0	7	0	1	29	0	30	0	17	1	0	18	0	55
2:45PM	1	3	0	4	0	1	24	0	25	0	18	0	0	18	0	47
Hourly Total	6	13	0	19	0	6	90	0	96	1	74	4	0	78	0	193
3:00PM	2	5	0	7	0	4	20	0	24	0	14	1	0	15	0	46
3:15PM	5	11	0	16	0	1	25	0	26	0	18	0	0	18	0	60
3:30PM	2	3	0	5	0	2	29	0	31	0	20	2	0	22	0	58
3:45PM	1	8	0	9	0	4	20	0	24	0	23	2	0	25	0	58
Hourly Total	10	27	0	37	0	11	94	0	105	0	75	5	0	80	0	222
4:00PM	0	3	0	3	0	2	23	0	25	0	19	0	0	19	0	47
4:15PM	3	6	0	9	0	7	30	0	37	0	24	4	0	28	0	74

Leg Direction	Rayfield Dr Eastbound					Beale Rd Northbound					Beale Rd Southbound					Int
	L	R	U	App	Ped*	L	T	U	App	Ped*	T	R	U	App	Ped*	
4:30PM	1	3	0	4	0	3	28	0	31	0	23	1	0	24	0	59
4:45PM	1	5	0	6	0	5	38	0	43	0	15	1	0	16	0	65
Hourly Total	5	17	0	22	0	17	119	0	136	0	81	6	0	87	0	245
5:00PM	3	4	0	7	0	3	23	0	26	0	23	2	0	25	0	58
5:15PM	6	3	0	9	0	6	20	0	26	0	26	2	0	28	0	63
5:30PM	3	5	0	8	0	2	31	0	33	0	13	1	0	14	0	55
5:45PM	1	4	0	5	0	1	25	0	26	0	20	0	0	20	0	51
Hourly Total	13	16	0	29	0	12	99	0	111	0	82	5	0	87	0	227
Total	58	161	0	219	0	78	733	0	811	1	827	40	0	867	0	1897
% Approach	26.5%	73.5%	0%	-	-	9.6%	90.4%	0%	-	-	95.4%	4.6%	0%	-	-	-
% Total	3.1%	8.5%	0%	11.5%	-	4.1%	38.6%	0%	42.8%	-	43.6%	2.1%	0%	45.7%	-	-
Lights	51	158	0	209	-	78	719	0	797	-	818	35	0	853	-	1859
% Lights	87.9%	98.1%	0%	95.4%	-	100%	98.1%	0%	98.3%	-	98.9%	87.5%	0%	98.4%	-	98.0%
Articulated Trucks and Single-Unit Trucks	2	2	0	4	-	0	7	0	7	-	9	1	0	10	-	21
% Articulated Trucks and Single-Unit Trucks	3.4%	1.2%	0%	1.8%	-	0%	1.0%	0%	0.9%	-	1.1%	2.5%	0%	1.2%	-	1.1%
Buses	5	1	0	6	-	0	7	0	7	-	0	4	0	4	-	17
% Buses	8.6%	0.6%	0%	2.7%	-	0%	1.0%	0%	0.9%	-	0%	10.0%	0%	0.5%	-	0.9%
Pedestrians	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

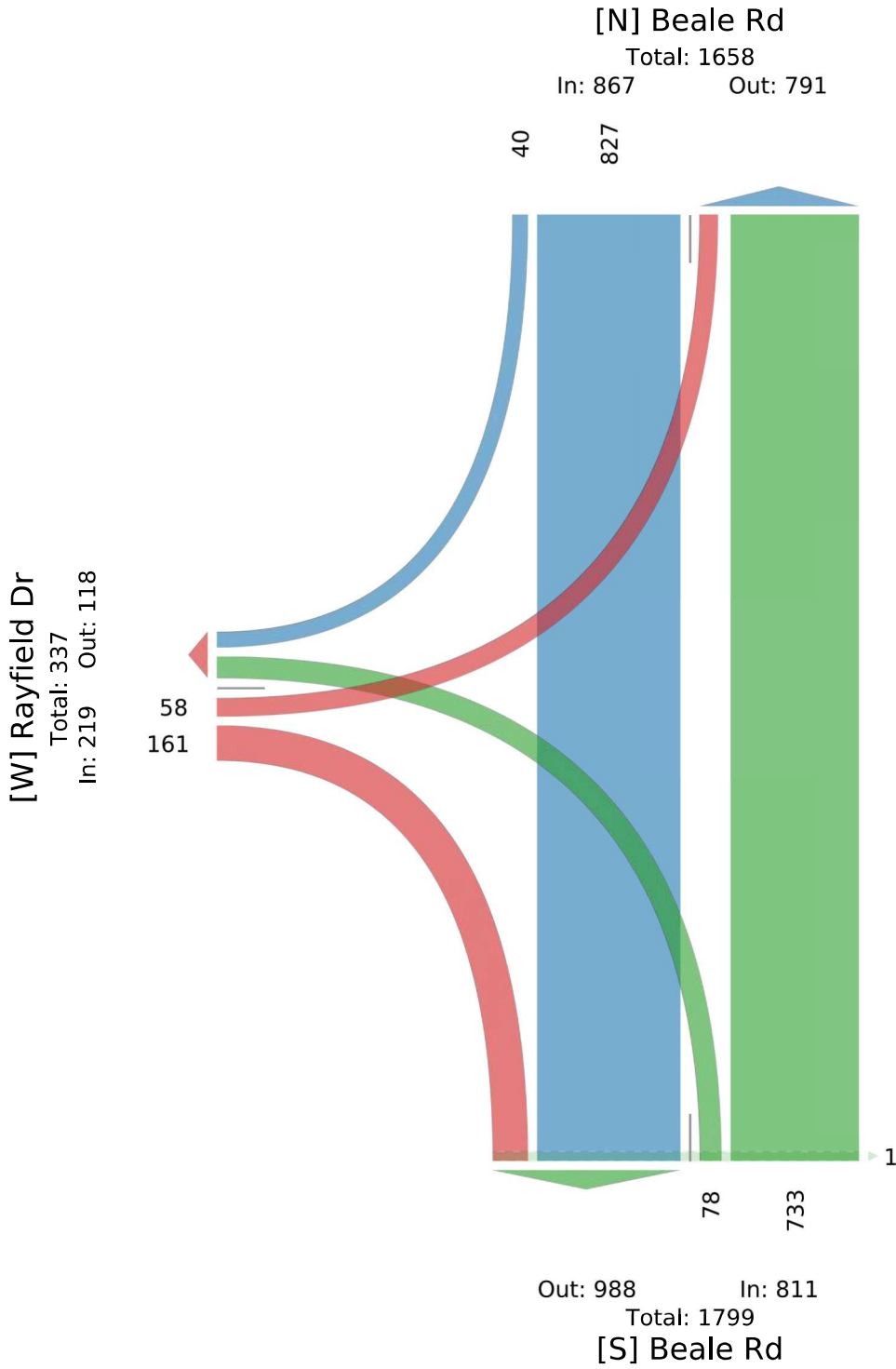
All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

AM Peak (8:15 AM - 9:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Eastbound					Beale Rd Northbound					Beale Rd Southbound					Int
	L	R	U	App	Ped*	L	T	U	App	Ped*	T	R	U	App	Ped*	
2024-03-12 8:15AM	1	4	0	5	0	1	5	0	6	0	18	0	0	18	0	29
8:30AM	1	2	0	3	0	0	14	0	14	0	21	3	0	24	0	41
8:45AM	0	1	0	1	0	0	14	0	14	0	19	1	0	20	0	35
9:00AM	0	2	0	2	0	1	10	0	11	0	15	0	0	15	0	28
Total	2	9	0	11	0	2	43	0	45	0	73	4	0	77	0	133
% Approach	18.2%	81.8%	0%	-	-	4.4%	95.6%	0%	-	-	94.8%	5.2%	0%	-	-	-
% Total	1.5%	6.8%	0%	8.3%	-	1.5%	32.3%	0%	33.8%	-	54.9%	3.0%	0%	57.9%	-	-
PHF	0.500	0.563	-	0.550	-	0.500	0.768	-	0.804	-	0.869	0.333	-	0.802	-	0.811
Lights	2	9	0	11	-	2	41	0	43	-	72	4	0	76	-	130
% Lights	100%	100%	0%	100%	-	100%	95.3%	0%	95.6%	-	98.6%	100%	0%	98.7%	-	97.7%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	0	1	0	1	-	1	0	0	1	-	2
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	0%	2.3%	0%	2.2%	-	1.4%	0%	0%	1.3%	-	1.5%
Buses	0	0	0	0	-	0	1	0	1	-	0	0	0	0	-	1
% Buses	0%	0%	0%	0%	-	0%	2.3%	0%	2.2%	-	0%	0%	0%	0%	-	0.8%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

AM Peak (8:15 AM - 9:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

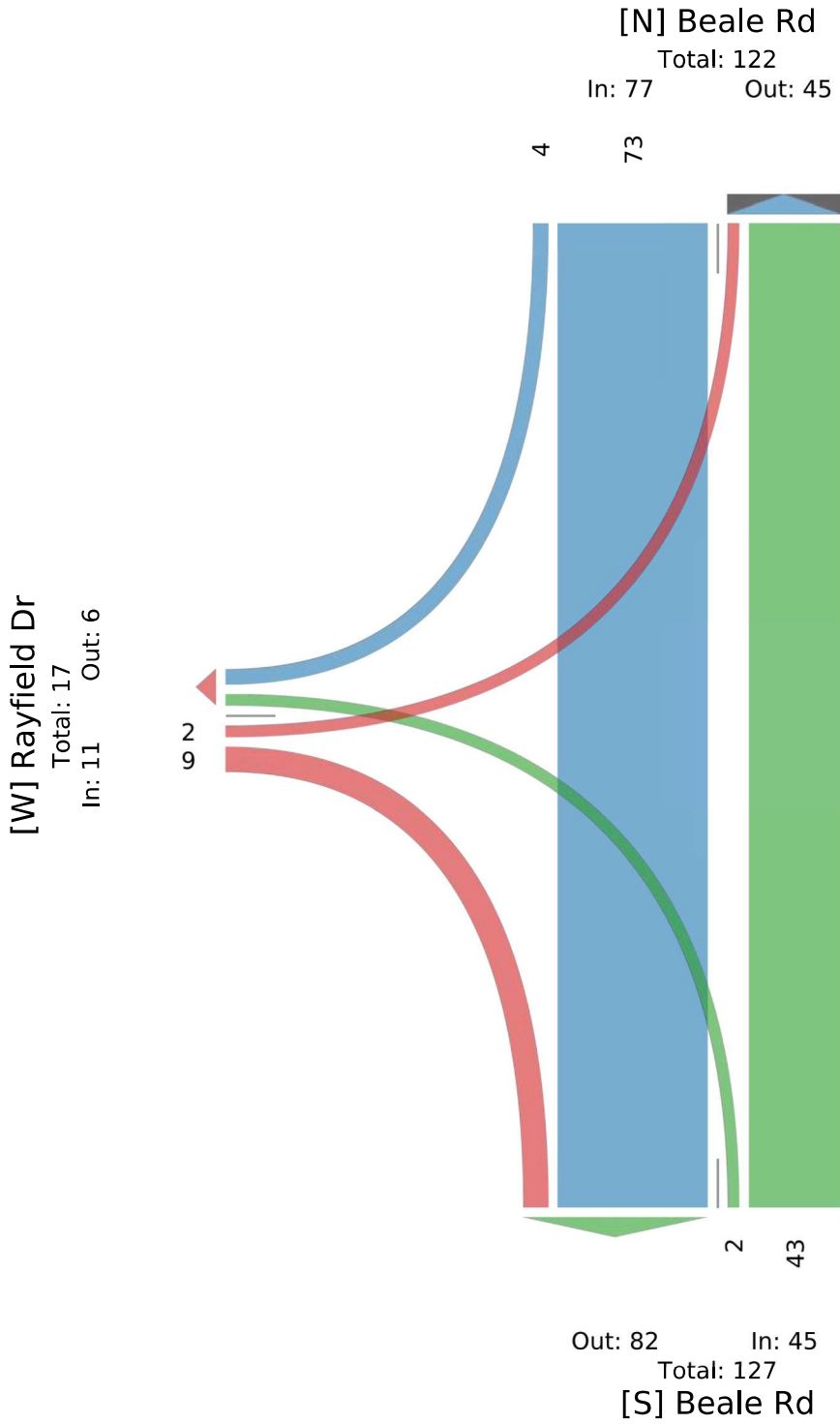
All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Eastbound					Beale Rd Northbound					Beale Rd Southbound					Int
	L	R	U	App	Ped*	L	T	U	App	Ped*	T	R	U	App	Ped*	
2024-03-12 1:00PM	4	2	0	6	0	2	21	0	23	0	16	0	0	16	0	45
1:15PM	1	2	0	3	0	0	19	0	19	0	19	2	0	21	0	43
1:30PM	2	2	0	4	0	1	17	0	18	0	25	0	0	25	0	47
1:45PM	1	2	0	3	0	1	12	0	13	0	16	3	0	19	0	35
Total	8	8	0	16	0	4	69	0	73	0	76	5	0	81	0	170
% Approach	50.0%	50.0%	0%	-	-	5.5%	94.5%	0%	-	-	93.8%	6.2%	0%	-	-	-
% Total	4.7%	4.7%	0%	9.4%	-	2.4%	40.6%	0%	42.9%	-	44.7%	2.9%	0%	47.6%	-	-
PHF	0.500	1.000	-	0.667	-	0.500	0.821	-	0.793	-	0.760	0.417	-	0.810	-	0.904
Lights	6	7	0	13	-	4	66	0	70	-	74	3	0	77	-	160
% Lights	75.0%	87.5%	0%	81.3%	-	100%	95.7%	0%	95.9%	-	97.4%	60.0%	0%	95.1%	-	94.1%
Articulated Trucks and Single-Unit Trucks	0	1	0	1	-	0	3	0	3	-	2	0	0	2	-	6
% Articulated Trucks and Single-Unit Trucks	0%	12.5%	0%	6.3%	-	0%	4.3%	0%	4.1%	-	2.6%	0%	0%	2.5%	-	3.5%
Buses	2	0	0	2	-	0	0	0	0	-	0	2	0	2	-	4
% Buses	25.0%	0%	0%	12.5%	-	0%	0%	0%	0%	-	0%	40.0%	0%	2.5%	-	2.4%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

Midday Peak (1 PM - 2 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

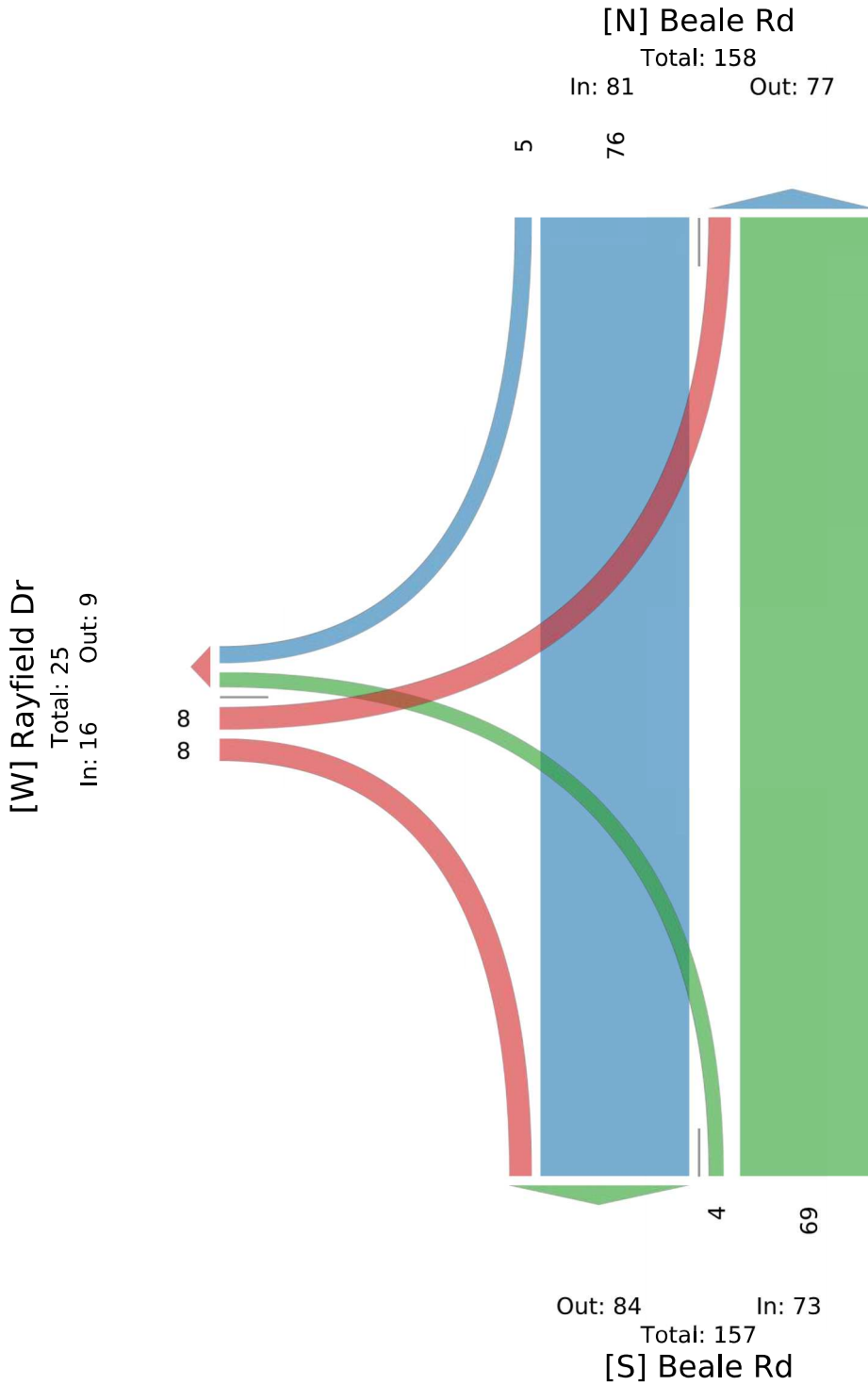
All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Eastbound					Beale Rd Northbound					Beale Rd Southbound					Int
	L	R	U	App	Ped*	L	T	U	App	Ped*	T	R	U	App	Ped*	
2024-03-12 4:15PM	3	6	0	9	0	7	30	0	37	0	24	4	0	28	0	74
4:30PM	1	3	0	4	0	3	28	0	31	0	23	1	0	24	0	59
4:45PM	1	5	0	6	0	5	38	0	43	0	15	1	0	16	0	65
5:00PM	3	4	0	7	0	3	23	0	26	0	23	2	0	25	0	58
Total	8	18	0	26	0	18	119	0	137	0	85	8	0	93	0	256
% Approach	30.8%	69.2%	0%	-	-	13.1%	86.9%	0%	-	-	91.4%	8.6%	0%	-	-	-
% Total	3.1%	7.0%	0%	10.2%	-	7.0%	46.5%	0%	53.5%	-	33.2%	3.1%	0%	36.3%	-	-
PHF	0.667	0.750	-	0.722	-	0.643	0.783	-	0.797	-	0.885	0.500	-	0.830	-	0.865
Lights	8	17	0	25	-	18	119	0	137	-	85	7	0	92	-	254
% Lights	100%	94.4%	0%	96.2%	-	100%	100%	0%	100%	-	100%	87.5%	0%	98.9%	-	99.2%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses	0	1	0	1	-	0	0	0	0	-	0	1	0	1	-	2
% Buses	0%	5.6%	0%	3.8%	-	0%	0%	0%	0%	-	0%	12.5%	0%	1.1%	-	0.8%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Beale Rd & Rayfield Dr - TMC

Tue Mar 12, 2024

PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

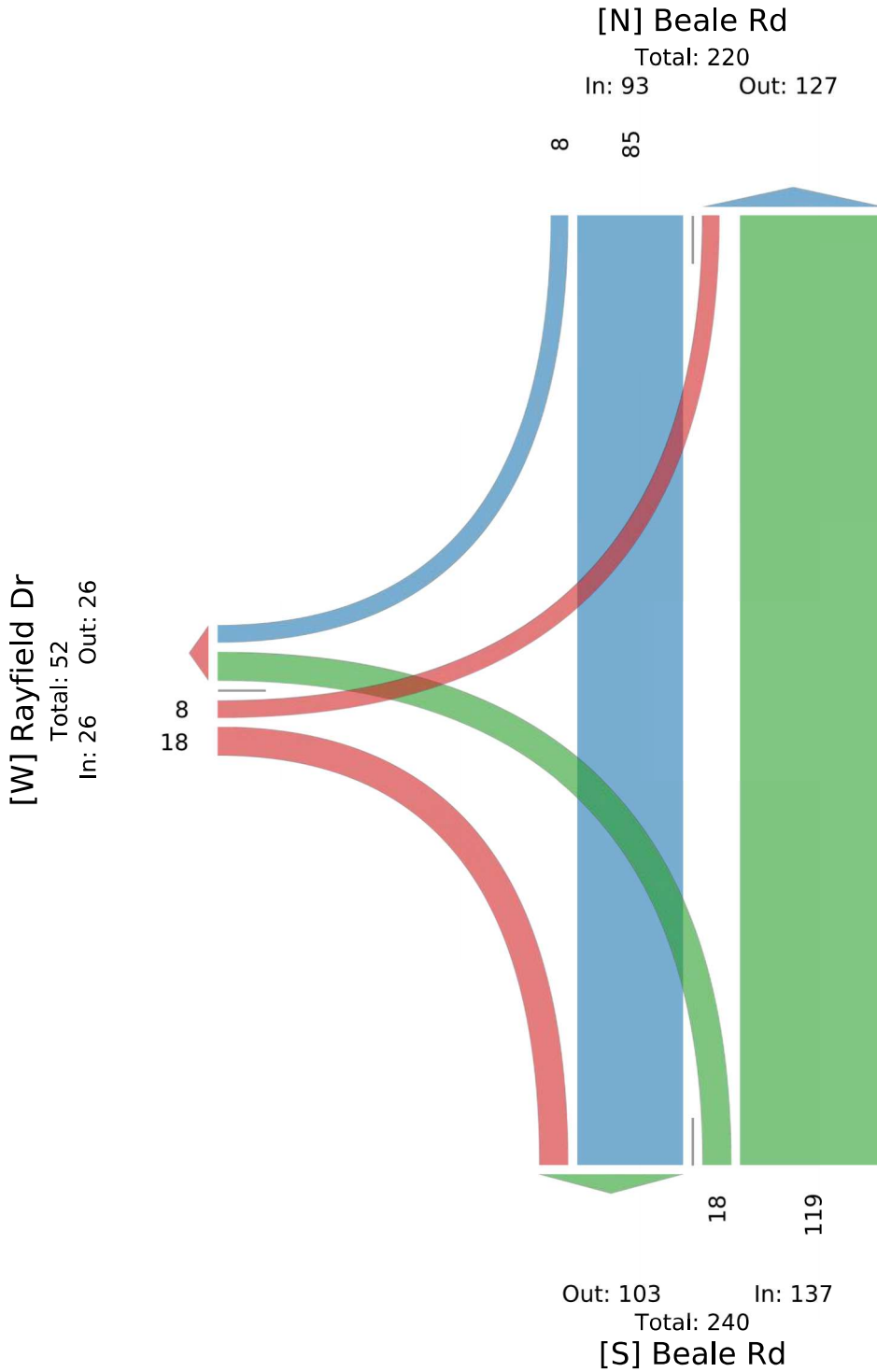
All Movements

ID: 1164008, Location: 40.782063, -82.469933



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Westbound					Expressville Dr Northbound					Expressville Dr Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2024-03-12 6:00AM	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2
6:15AM	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	2
6:30AM	2	0	0	2	0	0	0	0	0	0	2	1	0	3	0	5
6:45AM	1	0	0	1	0	1	2	0	3	0	0	1	0	1	0	5
Hourly Total	4	0	0	4	0	1	4	0	5	0	3	2	0	5	0	14
7:00AM	2	0	0	2	0	0	1	0	1	0	2	1	0	3	0	6
7:15AM	1	0	0	1	0	1	3	0	4	0	2	2	0	4	0	9
7:30AM	1	1	0	2	0	1	0	0	1	0	0	0	0	0	0	3
7:45AM	1	0	0	1	0	0	1	0	1	0	2	0	0	2	0	4
Hourly Total	5	1	0	6	0	2	5	0	7	0	6	3	0	9	0	22
8:00AM	1	0	0	1	0	0	3	0	3	0	2	3	0	5	0	9
8:15AM	2	0	0	2	0	1	5	0	6	3	1	1	0	2	0	10
8:30AM	1	1	0	2	0	1	3	0	4	0	1	0	0	1	0	7
8:45AM	1	0	0	1	0	0	1	0	1	0	0	2	0	2	0	4
Hourly Total	5	1	0	6	0	2	12	0	14	3	4	6	0	10	0	30
9:00AM	1	0	0	1	0	1	1	0	2	0	0	0	0	0	0	3
9:15AM	2	0	0	2	0	0	5	0	5	0	1	0	0	1	0	8
9:30AM	1	0	0	1	0	1	5	0	6	0	0	1	0	1	0	8
9:45AM	1	0	0	1	1	0	1	0	1	0	1	1	0	2	0	4
Hourly Total	5	0	0	5	1	2	12	0	14	0	2	2	0	4	0	23
10:00AM	2	3	0	5	0	0	3	0	3	0	0	0	0	0	0	8
10:15AM	1	0	0	1	0	0	2	0	2	0	2	0	0	2	0	5
10:30AM	1	0	0	1	0	0	2	0	2	0	2	1	0	3	0	6
10:45AM	2	1	0	3	0	1	4	0	5	0	0	1	0	1	0	9
Hourly Total	6	4	0	10	0	1	11	0	12	0	4	2	0	6	0	28
11:00AM	1	0	0	1	0	4	2	0	6	0	1	0	0	1	0	8
11:15AM	0	0	0	0	0	1	3	0	4	0	0	2	0	2	0	6
11:30AM	4	0	0	4	0	0	3	0	3	0	1	1	0	2	0	9
11:45AM	1	0	0	1	0	2	1	0	3	0	1	1	0	2	0	6
Hourly Total	6	0	0	6	0	7	9	0	16	0	3	4	0	7	0	29
12:00PM	1	0	0	1	0	1	2	0	3	0	0	1	0	1	0	5
12:15PM	2	0	0	2	0	1	3	0	4	0	0	1	0	1	0	7
12:30PM	2	0	0	2	0	3	8	0	11	0	1	0	0	1	0	14
12:45PM	2	1	0	3	0	2	3	0	5	0	1	1	0	2	0	10
Hourly Total	7	1	0	8	0	7	16	0	23	0	2	3	0	5	0	36
1:00PM	1	0	0	1	0	1	8	0	9	0	1	1	0	2	0	12
1:15PM	4	1	0	5	0	0	1	0	1	0	0	2	0	2	0	8
1:30PM	2	0	0	2	0	3	4	0	7	0	0	2	0	2	0	11
1:45PM	2	1	0	3	0	1	5	0	6	0	0	0	0	0	0	9
Hourly Total	9	2	0	11	0	5	18	0	23	0	1	5	0	6	0	40
2:00PM	1	0	0	1	0	2	4	0	6	0	0	2	0	2	2	9
2:15PM	4	0	0	4	0	3	6	0	9	0	1	1	0	2	0	15
2:30PM	3	0	0	3	0	2	3	0	5	0	0	0	0	0	0	8
2:45PM	3	1	0	4	0	2	2	0	4	0	1	2	0	3	0	11
Hourly Total	11	1	0	12	0	9	15	0	24	0	2	5	0	7	2	43
3:00PM	3	2	0	5	0	2	6	0	8	0	2	3	0	5	0	18
3:15PM	0	0	0	0	0	1	16	0	17	0	2	0	0	2	0	19
3:30PM	3	2	0	5	0	1	7	0	8	0	0	2	0	2	0	15
3:45PM	4	1	0	5	0	2	8	0	10	1	2	2	0	4	0	19
Hourly Total	10	5	0	15	0	6	37	0	43	1	6	7	0	13	0	71
4:00PM	1	0	0	1	0	3	3	0	6	0	1	2	0	3	0	10
4:15PM	5	1	0	6	0	1	7	0	8	0	0	1	0	1	0	15

Leg Direction	Rayfield Dr Westbound					Expressville Dr Northbound					Expressville Dr Southbound					
Time	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	Int
4:30PM	3	2	0	5	0	1	6	0	7	0	1	2	0	3	0	15
4:45PM	3	2	0	5	0	5	7	0	12	0	0	2	0	2	0	19
Hourly Total	12	5	0	17	0	10	23	0	33	0	2	7	0	9	0	59
5:00PM	4	1	0	5	0	2	6	0	8	0	1	1	0	2	0	15
5:15PM	2	4	0	6	0	0	10	0	10	0	0	3	0	3	0	19
5:30PM	4	1	0	5	0	2	6	0	8	0	1	1	0	2	0	15
5:45PM	3	1	0	4	0	3	6	0	9	0	1	1	0	2	0	15
Hourly Total	13	7	0	20	0	7	28	0	35	0	3	6	0	9	0	64
Total	93	27	0	120	1	59	190	0	249	4	38	52	0	90	2	459
% Approach	77.5%	22.5%	0%	-	-	23.7%	76.3%	0%	-	-	42.2%	57.8%	0%	-	-	-
% Total	20.3%	5.9%	0%	26.1%	-	12.9%	41.4%	0%	54.2%	-	8.3%	11.3%	0%	19.6%	-	-
Lights	90	27	0	117	-	58	181	0	239	-	38	50	0	88	-	444
% Lights	96.8%	100%	0%	97.5%	-	98.3%	95.3%	0%	96.0%	-	100%	96.2%	0%	97.8%	-	96.7%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	1	3	0	4	-	0	2	0	2	-	6
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	1.7%	1.6%	0%	1.6%	-	0%	3.8%	0%	2.2%	-	1.3%
Buses	3	0	0	3	-	0	6	0	6	-	0	0	0	0	-	9
% Buses	3.2%	0%	0%	2.5%	-	0%	3.2%	0%	2.4%	-	0%	0%	0%	0%	-	2.0%
Pedestrians	-	-	-	-	1	-	-	-	-	4	-	-	-	-	2	
% Pedestrians	-	-	-	-	100%	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	0%	-	-	-	-	0%	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



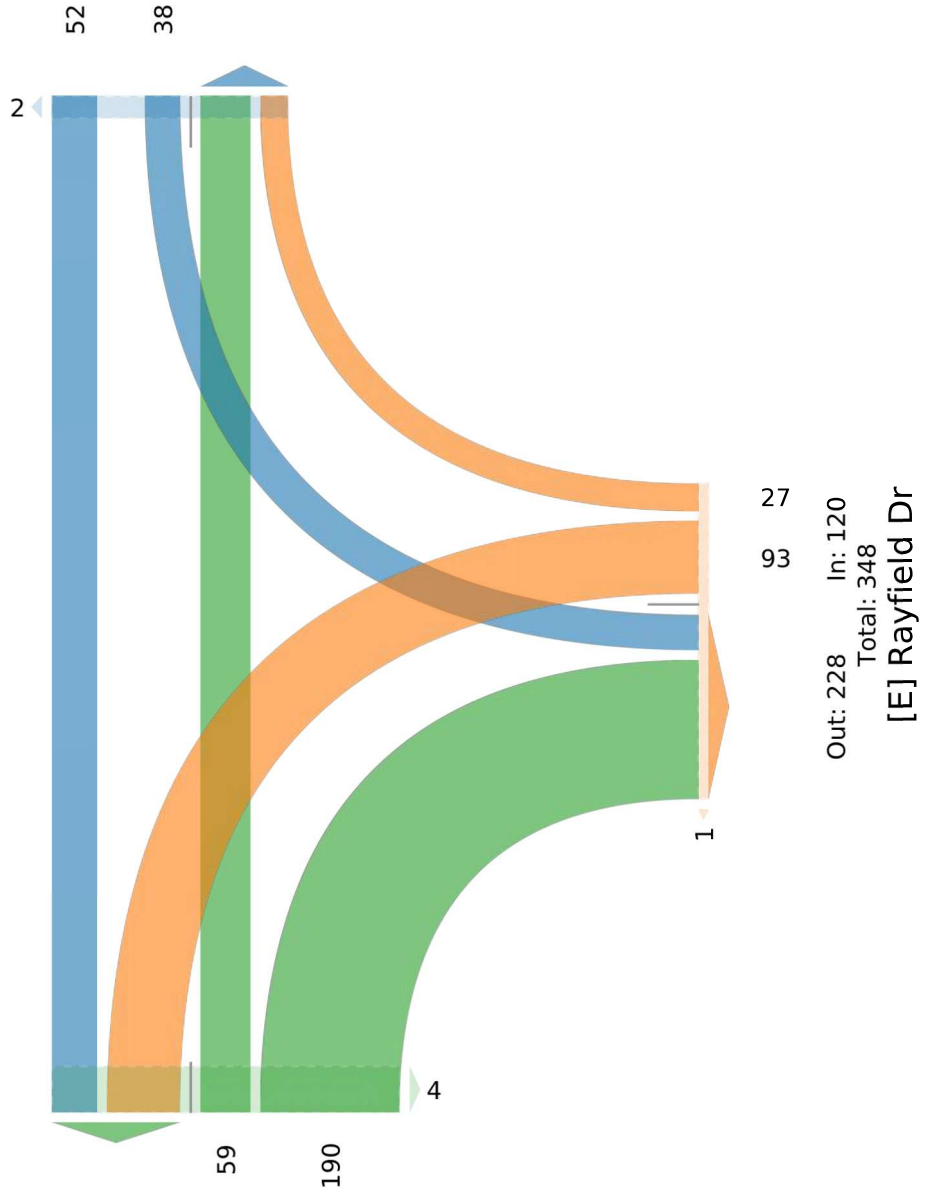
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Expressville Dr

Total: 176

In: 90 Out: 86



Out: 145 In: 249

Total: 394

[S] Expressville Dr

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:45AM - 8:45 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Westbound					Expressville Dr Northbound					Expressville Dr Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
Time																
2024-03-12 7:45AM	1	0	0	1	0	0	1	0	1	0	2	0	0	2	0	4
8:00AM	1	0	0	1	0	0	3	0	3	0	2	3	0	5	0	9
8:15AM	2	0	0	2	0	1	5	0	6	3	1	1	0	2	0	10
8:30AM	1	1	0	2	0	1	3	0	4	0	1	0	0	1	0	7
Total	5	1	0	6	0	2	12	0	14	3	6	4	0	10	0	30
% Approach	83.3%	16.7%	0%	-	-	14.3%	85.7%	0%	-	-	60.0%	40.0%	0%	-	-	-
% Total	16.7%	3.3%	0%	20.0%	-	6.7%	40.0%	0%	46.7%	-	20.0%	13.3%	0%	33.3%	-	-
PHF	0.625	0.250	-	0.750	-	0.500	0.600	-	0.583	-	0.750	0.333	-	0.500	-	0.750
Lights	5	1	0	6	-	2	11	0	13	-	6	4	0	10	-	29
% Lights	100%	100%	0%	100%	-	100%	91.7%	0%	92.9%	-	100%	100%	0%	100%	-	96.7%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses	0	0	0	0	-	0	1	0	1	-	0	0	0	0	-	1
% Buses	0%	0%	0%	0%	-	0%	8.3%	0%	7.1%	-	0%	0%	0%	0%	-	3.3%
Pedestrians	-	-	-	-	0	-	-	-	-	3	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:45AM - 8:45 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



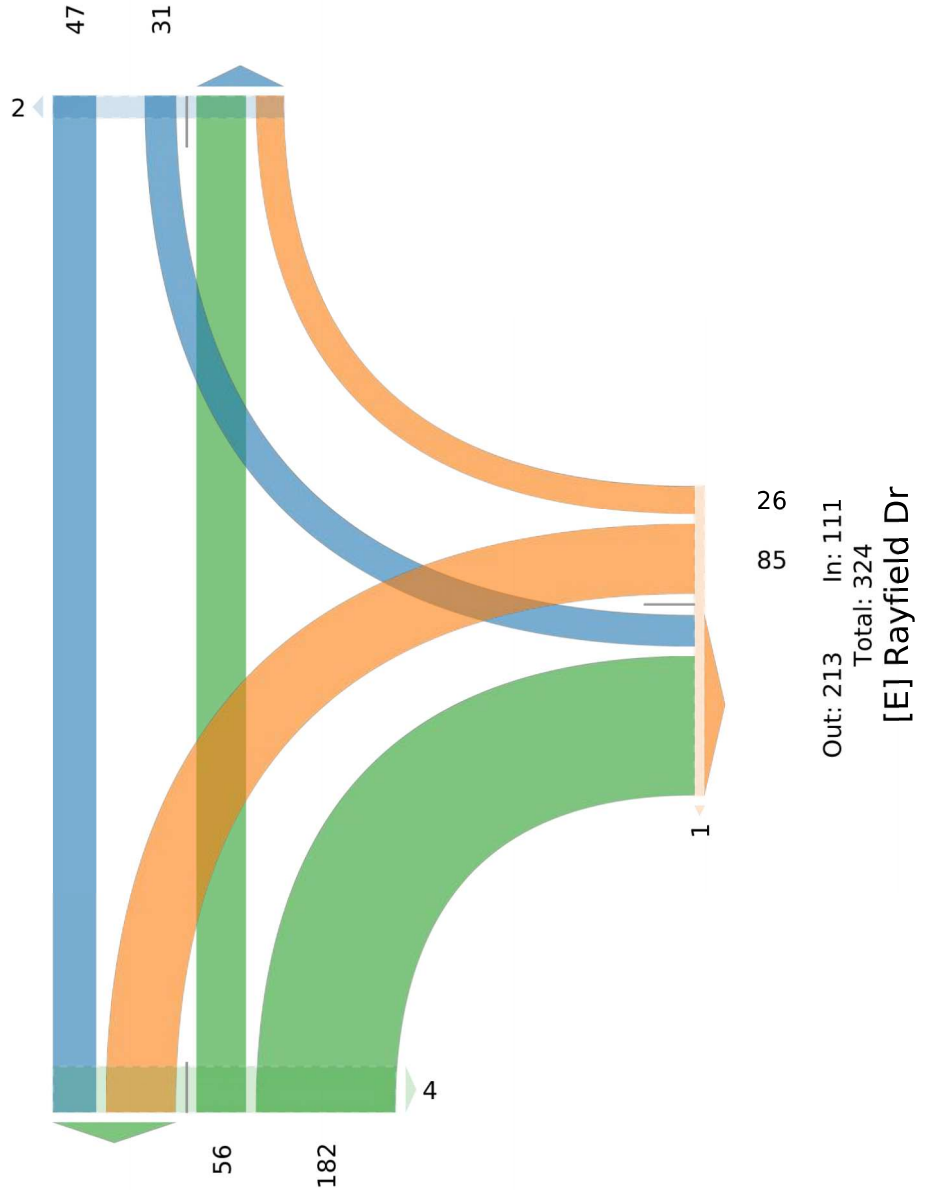
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Expressville Dr

Total: 160

In: 78 Out: 82



Out: 132 In: 238

Total: 370

[S] Expressville Dr

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12:30PM - 1:30 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Westbound					Expressville Dr Northbound					Expressville Dr Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
2024-03-12 12:30PM	2	0	0	2	0	3	8	0	11	0	1	0	0	1	0	14
12:45PM	2	1	0	3	0	2	3	0	5	0	1	1	0	2	0	10
1:00PM	1	0	0	1	0	1	8	0	9	0	1	1	0	2	0	12
1:15PM	4	1	0	5	0	0	1	0	1	0	0	2	0	2	0	8
Total	9	2	0	11	0	6	20	0	26	0	3	4	0	7	0	44
% Approach	81.8%	18.2%	0%	-	-	23.1%	76.9%	0%	-	-	42.9%	57.1%	0%	-	-	-
% Total	20.5%	4.5%	0%	25.0%	-	13.6%	45.5%	0%	59.1%	-	6.8%	9.1%	0%	15.9%	-	-
PHF	0.563	0.500	-	0.550	-	0.500	0.625	-	0.591	-	0.750	0.500	-	0.875	-	0.786
Lights	9	2	0	11	-	6	17	0	23	-	3	2	0	5	-	39
% Lights	100%	100%	0%	100%	-	100%	85.0%	0%	88.5%	-	100%	50.0%	0%	71.4%	-	88.6%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	0	2	0	2	-	0	2	0	2	-	4
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	0%	10.0%	0%	7.7%	-	0%	50.0%	0%	28.6%	-	9.1%
Buses	0	0	0	0	-	0	1	0	1	-	0	0	0	0	-	1
% Buses	0%	0%	0%	0%	-	0%	5.0%	0%	3.8%	-	0%	0%	0%	0%	-	2.3%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12:30PM - 1:30 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



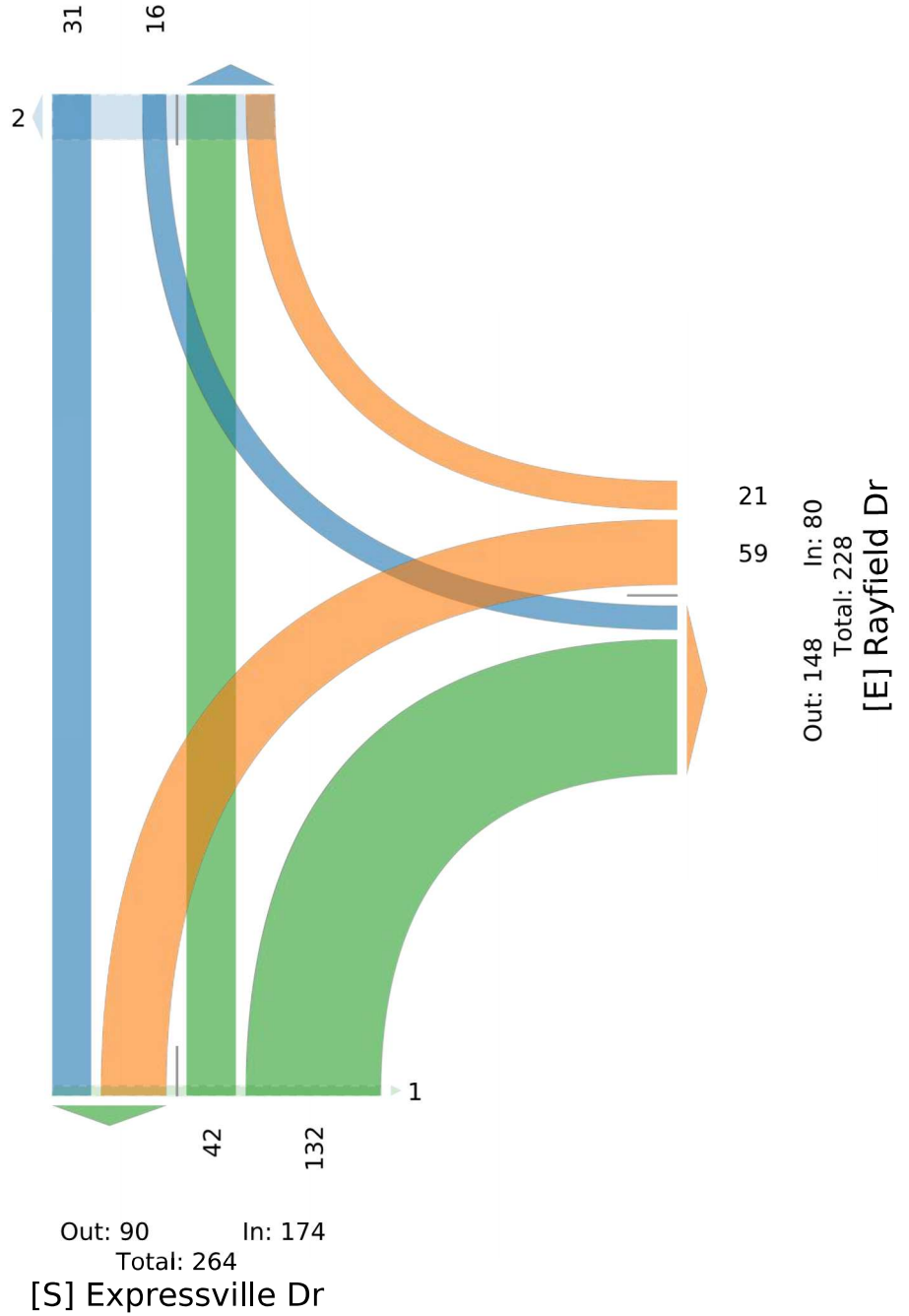
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Expressville Dr

Total: 110

In: 47 Out: 63



Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3PM - 4 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Rayfield Dr Westbound					Expressville Dr Northbound					Expressville Dr Southbound					Int
	L	R	U	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
Time																
2024-03-12 3:00PM	3	2	0	5	0	2	6	0	8	0	2	3	0	5	0	18
3:15PM	0	0	0	0	0	1	16	0	17	0	2	0	0	2	0	19
3:30PM	3	2	0	5	0	1	7	0	8	0	0	2	0	2	0	15
3:45PM	4	1	0	5	0	2	8	0	10	1	2	2	0	4	0	19
Total	10	5	0	15	0	6	37	0	43	1	6	7	0	13	0	71
% Approach	66.7%	33.3%	0%	-	-	14.0%	86.0%	0%	-	-	46.2%	53.8%	0%	-	-	-
% Total	14.1%	7.0%	0%	21.1%	-	8.5%	52.1%	0%	60.6%	-	8.5%	9.9%	0%	18.3%	-	-
PHF	0.625	0.625	-	0.750	-	0.750	0.578	-	0.632	-	0.750	0.583	-	0.650	-	0.934
Lights	9	5	0	14	-	6	37	0	43	-	6	7	0	13	-	70
% Lights	90.0%	100%	0%	93.3%	-	100%	100%	0%	100%	-	100%	100%	0%	100%	-	98.6%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Buses	1	0	0	1	-	0	0	0	0	-	0	0	0	0	-	1
% Buses	10.0%	0%	0%	6.7%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	1.4%
Pedestrians	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rayfield Dr & Expressville Dr - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3PM - 4 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164009, Location: 40.782045, -82.472724



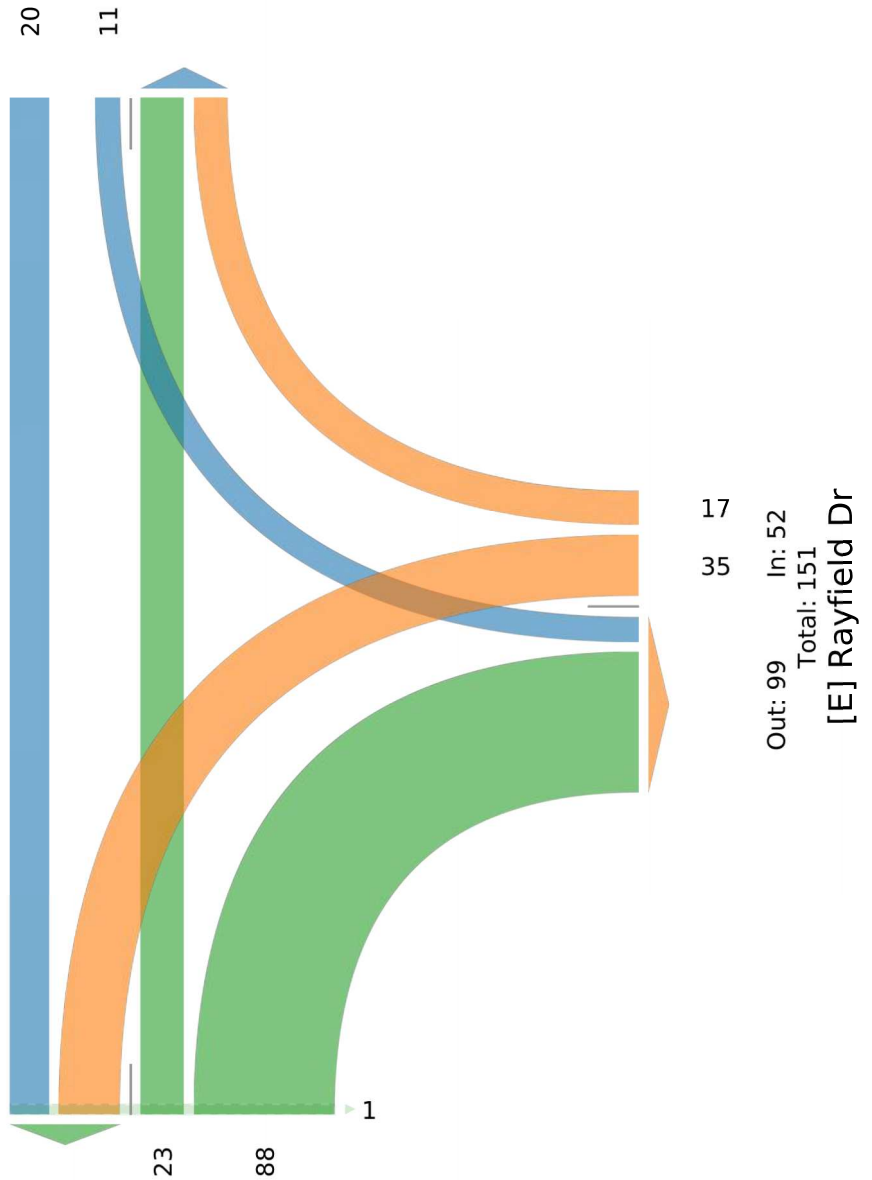
Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US

[N] Expressville Dr

Total: 71

In: 31 Out: 40



Out: 55 In: 111

Total: 166

[S] Expressville Dr

Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Yale Ave Eastbound						Expressville Dr Westbound						Stewart Rd Northbound						Stewart Rd Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2024-03-12 6:00AM	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	9	0	0	16	0	0	16	0	25
6:15AM	0	1	1	0	2	0	1	0	0	0	1	0	0	12	0	0	12	0	0	19	0	0	19	0	34
6:30AM	0	0	2	0	2	0	1	0	0	0	1	0	1	13	1	0	15	0	0	18	0	0	18	0	36
6:45AM	0	0	4	0	4	0	3	1	0	0	4	0	3	10	2	0	15	0	1	19	0	0	20	0	43
Hourly Total	0	1	7	0	8	0	5	1	0	0	6	0	5	43	3	0	51	0	1	72	0	0	73	0	138
7:00AM	0	0	5	0	5	0	3	0	0	0	3	0	1	11	0	0	12	0	1	32	0	0	33	0	53
7:15AM	0	1	7	0	8	0	3	0	0	0	3	0	1	14	3	0	18	0	1	36	0	0	37	0	66
7:30AM	0	0	9	0	9	0	3	0	1	0	4	0	7	17	2	0	26	0	1	34	0	0	35	0	74
7:45AM	0	0	6	0	6	0	0	0	0	0	0	0	1	17	2	0	20	0	0	31	0	0	31	0	57
Hourly Total	0	1	27	0	28	0	9	0	1	0	10	0	10	59	7	0	76	0	3	133	0	0	136	0	250
8:00AM	0	0	3	0	3	0	4	0	0	0	4	0	3	19	3	0	25	0	0	29	1	0	30	0	62
8:15AM	1	1	9	0	11	0	2	1	0	0	3	0	4	7	3	0	14	0	1	15	0	0	16	0	44
8:30AM	0	0	5	0	5	0	0	1	0	0	1	0	3	15	5	0	23	0	0	29	0	0	29	0	58
8:45AM	0	1	3	0	4	0	4	0	0	0	4	0	9	10	1	0	20	0	0	19	0	0	19	0	47
Hourly Total	1	2	20	0	23	0	10	2	0	0	12	0	19	51	12	0	82	0	1	92	1	0	94	0	211
9:00AM	0	0	3	0	3	0	0	0	0	0	0	0	1	16	3	0	20	0	0	17	1	0	18	0	41
9:15AM	0	1	4	0	5	0	1	0	0	0	1	0	4	13	3	0	20	0	1	19	0	0	20	0	46
9:30AM	0	1	7	0	8	0	2	0	0	0	2	0	3	10	4	0	17	0	1	14	0	0	15	0	42
9:45AM	0	0	1	0	1	0	3	0	0	0	3	0	0	16	6	0	22	0	0	21	0	0	21	0	47
Hourly Total	0	2	15	0	17	0	6	0	0	0	6	0	8	55	16	0	79	0	2	71	1	0	74	0	176
10:00AM	0	1	1	0	2	0	0	0	3	0	3	0	3	9	2	0	14	0	0	17	0	0	17	0	36
10:15AM	0	0	2	0	2	0	1	0	0	0	1	0	1	9	4	0	14	0	0	22	0	0	22	0	39
10:30AM	0	0	4	0	4	0	4	0	0	0	4	0	5	11	1	0	17	0	0	8	0	0	8	0	33
10:45AM	0	1	2	0	3	0	3	0	0	0	3	0	2	15	1	0	18	0	2	18	0	0	20	0	44
Hourly Total	0	2	9	0	11	0	8	0	3	0	11	0	11	44	8	0	63	0	2	65	0	0	67	0	152
11:00AM	0	0	4	0	4	0	1	1	0	0	2	0	6	13	6	0	25	0	0	20	0	0	20	0	51
11:15AM	0	0	5	0	5	0	4	0	0	0	4	0	6	18	4	0	28	0	1	24	0	0	25	0	62
11:30AM	0	0	4	0	4	0	4	0	0	0	4	0	8	28	1	0	37	0	1	19	0	0	20	0	65
11:45AM	0	0	3	0	3	0	3	1	0	0	4	0	8	23	5	0	36	0	0	35	0	0	35	0	78
Hourly Total	0	0	16	0	16	0	12	2	0	0	14	0	28	82	16	0	126	0	2	98	0	0	100	0	256
12:00PM	0	0	6	0	6	0	2	0	2	0	4	0	4	28	6	0	38	0	0	17	1	0	18	0	66
12:15PM	0	1	4	0	5	0	4	0	1	0	5	0	3	19	5	0	27	0	0	21	0	0	21	0	58
12:30PM	0	0	9	0	9	0	3	0	0	0	3	0	8	24	10	0	42	0	0	21	0	0	21	0	75
12:45PM	0	1	7	0	8	0	2	0	1	0	3	0	3	26	4	0	33	0	0	30	0	0	30	0	74
Hourly Total	0	2	26	0	28	0	11	0	4	0	15	0	18	97	25	0	140	0	0	89	1	0	90	0	273
1:00PM	0	0	3	0	3	0	3	0	1	0	4	0	6	25	8	0	39	0	1	29	1	0	31	0	77
1:15PM	0	0	6	0	6	0	4	0	1	0	5	0	6	22	1	0	29	0	0	25	0	0	25	0	65
1:30PM	0	0	6	0	6	1	4	0	0	0	4	0	6	25	5	0	36	0	1	19	1	0	21	1	67
1:45PM	1	0	3	0	4	0	3	0	0	0	3	0	6	27	10	0	43	0	0	19	0	0	19	0	69
Hourly Total	1	0	18	0	19	1	14	0	2	0	16	0	24	99	24	0	147	0	2	92	2	0	96	1	278
2:00PM	0	0	10	0	10	0	5	0	0	0	5	0	4	22	4	0	30	0	1	25	0	0	26	0	71
2:15PM	0	1	1	0	2	0	4	0	0	0	4	0	6	18	9	0	33	0	1	29	1	0	31	0	70
2:30PM	0	1	6	0	7	0	4	0	0	0	4	0	10	30	3	0	43	0	1	38	0	0	39	0	93
2:45PM	0	0	9	0	9	0	7	0	0	0	7	0	6	25	6	0	37	0	0	30	0	0	30	0	83
Hourly Total	0	2	26	0	28	0	20	0	0	0	20	0	26	95	22	0	143	0	3	122	1	0	126	0	317
3:00PM	0	1	6	0	7	0	5	2	1	0	8	0	5	33	6	0	44	0	0	36	0	0	36	0	95
3:15PM	0	1	8	0	9	0	2	0	0	0	2	0	12	46	14	0	72	0	1	33	1	0	35	0	118
3:30PM	0	0	5	0	5	0	4	1	0	0	5	0	6	42	7	0	55	0	0	43	0	0	43	0	108
3:45PM	0	2	11	0	13	0	4	1	1	0	6	0	12	41	7	0	60	0	0	47	0	0	47	0	126
Hourly Total	0	4	30	0	34	0	15	4	2	0	21	0	35	162	34	0	231	0	1	159	1	0	161	0	447
4:00PM	0	1	7	0	8	0	3	0	4	0	7	0	4	48	4	0	56	0	2	48	0	0	50	0	121
4:15PM	0	0	13	0	13	0	5	0	0	0	5	0	13	54	8	0	75	0	0	42	0	0	42	0	135
4:30PM	0	0	9	0	9	0	5	0	0	0	5	0	7	34	5	1	47	0	2	40	0	0	42	0	103
4:45PM	0	1	5	0	6	0	5	0	1	0	6	0	9	41	12	0	62	0	1	45	1	0	47	0	121
Hourly Total	0	2	34	0	36	0	18	0	5	0	23	0	33	177	29	1	240	0	5	175	1	0	181	0	480
5:00PM	0	1	11	0	12	0	3	1	0	0	4	0	5	46	7	0	58	0	0	45	0	0	45	0	119
5:15PM	0	0	3	0	3	0	8	0	1	0	9	0	8	30	10	0	48	0	1	24	0	0	25	0	85
5:30PM	0	0	1	0	1	0	5	1	0	0	6	0	5	36	5	0	46	0	0	19	0	0	19	0	72

Leg Direction	Yale Ave Eastbound						Expressville Dr Westbound						Stewart Rd Northbound						Stewart Rd Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
5:45PM	0	0	1	0	1	0	4	0	0	0	4	0	7	34	8	0	49	0	1	20	0	0	21	0	75
Hourly Total	0	1	16	0	17	0	20	2	1	0	23	0	25	146	30	0	201	0	2	108	0	0	110	0	351
Total	2	19	244	0	265	1	148	11	18	0	177	0	242	1110	226	1	1579	0	24	1276	8	0	1308	1	3329
% Approach	0.8%	7.2%	92.1%	0%	-	-	83.6%	6.2%	10.2%	0%	-	-	15.3%	70.3%	14.3%	0.1%	-	-	1.8%	97.6%	0.6%	0%	-	-	-
% Total	0.1%	0.6%	7.3%	0%	8.0%	-	4.4%	0.3%	0.5%	0%	5.3%	-	7.3%	33.3%	6.8%	0%	47.4%	-	0.7%	38.3%	0.2%	0%	39.3%	-	-
Lights	2	17	239	0	258	-	141	10	17	0	168	-	237	1097	221	1	1556	-	23	1267	7	0	1297	-	3279
% Lights	100%	89.5%	98.0%	0%	97.4%	-	95.3%	90.9%	94.4%	0%	94.9%	-	97.9%	98.8%	97.8%	100%	98.5%	-	95.8%	99.3%	87.5%	0%	99.2%	-	98.5%
Articulated Trucks and Single-Unit Trucks	0	1	2	0	3	-	5	1	0	0	6	-	0	7	4	0	11	-	1	4	1	0	6	-	26
% Articulated Trucks and Single-Unit Trucks	0%	5.3%	0.8%	0%	1.1%	-	3.4%	9.1%	0%	0%	3.4%	-	0%	0.6%	1.8%	0%	0.7%	-	4.2%	0.3%	12.5%	0%	0.5%	-	0.8%
Buses	0	1	3	0	4	-	2	0	1	0	3	-	5	6	1	0	12	-	0	5	0	0	5	-	24
% Buses	0%	5.3%	1.2%	0%	1.5%	-	1.4%	0%	5.6%	0%	1.7%	-	2.1%	0.5%	0.4%	0%	0.8%	-	0%	0.4%	0%	0%	0.4%	-	0.7%
Pedestrians	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

Full Length (6 AM-6 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

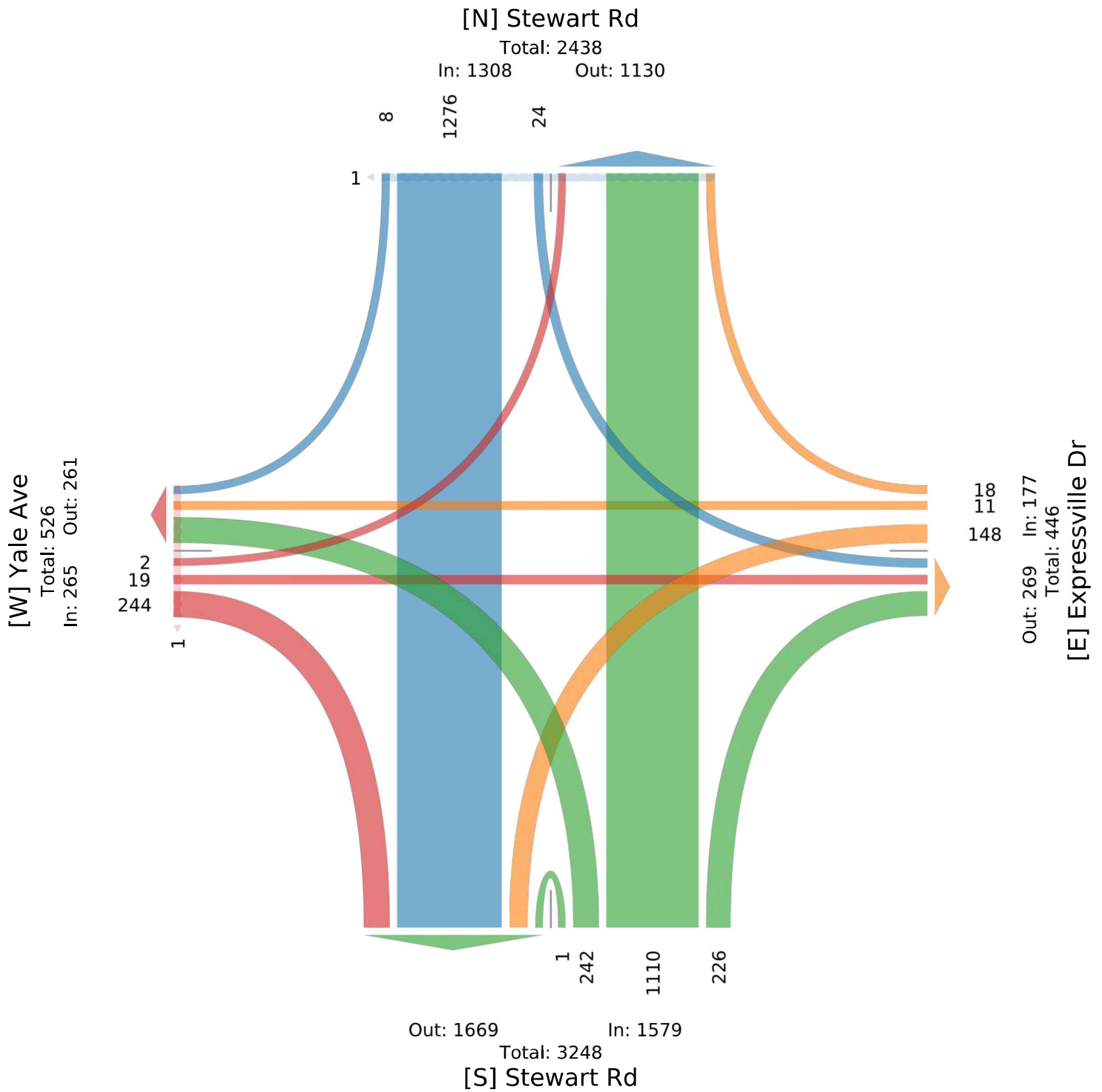
All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:15AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US

Leg Direction	Yale Ave Eastbound						Expressville Dr Westbound						Stewart Rd Northbound						Stewart Rd Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2024-03-12 7:15AM	0	1	7	0	8	0	3	0	0	0	3	0	1	14	3	0	18	0	1	36	0	0	37	0	66
7:30AM	0	0	9	0	9	0	3	0	1	0	4	0	7	17	2	0	26	0	1	34	0	0	35	0	74
7:45AM	0	0	6	0	6	0	0	0	0	0	0	0	1	17	2	0	20	0	0	31	0	0	31	0	57
8:00AM	0	0	3	0	3	0	4	0	0	0	4	0	3	19	3	0	25	0	0	29	1	0	30	0	62
Total	0	1	25	0	26	0	10	0	1	0	11	0	12	67	10	0	89	0	2	130	1	0	133	0	259
% Approach	0%	3.8%	96.2%	0%	-	-	90.9%	0%	9.1%	0%	-	-	13.5%	75.3%	11.2%	0%	-	-	1.5%	97.7%	0.8%	0%	-	-	-
% Total	0%	0.4%	9.7%	0%	10.0%	-	3.9%	0%	0.4%	0%	4.2%	-	4.6%	25.9%	3.9%	0%	34.4%	-	0.8%	50.2%	0.4%	0%	51.4%	-	-
PHF	-0.250	0.694	-	0.722	-	-	0.625	-0.250	-	0.688	-	-	0.429	0.882	0.833	-	0.856	-	0.500	0.903	0.250	-	0.899	-	0.875
Lights	0	1	25	0	26	-	10	0	1	0	11	-	11	66	10	0	87	-	2	129	1	0	132	-	256
% Lights	0%	100%	100%	0%	100%	-	100%	0%	100%	0%	100%	-	91.7%	98.5%	100%	0%	97.8%	-	100%	99.2%	100%	0%	99.2%	-	98.8%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Buses	0	0	0	0	0	-	0	0	0	0	0	-	1	1	0	0	2	-	0	1	0	0	1	-	3
% Buses	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	8.3%	1.5%	0%	0%	2.2%	-	0%	0.8%	0%	0%	0.8%	-	1.2%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

AM Peak (Mar 12 2024 7:15AM - 8:15 AM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

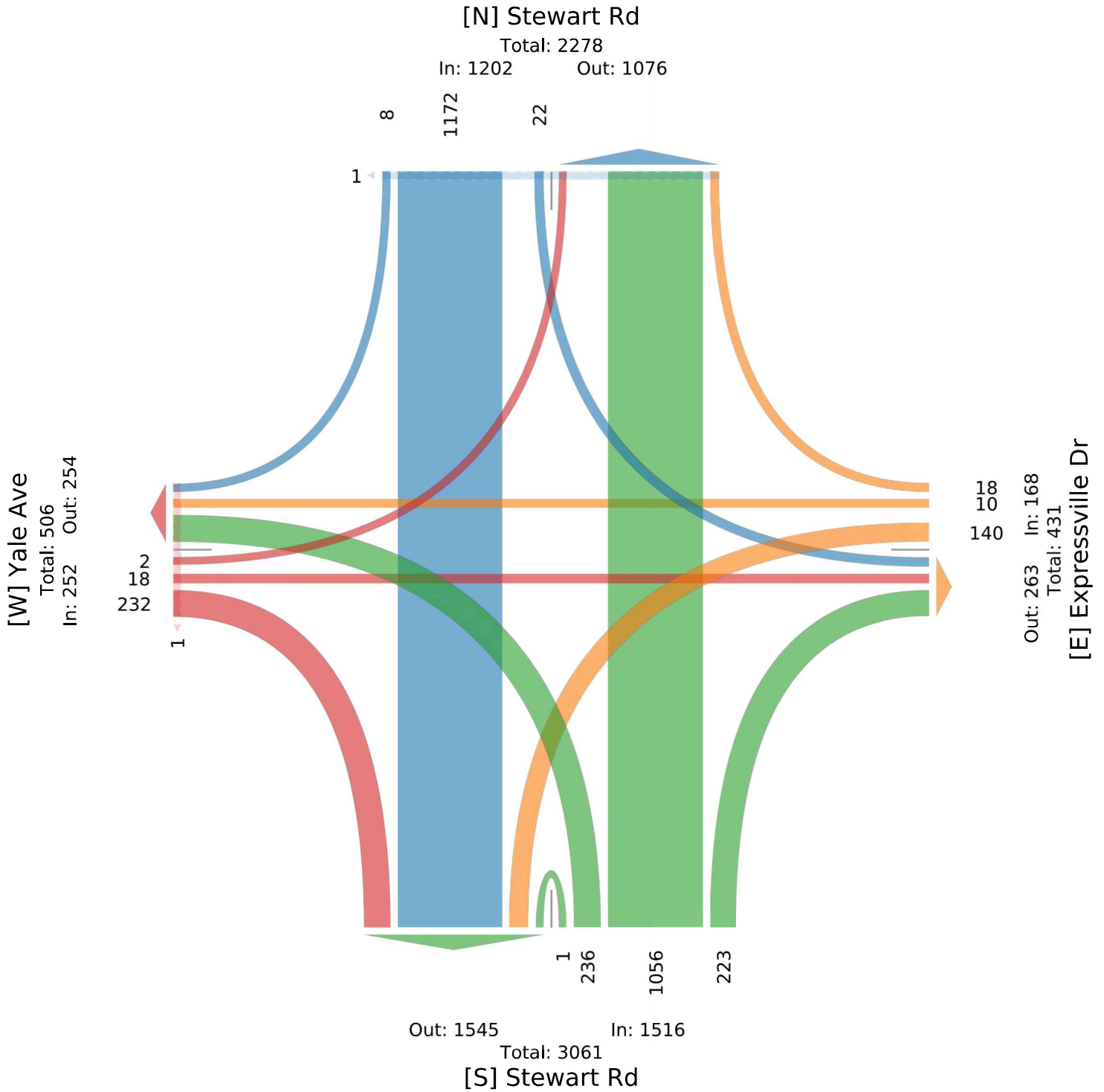
All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12:30PM - 1:30 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Yale Ave Eastbound					Expressville Dr Westbound					Stewart Rd Northbound					Stewart Rd Southbound					Int			
	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*	L	T	R	U	App Ped*				
2024-03-12 12:30PM	0	0	9	0	9	0	3	0	0	3	0	8	24	10	0	42	0	0	21	0	21	0	75	
12:45PM	0	1	7	0	8	0	2	0	1	3	0	3	26	4	0	33	0	0	30	0	30	0	74	
1:00PM	0	0	3	0	3	0	3	0	1	4	0	6	25	8	0	39	0	1	29	1	31	0	77	
1:15PM	0	0	6	0	6	0	4	0	1	5	0	6	22	1	0	29	0	0	25	0	25	0	65	
Total	0	1	25	0	26	0	12	0	3	15	0	23	97	23	0	143	0	1	105	1	0	107	0	291
% Approach	0%	3.8%	96.2%	0%	-	80.0%	0%	20.0%	0%	-	16.1%	67.8%	16.1%	0%	-	0.9%	98.1%	0.9%	0%	-	-	-	-	-
% Total	0%	0.3%	8.6%	0%	8.9%	4.1%	0%	1.0%	0%	5.2%	7.9%	33.3%	7.9%	0%	49.1%	0.3%	36.1%	0.3%	0%	36.8%	-	-	-	-
PHF	-0.250	0.694	-	0.722	-	0.750	-	0.750	-	0.750	-	0.719	0.933	0.575	-	0.851	-	0.250	0.875	0.250	-	0.863	-	0.945
Lights	0	0	25	0	25	-	12	0	3	15	-	23	97	21	0	141	-	1	105	1	0	107	-	288
% Lights	0%	0%	100%	0%	96.2%	-	100%	0%	100%	100%	-	100%	100%	91.3%	0%	98.6%	-	100%	100%	100%	0%	100%	-	99.0%
Articulated Trucks and Single-Unit Trucks	0	1	0	0	1	-	0	0	0	0	-	0	0	2	0	2	-	0	0	0	0	0	-	3
% Articulated Trucks and Single-Unit Trucks	0%	100%	0%	0%	3.8%	-	0%	0%	0%	0%	-	0%	0%	8.7%	0%	1.4%	-	0%	0%	0%	0%	0%	-	1.0%
Buses	0	0	0	0	0	-	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Buses	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

Midday Peak (Mar 12 2024 12:30PM - 1:30 PM)

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

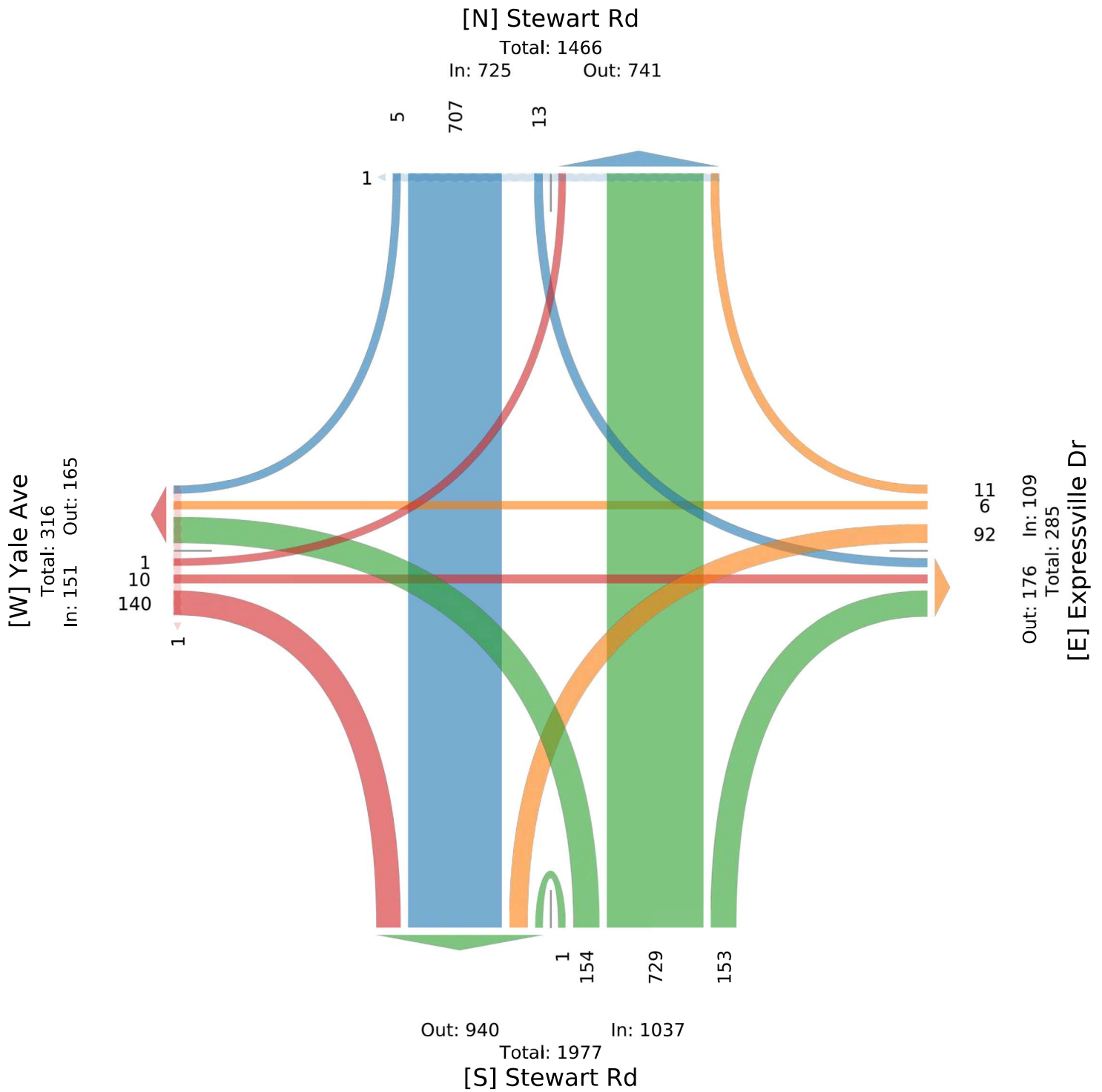
All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road, Coatesville, PA, 19320, US



Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3:30PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.
184 Baker Road,
Coatesville, PA, 19320, US

Leg Direction	Yale Ave Eastbound						Expressville Dr Westbound						Stewart Rd Northbound						Stewart Rd Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2024-03-12 3:30PM	0	0	5	0	5	0	4	1	0	0	5	0	6	42	7	0	55	0	0	43	0	0	43	0	108
3:45PM	0	2	11	0	13	0	4	1	1	0	6	0	12	41	7	0	60	0	0	47	0	0	47	0	126
4:00PM	0	1	7	0	8	0	3	0	4	0	7	0	4	48	4	0	56	0	2	48	0	0	50	0	121
4:15PM	0	0	13	0	13	0	5	0	0	0	5	0	13	54	8	0	75	0	0	42	0	0	42	0	135
Total	0	3	36	0	39	0	16	2	5	0	23	0	35	185	26	0	246	0	2	180	0	0	182	0	490
% Approach	0%	7.7%	92.3%	0%	-	-	69.6%	8.7%	21.7%	0%	-	-	14.2%	75.2%	10.6%	0%	-	-	1.1%	98.9%	0%	0%	-	-	-
% Total	0%	0.6%	7.3%	0%	8.0%	-	3.3%	0.4%	1.0%	0%	4.7%	-	7.1%	37.8%	5.3%	0%	50.2%	-	0.4%	36.7%	0%	0%	37.1%	-	-
PHF	-0.375	0.692	-	0.750	-	-	0.800	0.500	0.313	-	0.821	-	0.673	0.856	0.813	-	0.820	-	0.250	0.938	-	-	0.910	-	0.907
Lights	0	3	34	0	37	-	14	2	4	0	20	-	35	180	26	0	241	-	2	178	0	0	180	-	478
% Lights	0%	100%	94.4%	0%	94.9%	-	87.5%	100%	80.0%	0%	87.0%	-	100%	97.3%	100%	0%	98.0%	-	100%	98.9%	0%	0%	98.9%	-	97.6%
Articulated Trucks and Single-Unit Trucks	0	0	0	0	0	-	1	0	0	0	1	-	0	2	0	0	2	-	0	0	0	0	0	-	3
% Articulated Trucks and Single-Unit Trucks	0%	0%	0%	0%	0%	-	6.3%	0%	0%	0%	4.3%	-	0%	1.1%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	-	0.6%
Buses	0	0	2	0	2	-	1	0	1	0	2	-	0	3	0	0	3	-	0	2	0	0	2	-	9
% Buses	0%	0%	5.6%	0%	5.1%	-	6.3%	0%	20.0%	0%	8.7%	-	0%	1.6%	0%	0%	1.2%	-	0%	1.1%	0%	0%	1.1%	-	1.8%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Stewart Rd & Yale Ave - TMC

Tue Mar 12, 2024

PM Peak (Mar 12 2024 3:30PM - 4:30 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks and Single-Unit Trucks, Buses, Pedestrians, Bicycles on Crosswalk)

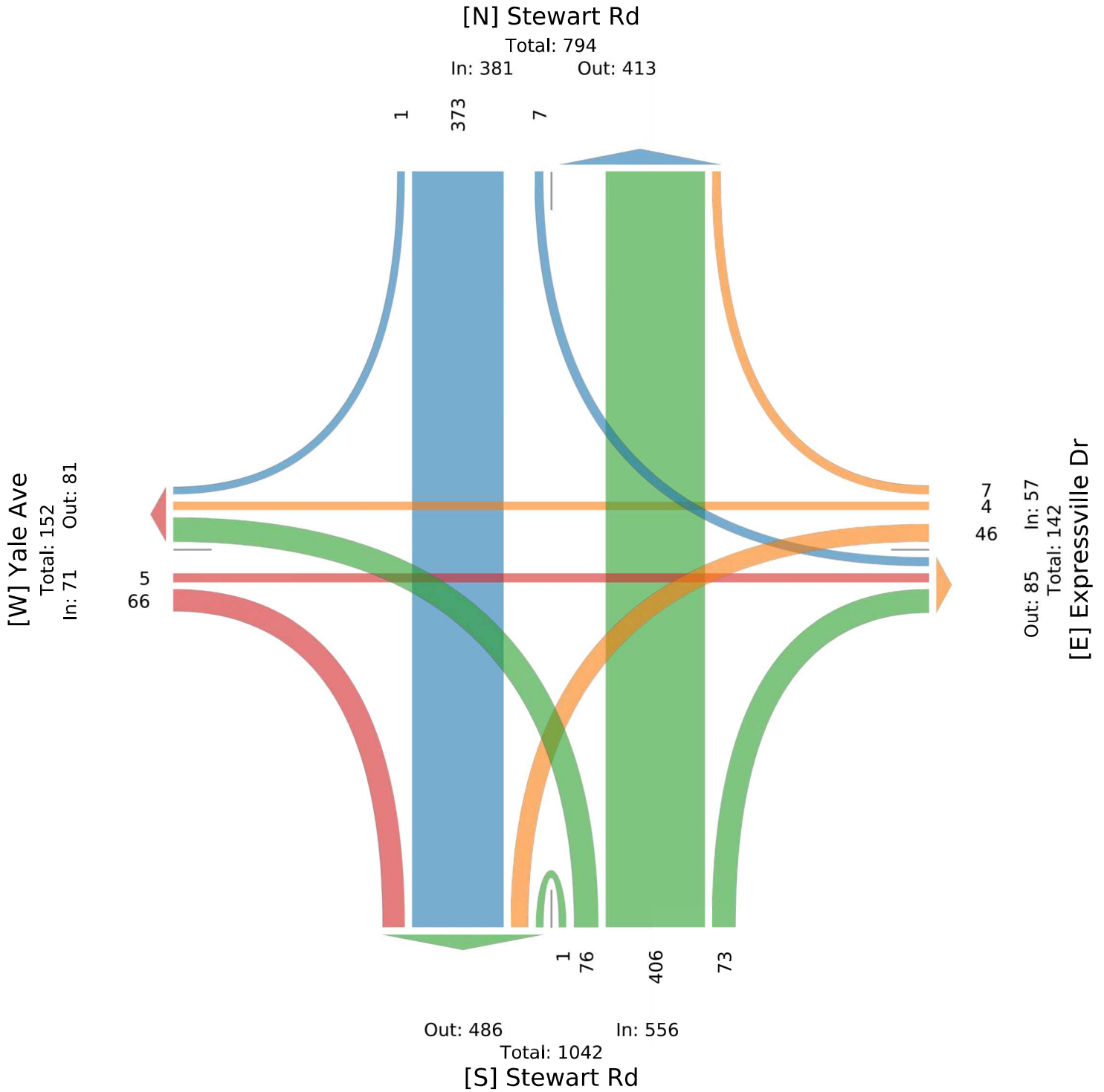
All Movements

ID: 1164010, Location: 40.780235, -82.474833



Provided by: Tri-State Traffic Data, Inc.

184 Baker Road,
Coatesville, PA, 19320, US



ATTACHMENT B
PEAK HOUR TO DESIGN HOUR FACTORS

PEAK HOUR to DESIGN HOUR FACTORS

FUNCTIONAL CLASSIFICATION = 02u

(Urban Freeways / Expressways)

Day Month	Monthly Average by Day-of-Week							
	WEEKDAY MON- THUR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	1.20	2.02	1.22	1.20	1.20	1.18	1.16	1.77
February	1.18	1.97	1.21	1.17	1.18	1.15	1.13	1.70
March	1.13	1.82	1.16	1.12	1.12	1.13	1.10	1.61
April	1.09	1.75	1.12	1.09	1.08	1.08	1.08	1.58
May	1.08	1.68	1.11	1.08	1.07	1.06	1.06	1.55
June	1.09	1.67	1.12	1.09	1.08	1.07	1.07	1.56
July	1.09	1.69	1.12	1.09	1.07	1.07	1.08	1.57
August	1.07	1.64	1.09	1.07	1.06	1.04	1.04	1.53
September	1.06	1.70	1.11	1.06	1.06	1.03	1.02	1.55
October	1.05	1.67	1.09	1.05	1.05	1.03	1.02	1.54
November	1.08	1.77	1.10	1.08	1.06	1.07	1.04	1.61
December	1.09	1.78	1.12	1.09	1.08	1.07	1.06	1.59

PEAK HOUR to DESIGN HOUR FACTORS

FUNCTIONAL CLASSIFICATION = 03, 04, 05u

(Urban Principal Arterial, Urban Minor Arterial, & Urban Minor Collector)

Day Month	Monthly Average by Day-of-Week							
	WEEKDAY MON- THUR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	1.25	1.81	1.27	1.25	1.25	1.23	1.18	1.61
February	1.23	1.78	1.26	1.23	1.23	1.19	1.17	1.58
March	1.18	1.63	1.20	1.18	1.17	1.17	1.12	1.47
April	1.13	1.57	1.15	1.14	1.12	1.11	1.08	1.42
May	1.10	1.47	1.12	1.10	1.10	1.07	1.06	1.35
June	1.14	1.51	1.16	1.14	1.14	1.11	1.10	1.40
July	1.14	1.54	1.16	1.14	1.13	1.14	1.11	1.45
August	1.12	1.49	1.14	1.14	1.12	1.10	1.06	1.41
September	1.12	1.53	1.15	1.13	1.13	1.09	1.05	1.42
October	1.12	1.54	1.15	1.12	1.11	1.10	1.05	1.42
November	1.16	1.63	1.17	1.15	1.15	1.15	1.08	1.52
December	1.16	1.61	1.18	1.16	1.16	1.13	1.10	1.50

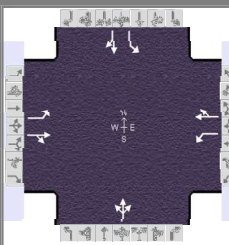
peak hour volume * factor = design hour volume

**ATTACHMENT C
HCS CAPACITY ANALYSIS**

EXISTING YEAR 2024 INTERSECTION CAPACITY ANALYSIS

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	248	17	24	386	1	15	0	24	0	0	0

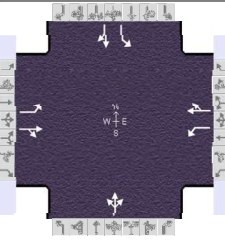
Signal Information																		
Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	58.8	6.2	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	248	17	24	386	1	15	0	24	0	0	0
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	4	4		2	2			9		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	75	225		75	475			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

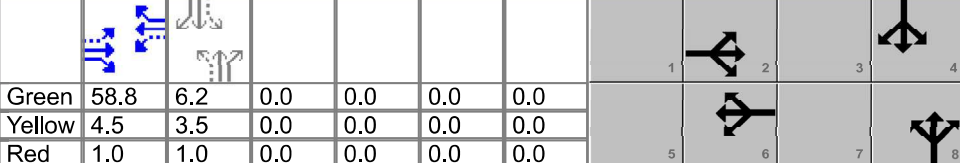
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		21.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85	
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	01 2024 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	248	17	24	386	1	15	0	24	0	0	0

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	58.8	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

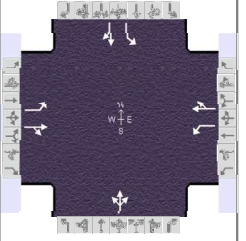
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		64.3		64.3		10.7		10.7
Change Period, (Y+R _c), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		0.0
Queue Clearance Time (g _s), s						4.1		
Green Extension Time (g _e), s		0.0		0.0		0.1		0.0
Phase Call Probability						0.62		
Max Out Probability						0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	0	312		28	455		46		0	0		
Adjusted Saturation Flow Rate (s), veh/h/ln	921	1820		1068	1869		1481		1404	1610		
Queue Service Time (g _s), s	0.0	3.3		0.5	5.2		0.2		0.0	0.0		
Cycle Queue Clearance Time (g _c), s	0.0	3.3		3.9	5.2		2.1		0.0	0.0		
Green Ratio (g/C)	0.78	0.78		0.78	0.78		0.08		0.08	0.09		
Capacity (c), veh/h	96	1428		886	1467		188		96			
Volume-to-Capacity Ratio (X)	0.000	0.218		0.032	0.310		0.244		0.000	0.000		
Back of Queue (Q), ft/ln (95 th percentile)	0	31		4	48		39		0	0		
Back of Queue (Q), veh/ln (95 th percentile)	0.0	1.2		0.2	1.9		1.5		0.0	0.0		
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.14		0.05	0.10		0.04		0.00	0.00		
Uniform Delay (d ₁), s/veh	0.0	2.1		2.6	2.3		32.5		0.0			
Incremental Delay (d ₂), s/veh	0.0	0.4		0.1	0.6		0.7		0.0	0.0		
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0		0.0	0.0		
Control Delay (d), s/veh	0.0	2.5		2.7	2.9		33.2		0.0			
Level of Service (LOS)		A		A	A		C					
Approach Delay, s/veh / LOS	2.5	A		2.8	A		33.2	C	0.0			
Intersection Delay, s/veh / LOS	4.4						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	248	17	24	386	1	15	0	24	0	0	0

Signal Information																		
Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	58.8	6.2	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

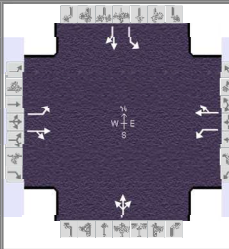
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.969	0.969	1.000	0.984	0.984	1.000	1.000	0.930	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.485	0.000		0.562	0.000		0.924	0.838		0.739	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.989	0.989		1.000	1.000		0.000	0.838		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	921	1703	117	1068	1865	5	570	0	911	1404	1900	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.78	0.78	0.78	0.78	0.78	0.08	0.00	0.08	0.00	0.00	0.00
Incremental Delay Factor (k)		0.50		0.50	0.50			0.11				

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.5		5.5		4.5		4.5
Green Ratio (g/C)		0.78		0.78		0.08		0.08
Permitted Saturation Flow Rate (s_p), veh/h/ln		921		1068		1440		1404
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0		58.8		6.2		0.0
Permitted Service Time (g_u), s		0.0		55.5		6.2		0.0
Permitted Queue Service Time (g_{ps}), s		0.0		0.5		0.2		0.0
Time to First Blockage (g_t), s		0.0		0.0		1.9		0.0
Queue Service Time Before Blockage (g_{ts}), s						1.9		
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

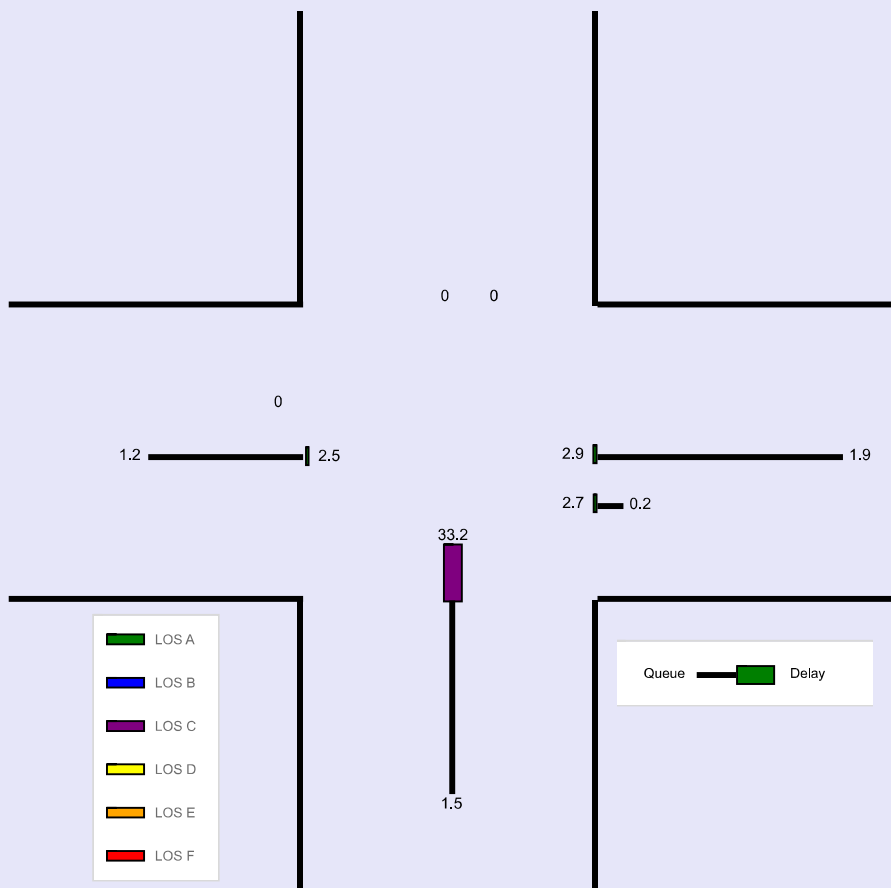
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	0	248	17	24	386	1	15	0	24	0	0	0

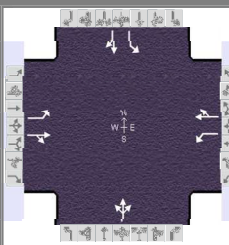
Signal Information											
Cycle, s	75.0	Reference Phase	2								
Offset, s	0	Reference Point	End	Green	58.8	6.2	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	0	31		4	48			39		0	0	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	1.2		0.2	1.9			1.5		0.0	0.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.14		0.05	0.10			0.04		0.00	0.00	
Control Delay (d), s/veh	0.0	2.5		2.7	2.9			33.2		0.0		
Level of Service (LOS)		A		A	A			C				
Approach Delay, s/veh / LOS	2.5	A		2.8	A			33.2	C	0.0		
Intersection Delay, s/veh / LOS	4.4						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	656	25	19	612	4	19	0	57	0	0	0

Signal Information														
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	76.2	8.8	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
				Red	1.0	1.0	0.0	0.0	0.0	0.0				

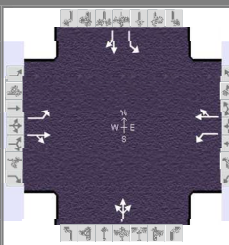
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	656	25	19	612	4	19	0	57	0	0	0
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		2	2			2		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	75	225		75	475			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		69.0		69.0		26.0		26.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	0	656	25	19	612	4	19	0	57	0	0	0

Signal Information														
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	76.2	8.8	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
				Red	1.0	1.0	0.0	0.0	0.0	0.0				

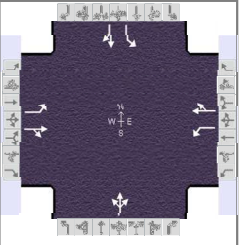
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		81.7		81.7		13.3		13.3
Change Period, ($Y+R_c$), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		0.0
Queue Clearance Time (g_s), s						6.6		
Green Extension Time (g_e), s		0.0		0.0		0.2		0.0
Phase Call Probability						0.88		
Max Out Probability						0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	0	724		20	655			81		0	0	
Adjusted Saturation Flow Rate (s), veh/h/ln	784	1873		729	1868			1576		1363	0	
Queue Service Time (g_s), s	0.0	11.9		0.9	10.2			1.6		0.0	0.0	
Cycle Queue Clearance Time (g_c), s	0.0	11.9		12.8	10.2			4.6		0.0	0.0	
Green Ratio (g/C)	0.80	0.80		0.80	0.80			0.09		0.09		
Capacity (c), veh/h	76	1502		569	1498			194		76		
Volume-to-Capacity Ratio (X)	0.000	0.482		0.035	0.437			0.418		0.000	0.000	
Back of Queue (Q), ft/ln (95 th percentile)	0	135		6	116			86		0	0	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	5.4		0.2	4.6			3.4		0.0	0.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.60		0.08	0.24			0.09		0.00	0.00	
Uniform Delay (d_1), s/veh	0.0	3.0		5.1	2.9			41.1		0.0		
Incremental Delay (d_2), s/veh	0.0	1.1		0.1	0.9			1.4		0.0	0.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	0.0	4.2		5.2	3.8			42.6		0.0		
Level of Service (LOS)		A		A	A			D				
Approach Delay, s/veh / LOS	4.2	A		3.8	A			42.6	D	0.0		
Intersection Delay, s/veh / LOS	6.1						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	0	656	25	19	612	4	19	0	57	0	0	0

Signal Information															
Cycle, s	95.0	Reference Phase	2									1 2		3 4	
Offset, s	0	Reference Point	End	Green	76.2	8.8	0.0	0.0	0.0	0.0	5 6		7 8		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0					

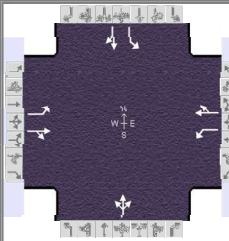
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.992	0.992	1.000	0.984	0.984	1.000	1.000	0.984	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.413	0.000		0.384	0.000		0.951	0.842		0.717	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.993	0.993		0.999	0.999		0.000	0.842		1.000	1.000
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00			1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	784	1804	69	729	1856	12	394	0	1182	1363	1900	0
Proportion of Vehicles Arriving on Green (P)	0.00	0.80	0.80	0.80	0.80	0.80	0.09	0.00	0.09	0.00	0.00	0.00
Incremental Delay Factor (k)		0.50		0.50	0.50				0.11			

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.5		5.5		4.5		4.5
Green Ratio (g/C)		0.80		0.80		0.09		0.09
Permitted Saturation Flow Rate (s_p), veh/h/ln		784		729		1440		1363
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s		0.0		76.2		8.8		0.0
Permitted Service Time (g_u), s		0.0		64.3		8.8		0.0
Permitted Queue Service Time (g_{ps}), s		0.0		0.9		1.6		0.0
Time to First Blockage (g_t), s		0.0		0.0		2.9		0.0
Queue Service Time Before Blockage (g_{ts}), s						1.4		
Protected Right Saturation Flow (s_R), veh/h/ln								
Protected Right Effective Green Time (g_R), s								

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

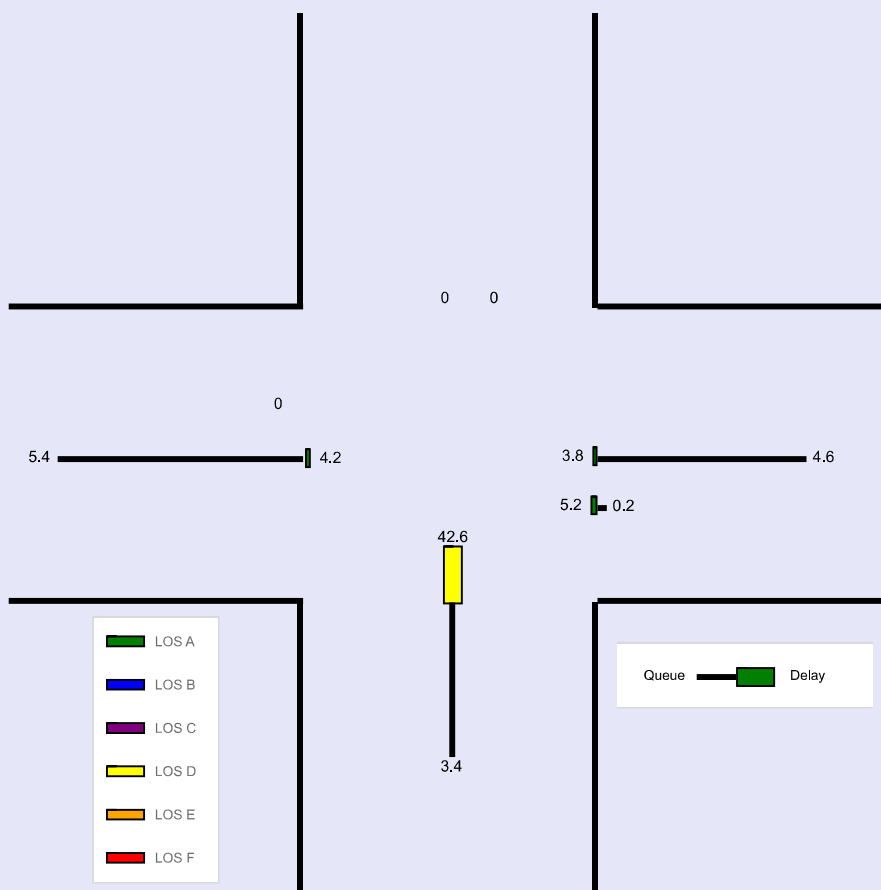
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	0	656	25	19	612	4	19	0	57	0	0	0

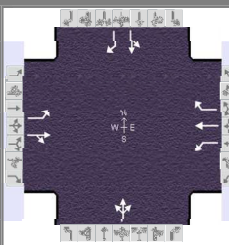
Signal Information											
Cycle, s	95.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On	Green	76.2	8.8	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	
				Red	1.0	1.0	0.0	0.0	0.0	0.0	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	0	135		6	116			86		0	0	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	5.4		0.2	4.6			3.4		0.0	0.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.60		0.08	0.24			0.09		0.00	0.00	
Control Delay (d), s/veh	0.0	4.2		5.2	3.8			42.6		0.0		
Level of Service (LOS)		A		A	A			D				
Approach Delay, s/veh / LOS	4.2		A	3.8		A	42.6		D	0.0		
Intersection Delay, s/veh / LOS	6.1						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	4	264	26	42	382	7	32	0	37	1	0	1

Signal Information														
Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
				Green	0.7	4.3	46.3	8.2	0.0	0.0				
				Yellow	3.0	0.0	4.5	3.5	0.0	0.0				
				Red	2.5	0.0	1.0	1.0	0.0	0.0				

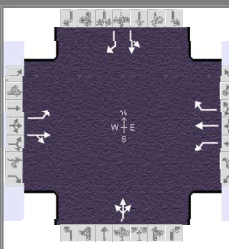
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	4	264	26	42	382	7	32	0	37	1	0	1
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		2	2	2		5			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	95	475		105	335	335		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	16.0	42.0		18.0		18.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R _c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No		0.50	No		0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	4	264	26	42	382	7	32	0	37	1	0	1

Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	0.7	4.3	46.3	8.2	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	0.0	4.5	3.5	0.0	0.0			
				Red	2.5	0.0	1.0	1.0	0.0	0.0			

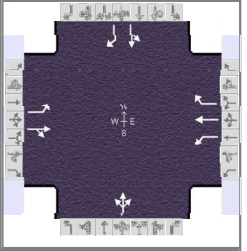
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.2	51.8	10.6	56.1		12.7		12.7
Change Period, ($Y+R_c$), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.1		2.6			5.5		2.1
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		0.1		0.2
Phase Call Probability	0.09		0.63			0.82		0.82
Max Out Probability	0.00		0.00			0.03		0.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	5	333		48	439	8		79			1	1	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1782		1781	1870	1585		1514			1386	1610	
Queue Service Time (g_s), s	0.1	6.6		0.6	7.5	0.1		1.6			0.0	0.0	
Cycle Queue Clearance Time (g_c), s	0.1	6.6		0.6	7.5	0.1		3.5			0.1	0.0	
Green Ratio (g/C)	0.63	0.62		0.70	0.67	0.67		0.11			0.11	0.11	
Capacity (c), veh/h	617	1099		770	1262	1069		235			247	175	
Volume-to-Capacity Ratio (X)	0.007	0.303		0.063	0.348	0.008		0.337			0.005	0.007	
Back of Queue (Q), ft/ln (95 th percentile)	1	105		8	109	2		65			1	1	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	4.0		0.3	4.3	0.1		2.5			0.0	0.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.01	0.22		0.07	0.32	0.00		0.72			0.01	0.01	
Uniform Delay (d_1), s/veh	5.4	6.8		4.0	5.2	4.0		31.3			29.8	29.8	
Incremental Delay (d_2), s/veh	0.0	0.7		0.0	0.8	0.0		0.8			0.0	0.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	5.4	7.5		4.0	5.9	4.0		32.1			29.8	29.8	
Level of Service (LOS)	A	A		A	A	A		C			C	C	
Approach Delay, s/veh / LOS	7.5		A	5.7		A		32.1		C	29.8		C
Intersection Delay, s/veh / LOS	8.7						A						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	4	264	26	42	382	7	32	0	37	1	0	1

Signal Information				Signal Phases												
Cycle, s	75.0	Reference Phase	2													
Offset, s	0	Reference Point	End	Green	0.7	4.3	46.3	8.2	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	0.0	4.5	3.5	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	0.0	1.0	1.0	0.0	0.0						

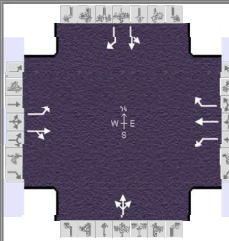
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.953	1.000	0.984	0.984	0.984	1.000	0.961	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.902	0.829		0.729	0.729	
Right-Turn Adjustment Factor (f_{RT})		0.984	0.984		0.000	0.847		0.000	0.829		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00								
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1725	1623	160	1781	1870	1585	702	0	812	1386	0	1610
Proportion of Vehicles Arriving on Green (P)	0.01	0.62	0.62	0.07	0.67	0.67	0.11	0.00	0.11	0.11	0.00	0.11
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50	0.50		0.11			0.11	0.11

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	5.5	5.5	5.5	5.5		4.5		4.5
Green Ratio (g/C)	0.63	0.62	0.70	0.67		0.11		0.11
Permitted Saturation Flow Rate (s_p), veh/h/ln	920	0	1047	0		1440		1386
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						1590		1386
Permitted Effective Green Time (g_p), s	46.3	0.0	47.1	0.0		8.2		8.2
Permitted Service Time (g_u), s	41.1	0.0	39.6	0.0		8.1		4.6
Permitted Queue Service Time (g_{ps}), s	0.0		0.4			1.6		0.0
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0		1.9		0.0
Queue Service Time Before Blockage (g_{ts}), s						1.9		0.0
Protected Right Saturation Flow (s_R), veh/h/ln				0				0
Protected Right Effective Green Time (g_R), s				0.0				0.0

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

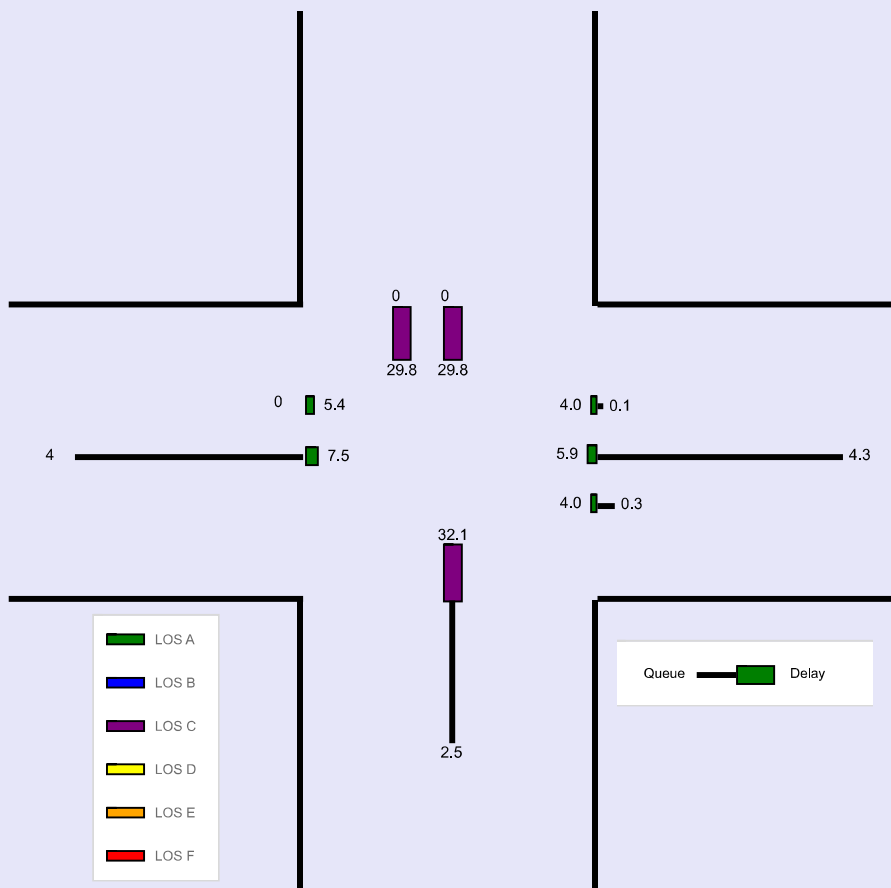
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	4	264	26	42	382	7	32	0	37	1	0	1

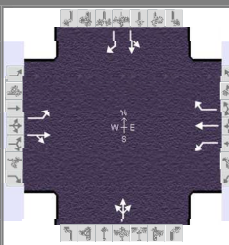
Signal Information				Signal Phases									
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	0.7	4.3	46.3	8.2	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	0.0	4.5	3.5	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	0.0	1.0	1.0	0.0	0.0			

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	1	105		8	109	2		65			1	1	
Back of Queue (Q), veh/ln (95 th percentile)	0.0	4.0		0.3	4.3	0.1		2.5			0.0	0.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.01	0.22		0.07	0.32	0.00		0.72			0.01	0.01	
Control Delay (d), s/veh	5.4	7.5		4.0	5.9	4.0		32.1			29.8	29.8	
Level of Service (LOS)	A	A		A	A	A		C			C	C	
Approach Delay, s/veh / LOS	7.5		A	5.7		A		32.1		C	29.8		C
Intersection Delay, s/veh / LOS	8.7						A						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	5	576	90	125	544	11	89	0	104	9	1	7

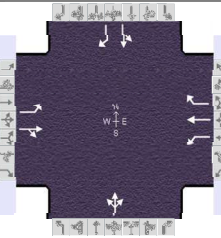
Signal Information				Phase Diagrams										
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	1.0	1.2	57.2	14.5	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	3.5	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	2.5	1.0	1.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	5	576	90	125	544	11	89	0	104	9	1	7
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	1	1		1	1	1		1			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	95	475		105	335	335		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

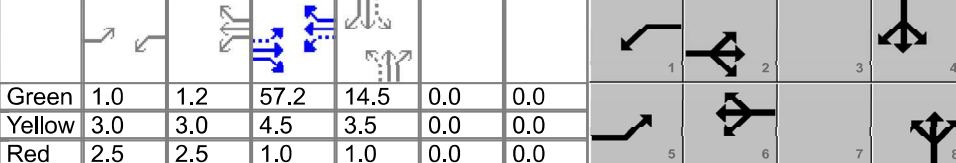
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	14.0	58.0	14.0	58.0		23.0		23.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R _c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2024 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	576	90	125	544	11	89	0	104	9	1	7

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	1.0	1.2	57.2	14.5	0.0	0.0	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	Red	2.5	2.5	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

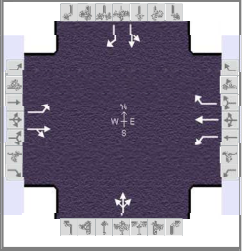
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.5	62.7	13.3	69.4		19.0		19.0
Change Period, ($Y+R_c$), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.1		4.2			14.3		2.6
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.3		0.7
Phase Call Probability	0.13		0.97			1.00		1.00
Max Out Probability	0.00		0.03			1.00		0.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	5	701		132	573	12		203			11	7	
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1840		1795	1885	1598		1531			1111	1610	
Queue Service Time (g_s), s	0.1	23.3		2.2	13.6	0.2		11.1			0.0	0.4	
Cycle Queue Clearance Time (g_c), s	0.1	23.3		2.2	13.6	0.2		12.3			0.6	0.4	
Green Ratio (g/C)	0.61	0.60		0.70	0.67	0.67		0.15			0.15	0.15	
Capacity (c), veh/h	526	1108		491	1268	1075		290			242	246	
Volume-to-Capacity Ratio (X)	0.010	0.633		0.268	0.451	0.011		0.701			0.043	0.030	
Back of Queue (Q), ft/ln (95 th percentile)	2	357		32	216	3		218			10	7	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	14.2		1.3	8.6	0.1		8.6			0.4	0.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.02	0.75		0.30	0.65	0.01		2.42			0.10	0.07	
Uniform Delay (d_1), s/veh	7.5	12.1		8.5	7.3	5.1		39.2			34.3	34.2	
Incremental Delay (d_2), s/veh	0.0	2.8		0.3	1.2	0.0		4.7			0.1	0.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	7.6	14.9		8.8	8.5	5.1		43.9			34.4	34.3	
Level of Service (LOS)	A	B		A	A	A		D			C	C	
Approach Delay, s/veh / LOS	14.8		B	8.5		A		43.9		D	34.3		C
Intersection Delay, s/veh / LOS	15.9						B						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	5	576	90	125	544	11	89	0	104	9	1	7

Signal Information				Signal Phases											
Cycle, s	95.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	1.0	1.2	57.2	14.5	0.0	0.0	1	2	3	4	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	5	6	7	8	
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	2.5	1.0	1.0	0.0	0.0					

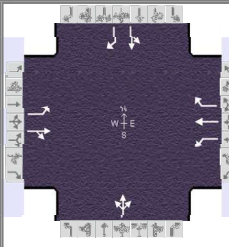
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f _w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f _{HVg})	0.992	0.992	1.000	0.992	0.992	0.992	1.000	0.992	1.000	1.000	1.000	1.000
Parking Activity Adjustment Factor (f _p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f _{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f _a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f _{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f _{LT})	0.952	0.000		0.952	0.000		0.882	0.812		0.585	0.585	
Right-Turn Adjustment Factor (f _{RT})		0.976	0.976		0.000	0.847		0.000	0.812		0.000	0.847
Left-Turn Pedestrian Adjustment Factor (f _{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f _{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f _{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f _{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor (f _{CAV,prot})	1.00			1.00								
Left-Turn Perm. CAV Adj. Factor (f _{CAV,perm})							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1795	1592	249	1795	1885	1598	706	0	825	1000	111	1610
Proportion of Vehicles Arriving on Green (P)	0.01	0.60	0.60	0.08	0.67	0.67	0.15	0.00	0.15	0.15	0.15	0.15
Incremental Delay Factor (k)	0.11	0.50		0.11	0.50	0.50		0.17			0.11	0.11

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t _L)	5.5	5.5	5.5	5.5		4.5		4.5
Green Ratio (g/C)	0.61	0.60	0.70	0.67		0.15		0.15
Permitted Saturation Flow Rate (s _p), veh/h/ln	846	0	751	0		1439		1304
Shared Saturation Flow Rate (s _{sh}), veh/h/ln						1642		1052
Permitted Effective Green Time (g _p), s	57.2	0.0	59.2	0.0		14.5		14.5
Permitted Service Time (g _u), s	48.4	0.0	33.9	0.0		13.9		2.3
Permitted Queue Service Time (g _{ps}), s	0.1		5.4			11.1		0.0
Time to First Blockage (g _t), s	0.0	0.0	0.0	0.0		1.2		0.2
Queue Service Time Before Blockage (g _{ts}), s						1.2		0.2
Protected Right Saturation Flow (s _R), veh/h/ln				0				0
Protected Right Effective Green Time (g _R), s				0.0				0.0

Multimodal	EB	WB	NB	SB
Pedestrian F _w / F _v				
Pedestrian F _s / F _{delay}				
Pedestrian M _{corner} / M _{cw}				
Bicycle c _b / d _b				
Bicycle F _w / F _v				

HCS Signalized Intersection Results Graphical Summary

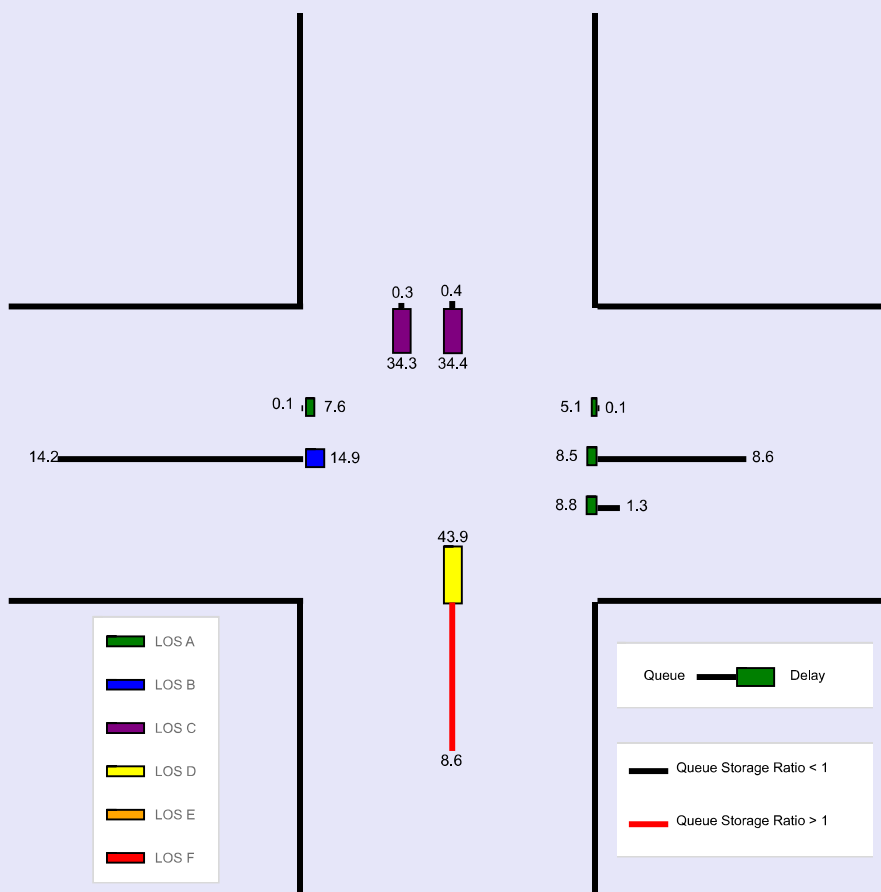
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	5	576	90	125	544	11	89	0	104	9	1	7

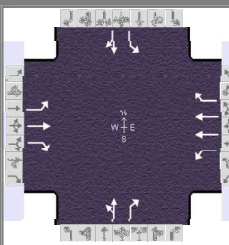
Signal Information				Signal Phases									
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	1.0	1.2	57.2	14.5	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	3.5	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	2.5	1.0	1.0	0.0	0.0			

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	2	357		32	216	3		218			10	7	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	14.2		1.3	8.6	0.1		8.6			0.4	0.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.02	0.75		0.30	0.65	0.01		2.42			0.10	0.07	
Control Delay (d), s/veh	7.6	14.9		8.8	8.5	5.1		43.9			34.4	34.3	
Level of Service (LOS)	A	B		A	A	A		D			C	C	
Approach Delay, s/veh / LOS	14.8		B	8.5		A		43.9		D	34.3		C
Intersection Delay, s/veh / LOS	15.9						B						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	19	227	48	184	350	41	34	74	238	50	116	45

Signal Information				Signal Timing (s)																				
Cycle, s	75.0	Reference Phase	2	Green	2.8	1.3	31.4	14.9	0.0	0.0	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	Red	3.5	3.5	1.0	1.5	0.0	0.0
Offset, s	0	Reference Point	End	[Signal Timing Diagram]																				
Uncoordinated	No	Simult. Gap E/W	On	[Signal Timing Diagram]																				
Force Mode	Fixed	Simult. Gap N/S	On	[Signal Timing Diagram]																				

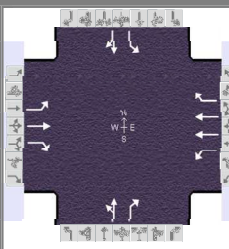
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	19	227	48	184	350	41	34	74	238	50	116	45
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6	6	3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	130	325	100	510	610	160		999	145	100	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	30.0	21.0	36.0		24.0		24.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		4.5		4.5
Red Clearance Interval (R _c), s	3.5	1.0	3.5	1.0		1.5		1.5
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	19	227	48	184	350	41	34	74	238	50	116	45

Signal Information				Signal Phases									
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		2.8	1.3	31.4	14.9	0.0	0.0				
		Yellow		3.0	3.0	4.5	4.5	0.0	0.0				
		Red		3.5	3.5	1.0	1.5	0.0	0.0				

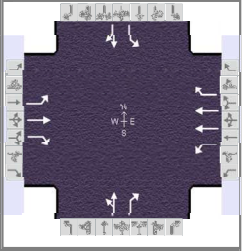
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	9.3	36.9	17.1	44.7		20.9		20.9
Change Period, (Y+R _c), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g _s), s	2.9		10.4			13.9		11.8
Green Extension Time (g _e), s	0.0	0.0	0.4	0.0		1.0		1.4
Phase Call Probability	0.36		0.99			1.00		1.00
Max Out Probability	0.00		0.12			1.00		0.54

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	21	252	53	204	389	46		120	264	56	179		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1535	1767	1766	1572		1408	1598	1326	1795		
Queue Service Time (g _s), s	0.9	7.0	1.6	8.4	4.4	1.1		0.2	11.9	2.9	6.6		
Cycle Queue Clearance Time (g _c), s	0.9	7.0	1.6	8.4	4.4	1.1		6.9	11.9	9.8	6.6		
Green Ratio (g/C)	0.04	0.42	0.42	0.14	0.52	0.52		0.20	0.20	0.20	0.20		
Capacity (c), veh/h	65	759	643	251	1848	822		343	318	239	357		
Volume-to-Capacity Ratio (X)	0.322	0.332	0.083	0.816	0.210	0.055		0.349	0.831	0.232	0.501		
Back of Queue (Q), ft/ln (95 th percentile)	20	136	26	178	72	16		82	232	42	127		
Back of Queue (Q), veh/ln (95 th percentile)	0.7	5.2	1.0	6.9	2.8	0.6		3.2	9.2	1.7	5.1		
Queue Storage Ratio (RQ) (95 th percentile)	0.15	0.42	0.26	0.35	0.12	0.10		0.08	1.60	0.42	0.34		
Uniform Delay (d ₁), s/veh	35.1	14.7	13.1	31.2	9.6	8.8		25.7	28.8	31.2	26.7		
Incremental Delay (d ₂), s/veh	2.8	1.2	0.3	6.4	0.3	0.1		0.6	12.3	0.5	1.1		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	37.9	15.9	13.4	37.6	9.8	8.9		26.3	41.1	31.6	27.8		
Level of Service (LOS)	D	B	B	D	A	A		C	D	C	C		
Approach Delay, s/veh / LOS	16.9		B	18.7		B		36.5		D	28.7		C
Intersection Delay, s/veh / LOS	24.1						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	AM Peak Hour		PHF	0.90		
Urban Street	US Route 42	Analysis Year	2024 'No-Build'		Analysis Period	1 > 7:00		
Intersection	Stewart Road	File Name	05 2024 AM No-Build Capacity Analysis US42 &...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	19	227	48	184	350	41	34	74	238	50	116	45

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	75.0	Reference Phase	2	Green	2.8	1.3	31.4	14.9	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	3.5	3.5	1.0	1.5	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

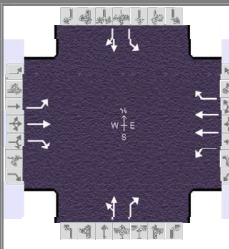
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.953	0.953	0.977	0.977	0.977	0.992	0.992	0.992	0.992	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.747	0.747		0.698	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.847		0.000	0.847		0.952	0.952
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{WZ})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00								
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1725	1811	1535	1767	3533	1572	443	965	1598	1326	1293	502
Proportion of Vehicles Arriving on Green (P)	0.04	0.42	0.42	0.14	0.52	0.52	0.20	0.20	0.20	0.20	0.20	0.20
Incremental Delay Factor (k)	0.11	0.50	0.50	0.11	0.50	0.50		0.11	0.26	0.11	0.11	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.5	5.5	6.5	5.5		6.0		6.0
Green Ratio (g/C)	0.04	0.42	0.14	0.52		0.20		0.20
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0		1224		1326
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0		14.9		14.9
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0		8.3		8.1
Permitted Queue Service Time (g_{ps}), s						0.2		2.9
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0		4.1		0.0
Queue Service Time Before Blockage (g_{ts}), s						4.1		
Protected Right Saturation Flow (s_R), veh/h/ln		0		0		0		
Protected Right Effective Green Time (g_R), s		0.0		0.0		0.0		

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

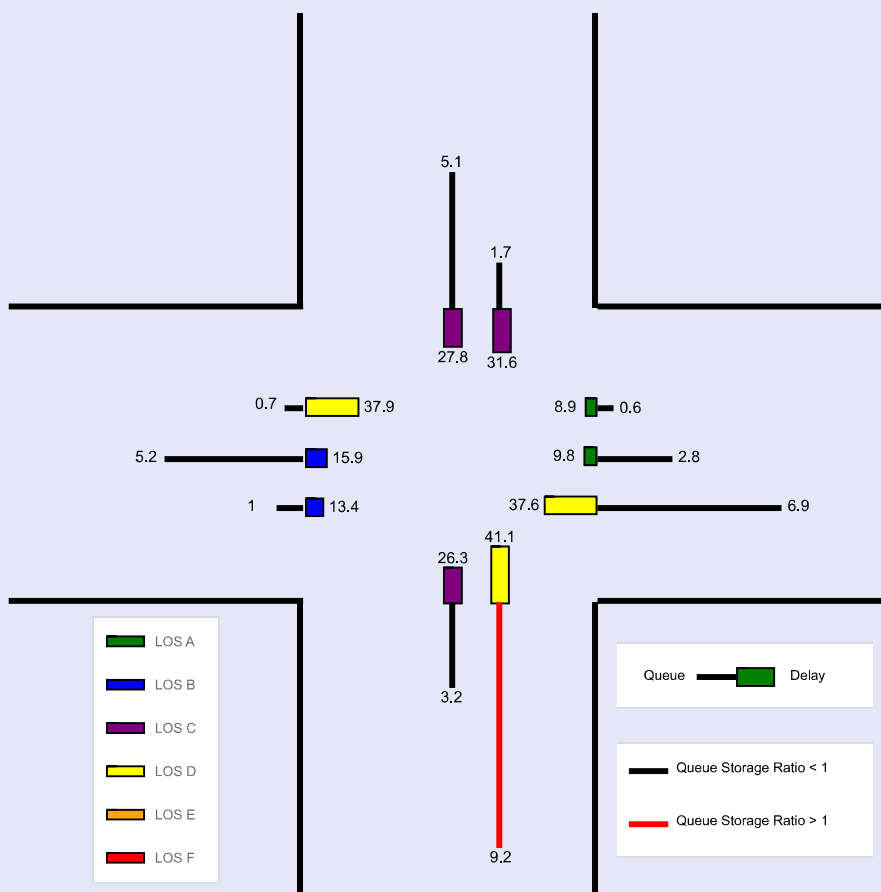
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	19	227	48	184	350	41	34	74	238	50	116	45

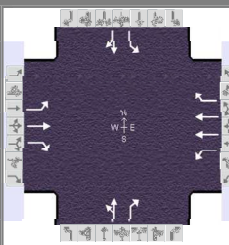
Signal Information				Signal Phases								
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	2.8	1.3	31.4	14.9	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	4.5	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.5	3.5	1.0	1.5	0.0	0.0		

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	20	136	26	178	72	16		82	232	42	127		
Back of Queue (Q), veh/ln (95 th percentile)	0.7	5.2	1.0	6.9	2.8	0.6		3.2	9.2	1.7	5.1		
Queue Storage Ratio (RQ) (95 th percentile)	0.15	0.42	0.26	0.35	0.12	0.10		0.08	1.60	0.42	0.34		
Control Delay (d), s/veh	37.9	15.9	13.4	37.6	9.8	8.9		26.3	41.1	31.6	27.8		
Level of Service (LOS)	D	B	B	D	A	A		C	D	C	C		
Approach Delay, s/veh / LOS	16.9		B	18.7		B		36.5		D	28.7		C
Intersection Delay, s/veh / LOS	24.1						C						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	96	503	54	283	539	132	39	145	273	110	185	78

Signal Information				Signal Timing (s)									Signal Phases			
Cycle, s	95.0	Reference Phase	2	Green	7.4	3.3	36.8	23.0	0.0	0.0	1	2	3	4		
Offset, s	0	Reference Point	End	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	5	6	7	8		
Uncoordinated	No	Simult. Gap E/W	On	Red	3.5	3.5	1.0	1.5	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On													

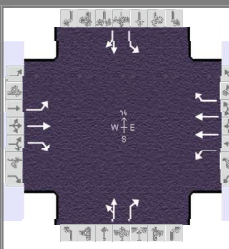
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	96	503	54	283	539	132	39	145	273	110	185	78
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1	1	1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	130	325	100	510	610	160		999	145	100	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	25.0	51.0		29.0		29.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		4.5		4.5
Red Clearance Interval (R _c), s	3.5	1.0	3.5	1.0		1.5		1.5
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	96	503	54	283	539	132	39	145	273	110	185	78

Signal Information				Signal Phases											
Cycle, s	95.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
		Green		7.4	3.3	36.8	23.0	0.0	0.0						
		Yellow		3.0	3.0	4.5	4.5	0.0	0.0						
		Red		3.5	3.5	1.0	1.5	0.0	0.0						

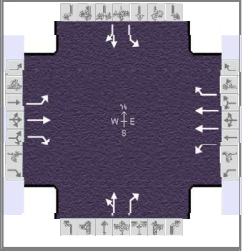
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	13.9	42.3	23.7	52.1		29.0		29.0
Change Period, (Y+R _c), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g _s), s	7.1		17.1			17.5		25.0
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		1.8		0.0
Phase Call Probability	0.93		1.00			1.00		1.00
Max Out Probability	1.00		1.00			0.76		1.00

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	99	519	56	292	556	136		190	281	113	271		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1598	1795	1795	1598		1285	1585	1248	1790		
Queue Service Time (g _s), s	5.1	22.1	2.1	15.1	8.9	4.5		2.1	15.5	8.0	12.9		
Cycle Queue Clearance Time (g _c), s	5.1	22.1	2.1	15.1	8.9	4.5		15.0	15.5	23.0	12.9		
Green Ratio (g/C)	0.08	0.39	0.39	0.18	0.49	0.49		0.24	0.24	0.24	0.24		
Capacity (c), veh/h	140	729	618	326	1760	783		357	384	181	433		
Volume-to-Capacity Ratio (X)	0.706	0.711	0.090	0.896	0.316	0.174		0.531	0.733	0.628	0.626		
Back of Queue (Q), ft/ln (95 th percentile)	121	399	36	337	160	74		170	272	134	244		
Back of Queue (Q), veh/ln (95 th percentile)	4.8	15.8	1.4	13.4	6.3	3.0		6.7	10.7	5.3	9.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.93	1.23	0.36	0.66	0.26	0.47		0.17	1.88	1.34	0.65		
Uniform Delay (d ₁), s/veh	42.7	24.6	18.5	38.0	14.6	13.5		31.3	33.2	43.8	32.2		
Incremental Delay (d ₂), s/veh	11.3	5.8	0.3	23.4	0.5	0.5		1.5	7.1	6.7	2.8		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	54.1	30.4	18.8	61.4	15.1	14.0		32.8	40.3	50.5	35.0		
Level of Service (LOS)	D	C	B	E	B	B		C	D	D	C		
Approach Delay, s/veh / LOS	32.9		C	28.7		C		37.3		D	39.6		D
Intersection Delay, s/veh / LOS	33.1						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.97		
Urban Street	US Route 42	Analysis Year	2024 'No-Build'		Analysis Period	1 > 7:00		
Intersection	Stewart Road	File Name	06 2024 PM No-Build Capacity Analysis US42 &...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	96	503	54	283	539	132	39	145	273	110	185	78

Signal Information				Signal Timing / Movement Groups											
Cycle, s	95.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
		Green		7.4	3.3	36.8	23.0	0.0	0.0						
		Yellow		3.0	3.0	4.5	4.5	0.0	0.0						
		Red		3.5	3.5	1.0	1.5	0.0	0.0						

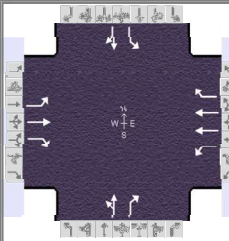
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Heavy Vehicles and Grade Factor (f_{HVg})	0.992	0.992	0.992	0.992	0.992	0.992	0.984	0.984	0.984	0.992	0.992	1.000
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	0.952	0.000		0.952	0.000		0.687	0.687		0.657	0.000	
Right-Turn Adjustment Factor (f_{RT})		0.000	0.847		0.000	0.847		0.000	0.847		0.949	0.949
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000			1.000		
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			1.000
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)	1.00			1.00								
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)							1.00			1.00		
Movement Saturation Flow Rate (s), veh/h	1795	1885	1598	1795	3589	1598	272	1013	1585	1248	1259	531
Proportion of Vehicles Arriving on Green (P)	0.08	0.39	0.39	0.18	0.49	0.49	0.24	0.24	0.24	0.24	0.24	0.24
Incremental Delay Factor (k)	0.20	0.50	0.50	0.37	0.50	0.50		0.13	0.29	0.21	0.21	

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)	6.5	5.5	6.5	5.5		6.0		6.0
Green Ratio (g/C)	0.08	0.39	0.18	0.49		0.24		0.24
Permitted Saturation Flow Rate (s_p), veh/h/ln	0	0	0	0		1126		1248
Shared Saturation Flow Rate (s_{sh}), veh/h/ln						0		
Permitted Effective Green Time (g_p), s	0.0	0.0	0.0	0.0		23.0		23.0
Permitted Service Time (g_u), s	0.0	0.0	0.0	0.0		10.1		8.0
Permitted Queue Service Time (g_{ps}), s						2.1		8.0
Time to First Blockage (g_t), s	0.0	0.0	0.0	0.0		7.0		0.0
Queue Service Time Before Blockage (g_{ts}), s						7.0		
Protected Right Saturation Flow (s_R), veh/h/ln		0		0		0		
Protected Right Effective Green Time (g_R), s		0.0		0.0		0.0		

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

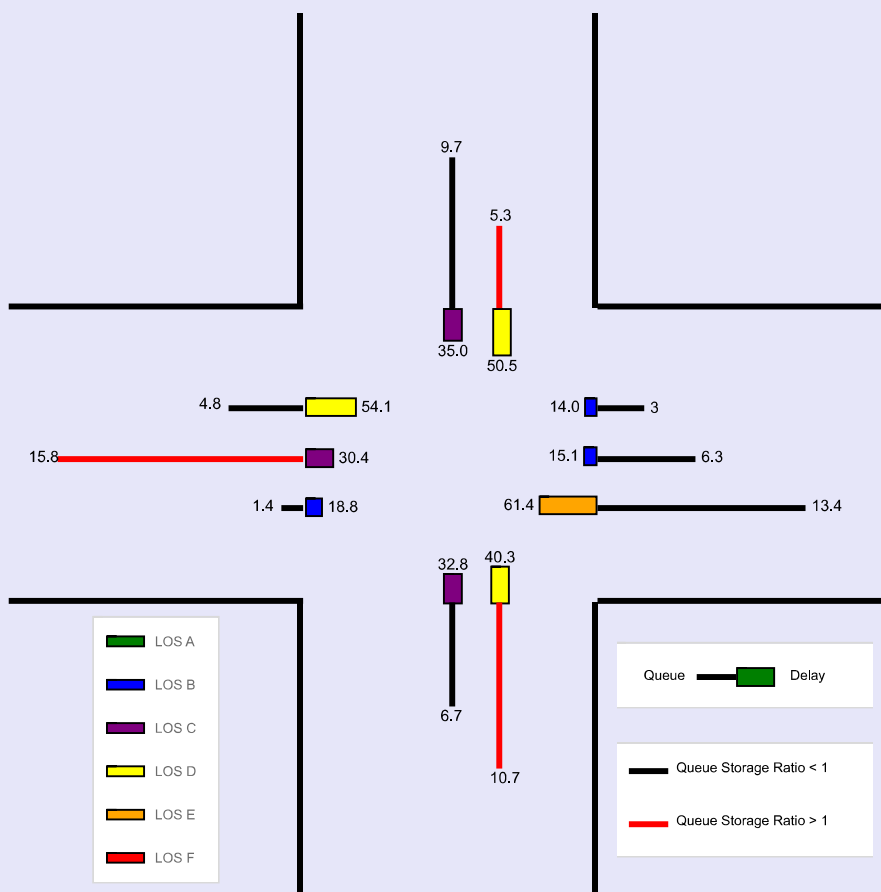
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	96	503	54	283	539	132	39	145	273	110	185	78

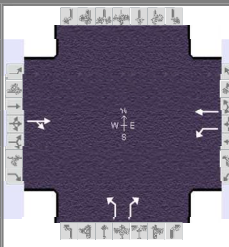
Signal Information				Signal Phases								
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End	Green	7.4	3.3	36.8	23.0	0.0	0.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	4.5	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.5	3.5	1.0	1.5	0.0	0.0		

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	121	399	36	337	160	74		170	272	134	244		
Back of Queue (Q), veh/ln (95 th percentile)	4.8	15.8	1.4	13.4	6.3	3.0		6.7	10.7	5.3	9.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.93	1.23	0.36	0.66	0.26	0.47		0.17	1.88	1.34	0.65		
Control Delay (d), s/veh	54.1	30.4	18.8	61.4	15.1	14.0		32.8	40.3	50.5	35.0		
Level of Service (LOS)	D	C	B	E	B	B		C	D	D	C		
Approach Delay, s/veh / LOS	32.9 C			28.7 C				37.3 D			39.6 D		
Intersection Delay, s/veh / LOS	33.1						C						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		398	132	153	597		133		113			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.5	9.5	0.0	0.0	0.0	0.0				
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

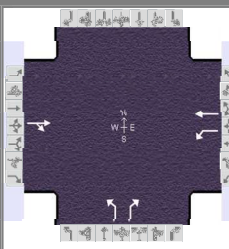
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		398	132	153	597		133		113			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		4		4	4		4		4			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		999		95	999		100		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (I _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		398	132	153	597		133		113			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.5	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

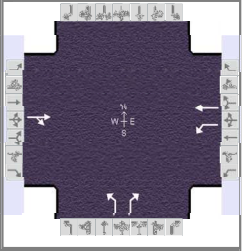
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		61.0		61.0		14.0		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.9		
Green Extension Time (g _e), s		0.0		0.0		0.7		
Phase Call Probability						1.00		
Max Out Probability						0.16		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		663		191	746		166		141			
Adjusted Saturation Flow Rate (s), veh/h/ln		1762		760	1841		1753		1560			
Queue Service Time (g _s), s		11.8		10.5	13.3		6.9		6.5			
Cycle Queue Clearance Time (g _c), s		11.8		22.3	13.3		6.9		6.5			
Green Ratio (g/C)		0.74		0.74	0.74		0.13		0.13			
Capacity (c), veh/h		1303		539	1362		223		198			
Volume-to-Capacity Ratio (X)		0.508		0.355	0.548		0.747		0.713			
Back of Queue (Q), ft/ln (95 th percentile)		138		79	164		143		121			
Back of Queue (Q), veh/ln (95 th percentile)		5.4		3.1	6.3		5.5		4.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.14		0.83	0.16		1.43		0.14			
Uniform Delay (d ₁), s/veh		4.1		8.7	4.3		31.6		31.4			
Incremental Delay (d ₂), s/veh		1.4		1.8	1.6		4.9		4.7			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		5.5		10.5	5.9		36.5		36.1			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.5	A		6.8	A		36.3	D		0.0		
Intersection Delay, s/veh / LOS			11.1						B			

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		398	132	153	597		133		113			

Signal Information				Signal Phases													
Cycle, s	75.0	Reference Phase	2														
Offset, s	0	Reference Point	End	Green	55.5	9.5	0.0	0.0	0.0	0.0							
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0							
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0							

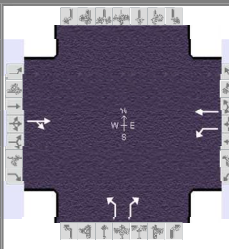
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.969	1.000	0.969	0.969	0.977	0.969	0.992	0.969			
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	1.000	0.957		0.400	0.000		0.952	0.000				
Right-Turn Adjustment Factor (f_{RT})		0.000	0.957		1.000	1.000		0.000	0.847			
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000					
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00								
Movement Saturation Flow Rate (s), veh/h	0	1323	439	760	1841	0	1753	0	1560			
Proportion of Vehicles Arriving on Green (P)	0.00	0.74	0.74	0.74	0.74	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Incremental Delay Factor (k)		0.50		0.50	0.50		0.11		0.11			

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.5		5.5		4.0		
Green Ratio (g/C)		0.74		0.74		0.13		
Permitted Saturation Flow Rate (s_p), veh/h/ln		726		760		1753		
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		0						
Permitted Effective Green Time (g_p), s		0.0		55.5		0.0		
Permitted Service Time (g_u), s		0.0		43.7		0.0		
Permitted Queue Service Time (g_{ps}), s				10.5				
Time to First Blockage (g_t), s		55.5		0.0		0.0		
Queue Service Time Before Blockage (g_{ts}), s								
Protected Right Saturation Flow (s_R), veh/h/ln						0		
Protected Right Effective Green Time (g_R), s						0.0		

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

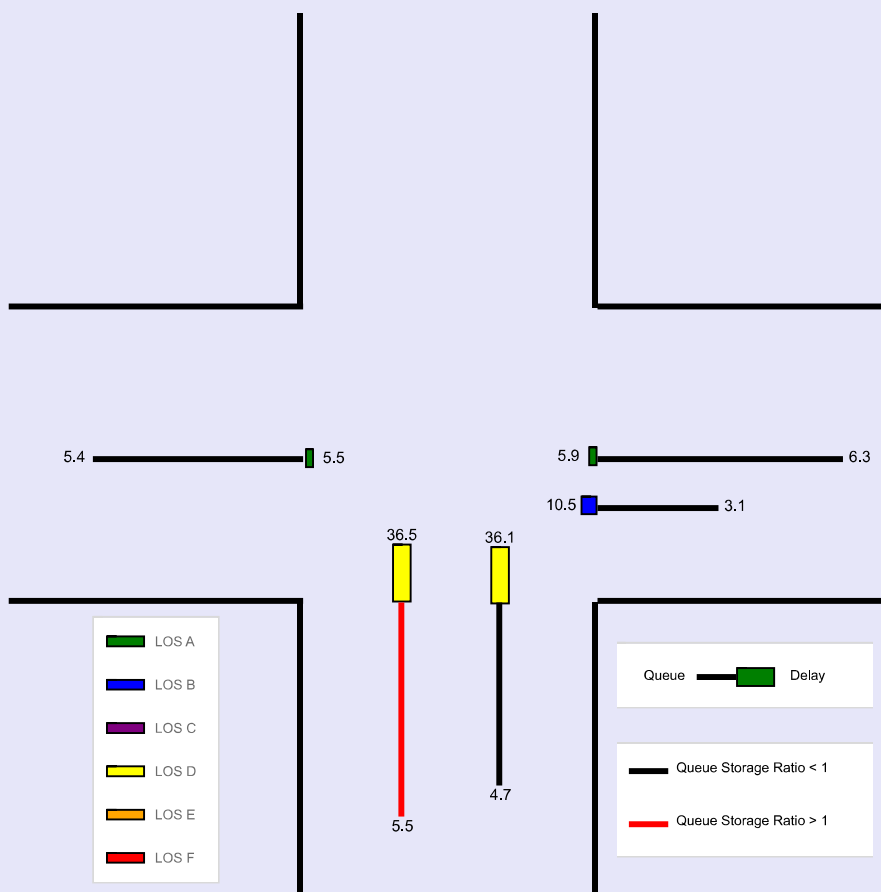
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2024 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		398	132	153	597		133		113			

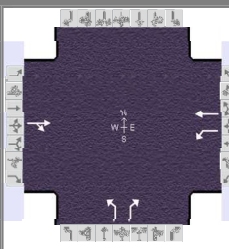
Signal Information														
Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On	Green	55.5	9.5	0.0	0.0	0.0	0.0				
				Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
				Red	1.0	1.0	0.0	0.0	0.0	0.0				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		138		79	164		143		121			
Back of Queue (Q), veh/ln (95 th percentile)		5.4		3.1	6.3		5.5		4.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.14		0.83	0.16		1.43		0.14			
Control Delay (d), s/veh		5.5		10.5	5.9		36.5		36.1			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.5		A	6.8		A	36.3		D		0.0	
Intersection Delay, s/veh / LOS	11.1						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		807	118	146	721		103		153			

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.2	11.8	0.0	0.0	0.0	0.0				
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

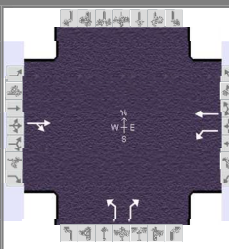
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		807	118	146	721		103		153			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2		3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		999		95	999		100		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (P _T), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		807	118	146	721		103		153			

Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.8	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

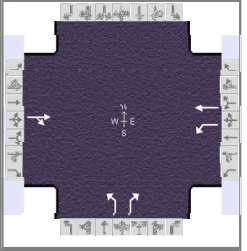
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		78.7		78.7		16.3		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.9		
Green Extension Time (g _e), s		0.0		0.0		0.9		
Phase Call Probability						1.00		
Max Out Probability						0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		934		147	728		104		155			
Adjusted Saturation Flow Rate (s), veh/h/ln		1828		595	1856		1795		1598			
Queue Service Time (g _s), s		22.8		14.7	14.1		5.1		8.9			
Cycle Queue Clearance Time (g _c), s		22.8		37.5	14.1		5.1		8.9			
Green Ratio (g/C)		0.77		0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1409		391	1430		223		198			
Volume-to-Capacity Ratio (X)		0.663		0.377	0.509		0.467		0.780			
Back of Queue (Q), ft/ln (95 th percentile)		274		98	186		105		172			
Back of Queue (Q), veh/ln (95 th percentile)		10.8		3.8	7.3		4.1		6.8			
Queue Storage Ratio (RQ) (95 th percentile)		0.27		1.03	0.19		1.05		0.20			
Uniform Delay (d ₁), s/veh		5.1		13.9	4.1		38.7		40.4			
Incremental Delay (d ₂), s/veh		2.5		2.8	1.3		1.5		6.5			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		7.6		16.6	5.4		40.2		46.9			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	7.6	A		7.3	A		44.2	D		0.0		
Intersection Delay, s/veh / LOS				12.0						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Intermediate Values

General Information					Intersection Information	
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.99
Urban Street	US Route 42	Analysis Year	2024 'No-Build'		Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2024 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		807	118	146	721		103		153			

Signal Information														
Cycle, s	95.0	Reference Phase	2							1 2 3 4				
Offset, s	0	Reference Point	End							5 6 7 8				
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.8	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
				Red	1.0	1.0	0.0	0.0	0.0	0.0				

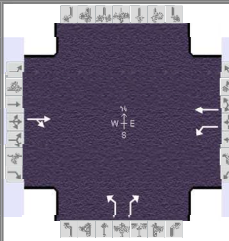
Saturation Flow / Delay	L	T	R	L	T	R	L	T	R	L	T	R
Lane Width Adjustment Factor (f_w)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Heavy Vehicles and Grade Factor (f_{HVg})	0.953	0.984	1.000	0.977	0.977	0.977	0.992	0.992	0.992			
Parking Activity Adjustment Factor (f_p)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
Bus Blockage Adjustment Factor (f_{bb})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	0.000	0.000	0.000
Area Type Adjustment Factor (f_a)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Lane Utilization Adjustment Factor (f_{LU})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Left-Turn Adjustment Factor (f_{LT})	1.000	0.978		0.313	0.000		0.952	0.000				
Right-Turn Adjustment Factor (f_{RT})		0.000	0.978		1.000	1.000		0.000	0.847			
Left-Turn Pedestrian Adjustment Factor (f_{LPB})	1.000			1.000			1.000					
Right-Turn Ped-Bike Adjustment Factor (f_{RPB})			1.000			1.000			1.000			
Work Zone Adjustment Factor (f_{wz})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
DDI Factor (f_{DDI})	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000			
Left-Turn Prot. CAV Adj. Factor ($f_{CAV,prot}$)												
Left-Turn Perm. CAV Adj. Factor ($f_{CAV,perm}$)	1.00			1.00								
Movement Saturation Flow Rate (s), veh/h	0	1595	233	595	1856	0	1795	0	1598			
Proportion of Vehicles Arriving on Green (P)	0.00	0.77	0.77	0.77	0.77	0.00	0.12	0.00	0.12	0.00	0.00	0.00
Incremental Delay Factor (k)		0.50		0.50	0.50		0.11		0.11			

Signal Timing / Movement Groups	EBL	EBT/R	WBL	WBT/R	NBL	NBT/R	SBL	SBT/R
Lost Time (t_L)		5.5		5.5		4.0		
Green Ratio (g/C)		0.77		0.77		0.12		
Permitted Saturation Flow Rate (s_p), veh/h/ln		738		595		1795		
Shared Saturation Flow Rate (s_{sh}), veh/h/ln		0						
Permitted Effective Green Time (g_p), s		0.0		73.2		0.0		
Permitted Service Time (g_u), s		0.0		50.4		0.0		
Permitted Queue Service Time (g_{ps}), s				14.7				
Time to First Blockage (g_t), s		73.2		0.0		0.0		
Queue Service Time Before Blockage (g_{ts}), s								
Protected Right Saturation Flow (s_R), veh/h/ln						0		
Protected Right Effective Green Time (g_R), s						0.0		

Multimodal	EB	WB	NB	SB
Pedestrian F_w / F_v				
Pedestrian F_s / F_{delay}				
Pedestrian M_{corner} / M_{cw}				
Bicycle c_b / d_b				
Bicycle F_w / F_v				

HCS Signalized Intersection Results Graphical Summary

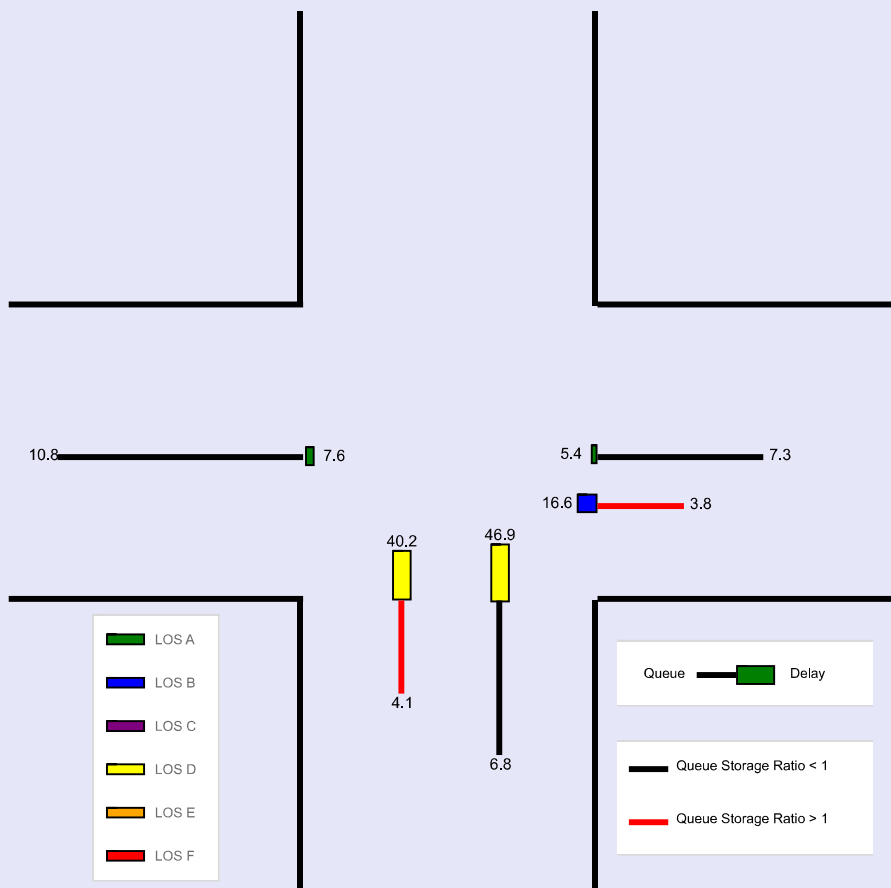
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2024 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2024 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		807	118	146	721		103		153			

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	95.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	73.2	11.8	0.0	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0					

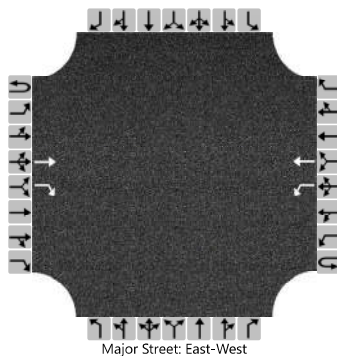
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)		274		98	186		105		172			
Back of Queue (Q), veh/ln (95 th percentile)		10.8		3.8	7.3		4.1		6.8			
Queue Storage Ratio (RQ) (95 th percentile)		0.27		1.03	0.19		1.05		0.20			
Control Delay (d), s/veh		7.6		16.6	5.4		40.2		46.9			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	7.6		A	7.3		A	44.2		D	0.0		
Intersection Delay, s/veh / LOS	12.0						B					



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	8/20/2024	East/West Street	US Route 42
Analysis Year	2024	North/South Street	US Route 30 EB Ramps
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	0	0		0	0	0
Configuration			T	R		L	T									
Volume (veh/h)			450	68		20	451									
Percent Heavy Vehicles (%)						4										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized			Yes													
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1										
Critical Headway (sec)						4.14										
Base Follow-Up Headway (sec)						2.2										
Follow-Up Headway (sec)						2.24										

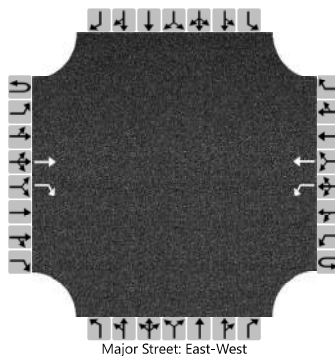
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22										
Capacity, c (veh/h)						1064										
v/c Ratio						0.02										
95% Queue Length, Q ₉₅ (veh)						0.1										
95% Queue Length, Q ₉₅ (ft)						2.6										
Control Delay (s/veh)						8.5										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.4											
Approach LOS					A											

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	8/20/2024	East/West Street	US Route 42
Analysis Year	2024	North/South Street	US Route 30 EB Ramps
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	0	0		0	0	0
Configuration			T	R		L	T									
Volume (veh/h)			753	129		26	630									
Percent Heavy Vehicles (%)						1										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized	Yes															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1										
Critical Headway (sec)						4.11										
Base Follow-Up Headway (sec)						2.2										
Follow-Up Headway (sec)						2.21										

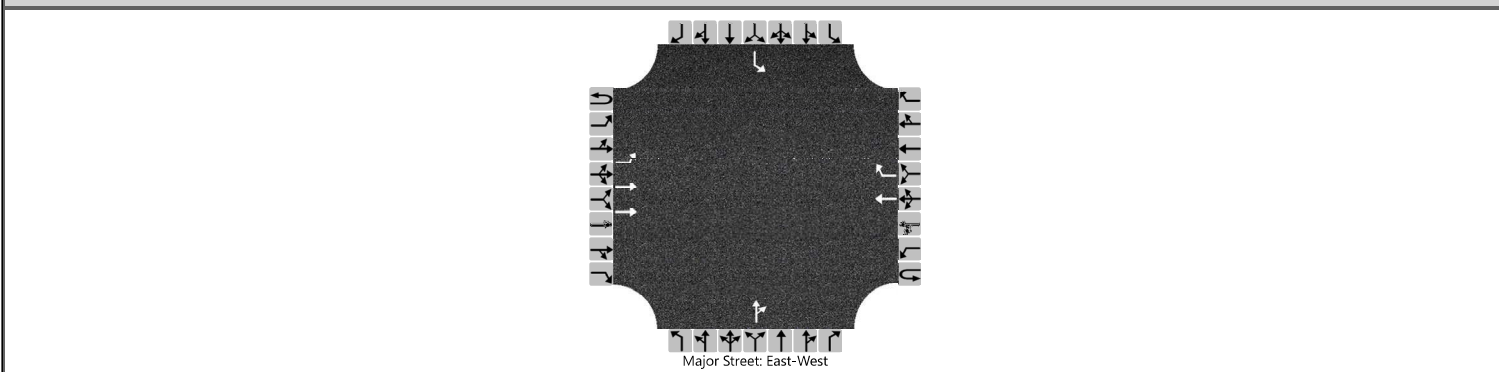
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						28										
Capacity, c (veh/h)						827										
v/c Ratio						0.03										
95% Queue Length, Q ₉₅ (veh)						0.1										
95% Queue Length, Q ₉₅ (ft)						2.5										
Control Delay (s/veh)						9.5										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.4											
Approach LOS					A											

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 42 / US 30 WB Ramps		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	US Route 42		
Analysis Year	2024			North/South Street	US Route 30 WB Ramps		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.84		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	2	0	0	0	1	1	0	1	0		1	0	0	
Configuration		L	T				T	R			TR		L			
Volume (veh/h)		202	474				346	379			1	27	8			
Percent Heavy Vehicles (%)		3									12	12	4			
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.9		7.5		
Critical Headway (sec)		4.16									6.74	7.14		7.58		
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5		
Follow-Up Headway (sec)		2.23									4.12	3.42		3.54		

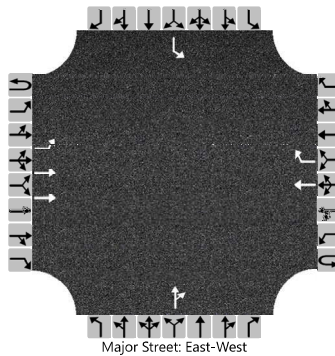
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		240									33		10				
Capacity, c (veh/h)		1136									558		107				
v/c Ratio		0.21									0.06		0.09				
95% Queue Length, Q ₉₅ (veh)		0.8									0.2		0.3				
95% Queue Length, Q ₉₅ (ft)		20.5									5.5		7.7				
Control Delay (s/veh)		9.0									11.9		41.8				
Level of Service (LOS)		A									B		E				
Approach Delay (s/veh)		2.7								11.9				41.8			
Approach LOS		A								B				E			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 42 / US 30 WB Ramps		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	US Route 42		
Analysis Year	2024			North/South Street	US Route 30 WB Ramps		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.97		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6	7	8	9		10	11	12	
Priority																
Number of Lanes	0	1	2	0	0	0	1	1	0	1	0		1	0	0	
Configuration		L	T				T	R			TR		L			
Volume (veh/h)		238	942				489	363			3	25		4		
Percent Heavy Vehicles (%)		2									8	8		3		
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.9		7.5		
Critical Headway (sec)		4.14									6.66	7.06		7.56		
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5		
Follow-Up Headway (sec)		2.22									4.08	3.38		3.53		

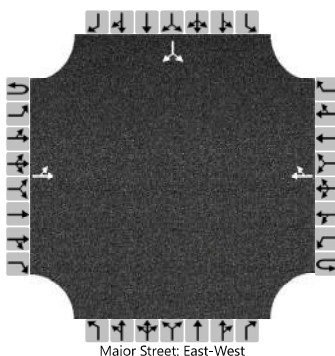
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		245									29		4				
Capacity, c (veh/h)		1057									241		59				
v/c Ratio		0.23									0.12		0.07				
95% Queue Length, Q ₉₅ (veh)		0.9									0.4		0.2				
95% Queue Length, Q ₉₅ (ft)		22.9									10.6		5.1				
Control Delay (s/veh)		9.4									22.0		70.1				
Level of Service (LOS)		A									C		F				
Approach Delay (s/veh)		1.9								22.0				70.1			
Approach LOS		A								C				F			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 30 WB Ramps / Beal Road		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	US Route 30 WB Ramps		
Analysis Year	2024			North/South Street	Beal Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.88		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		4	74				528	24						51		41
Percent Heavy Vehicles (%)		7												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.50		3.30

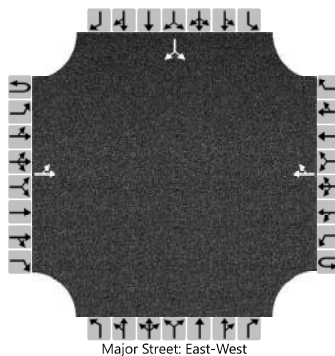
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		5														105	
Capacity, c (veh/h)		931														439	
v/c Ratio		0.00														0.24	
95% Queue Length, Q ₉₅ (veh)		0.0														0.9	
95% Queue Length, Q ₉₅ (ft)		0.0														22.5	
Control Delay (s/veh)		8.9	0.0													15.7	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.5												15.7			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 30 WB Ramps / Beal Road		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	US Route 30 WB Ramps		
Analysis Year	2024			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.91		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		9	93				474	105						73		47
Percent Heavy Vehicles (%)		3												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.50		3.30

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10														132
Capacity, c (veh/h)		942														442
v/c Ratio		0.01														0.30
95% Queue Length, Q ₉₅ (veh)		0.0														1.2
95% Queue Length, Q ₉₅ (ft)		0.0														30.0
Control Delay (s/veh)		8.9	0.1													16.6
Level of Service (LOS)		A	A													C
Approach Delay (s/veh)	0.9												16.6			
Approach LOS	A												C			

HCS Two-Way Stop-Control Report

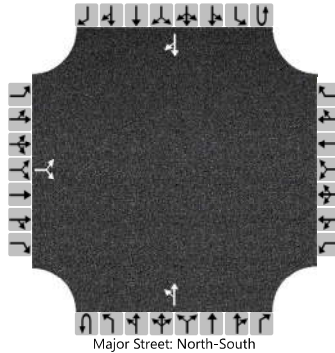
General Information

Analyst	Ryan Barco
Agency/Co.	GPD Group
Date Performed	8/20/2024
Analysis Year	2024
Time Analyzed	AM Peak Hour 'No-Build'
Intersection Orientation	North-South
Project Description	US 30 & US 42 Planning Study

Site Information

Intersection	Beal Road / Rayfield Drive
Jurisdiction	Madison Township
East/West Street	Rayfield Drive
North/South Street	Beal Road
Peak Hour Factor	0.80
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0		0	1	0		0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		2		17						5	24				89	2
Percent Heavy Vehicles (%)		6		6						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.26						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.35						2.24						

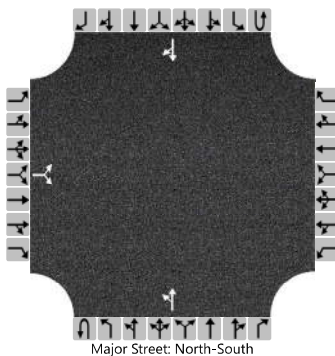
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			24							6						
Capacity, c (veh/h)			917							1463						
v/c Ratio			0.03							0.00						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.6							0.0						
Control Delay (s/veh)			9.0							7.5	0.0					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.0								1.3							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	Rayfield Drive		
Analysis Year	2024			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement																	
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6	
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0	
Configuration			LR							LT							TR
Volume (veh/h)		9		30						11	114				94	5	
Percent Heavy Vehicles (%)		0		0						4							
Proportion Time Blocked																	
Percent Grade (%)		0															
Right Turn Channelized																	
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1							
Critical Headway (sec)		6.40		6.20						4.14							
Base Follow-Up Headway (sec)		3.5		3.3						2.2							
Follow-Up Headway (sec)		3.50		3.30						2.24							

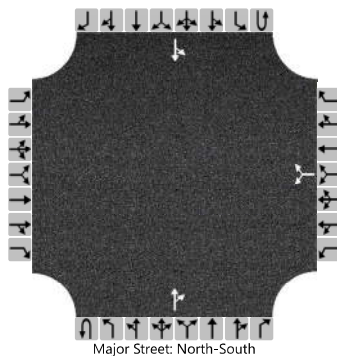
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			42							12							
Capacity, c (veh/h)			895							1472							
v/c Ratio			0.05							0.01							
95% Queue Length, Q ₉₅ (veh)			0.1							0.0							
95% Queue Length, Q ₉₅ (ft)			2.5							0.0							
Control Delay (s/veh)			9.2							7.5	0.1						
Level of Service (LOS)			A							A	A						
Approach Delay (s/veh)		9.2								0.7							
Approach LOS		A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Expressview Drive / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	Rayfield Drive		
Analysis Year	2024			North/South Street	Expressview Drive		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						6		1			2	6		7	4	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.40		6.20							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.50		3.30							2.20		

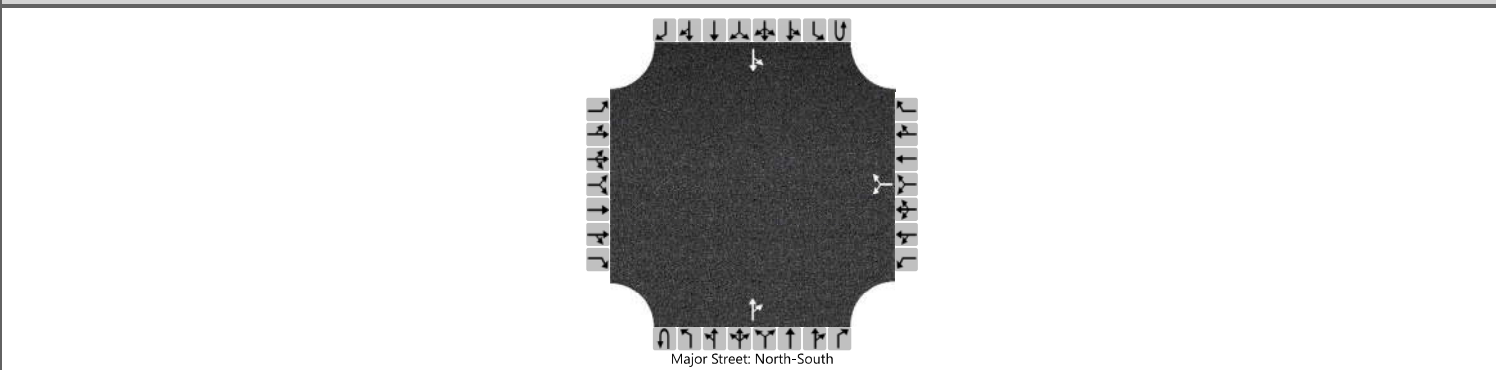
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						9									9		
Capacity, c (veh/h)						998									1623		
v/c Ratio						0.01									0.01		
95% Queue Length, Q ₉₅ (veh)						0.0									0.0		
95% Queue Length, Q ₉₅ (ft)						0.0									0.0		
Control Delay (s/veh)						8.6									7.2	0.0	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					8.6								4.6				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Expressview Drive / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	Rayfield Drive		
Analysis Year	2024			North/South Street	Expressview Drive		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.83		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						9		4			8	40		6	7	
Percent Heavy Vehicles (%)						9		9						0		
Proportion Time Blocked																
Percent Grade (%)						0										
Right Turn Channelized																
Median Type Storage						Undivided										

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.49		6.29						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.58		3.38						2.20		

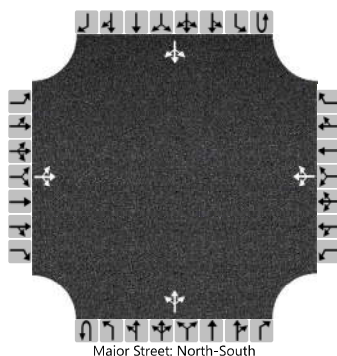
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						16								7		
Capacity, c (veh/h)						955								1559		
v/c Ratio						0.02								0.00		
95% Queue Length, Q ₉₅ (veh)						0.0								0.0		
95% Queue Length, Q ₉₅ (ft)						0.0								0.0		
Control Delay (s/veh)						8.8								7.3	0.0	
Level of Service (LOS)						A								A	A	
Approach Delay (s/veh)						8.8								3.4		
Approach LOS						A								A		

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2024			North/South Street	Stewart Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.84		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0		0	1	0		0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	1	32		11	0	1		12	70	8		4	157	0
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.21		

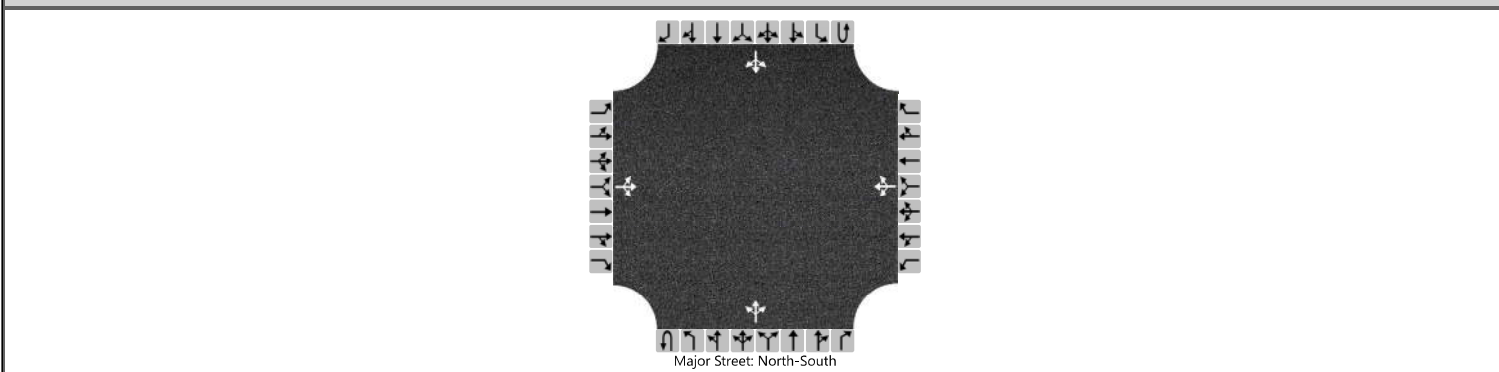
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			39				14							5		
Capacity, c (veh/h)			849				607							1508		
v/c Ratio			0.05				0.02							0.00		
95% Queue Length, Q ₉₅ (veh)			0.1				0.1							0.0		
95% Queue Length, Q ₉₅ (ft)			2.5				2.5									
Control Delay (s/veh)			9.4				11.1			7.6	0.1	0.1		7.4	0.0	0.0
Level of Service (LOS)			A				B			A	A	A		A	A	A
Approach Delay (s/veh)	9.4				11.1				1.1				0.2			
Approach LOS	A				B				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	8/20/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2024			North/South Street	Stewart Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.94		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		0	5	37		15	2	6		40	209	38		4	202	1
Percent Heavy Vehicles (%)		3	3	3		10	10	10		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.20	6.60	6.30		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.59	4.09	3.39		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			45				24							4		
Capacity, c (veh/h)			735				439							1301		
v/c Ratio			0.06				0.06							0.03		
95% Queue Length, Q ₉₅ (veh)			0.2				0.2							0.0		
95% Queue Length, Q ₉₅ (ft)			5.1				5.4									
Control Delay (s/veh)			10.2				13.7			7.7	0.3	0.3		7.8	0.0	0.0
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	10.2				13.7				1.3				0.2			
Approach LOS	B				B				A				A			

EXISTING YEAR 2024 FREEWAY CAPACITY ANALYSIS

1	0.94	0.855	1101	4568	0.24	57.8	9.4	A							
Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.901	1136	35	4500	1900	0.25	0.02	53.5	53.5	10.6	10.0	A
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	1138	4568	0.25	58.3	9.7	A							
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.980	1138	131	4500	2000	0.25	0.07	51.2	51.2	11.1	8.5	A
Segment 7: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	988	4568	0.22	57.5	8.5	A							
Segment 8: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.943	988	246	4500	1900	0.22	0.13	50.0	50.0	9.9	10.5	B
Segment 9: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	717	4568	0.16	57.1	6.1	A							
Segment 10: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.971	809	92	4500	2000	0.18	0.05	54.0	54.0	7.5	6.1	A
Segment 11: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.800	878	4568	0.19	58.3	7.5	A							
Segment 12: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.980	878	53	4500	1900	0.20	0.03	50.2	50.2	8.7	6.9	A
Segment 13: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS

1	0.94	0.800	812	4568	0.18	57.8	7.0	A
---	------	-------	-----	------	------	------	-----	---

Segment 14: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.980	850	38	4500	2000	0.19	0.02	54.1	54.1	7.9	6.2	A

Segment 15: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.806		853		4568		0.19		58.3		7.3		A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1016	956	1.02	25.41	55.2	8.8	7.4	5.40	A

Facility Overall Results

Space Mean Speed, mi/h	55.2	Average Density, veh/mi/ln	7.4
Average Travel Time, min	5.40	Average Density, pc/mi/ln	8.8
Total VMT, veh-mi/AP	1016	Total VHD, veh-h	1.02
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	25.41

1	0.94	0.855	1939	4568	0.42	57.8	16.6	B							
Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.901	2006	67	4500	1900	0.45	0.04	53.2	53.2	18.9	16.8	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	2009	4568	0.44	58.3	17.2	B							
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.980	2009	327	4500	2000	0.45	0.16	50.9	50.9	19.7	16.0	B
Segment 7: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	1635	4568	0.36	57.5	14.0	B							
Segment 8: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.943	1635	446	4500	1900	0.36	0.23	49.7	49.7	16.4	16.1	B
Segment 9: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.855	1143	4568	0.25	57.1	9.8	A							
Segment 10: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.971	1304	161	4500	2000	0.29	0.08	54.0	54.0	12.1	9.9	A
Segment 11: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94	0.800	1418	4568	0.31	58.3	12.1	B							
Segment 12: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.980	1418	168	4500	1900	0.32	0.09	50.1	50.1	14.2	11.5	B
Segment 13: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS

1	0.94	0.800	1211	4568	0.27	57.8	10.4	A
---	------	-------	------	------	------	------	------	---

Segment 14: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.980	1237	26	4500	2000	0.27	0.01	54.0	54.0	11.5	9.2	A

Segment 15: Basic

AP	PHF		fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94		0.806	1234	4568	0.27	58.3	10.6	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1684	1585	1.76	44.12	55.0	14.7	12.3	5.40	B

Facility Overall Results

Space Mean Speed, mi/h	55.0	Average Density, veh/mi/ln	12.3
Average Travel Time, min	5.40	Average Density, pc/mi/ln	14.7
Total VMT, veh-mi/AP	1684	Total VHD, veh-h	1.76
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	44.12

1	0.94	0.806	1027	4568	0.22	57.8	8.8	A							
Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1151	124	4500	2000	0.26	0.06	54.0	54.0	10.7	8.8	A
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		1188		4568		0.26		58.3		10.2		A
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.935	1188	32	4500	2000	0.26	0.02	51.3	51.3	11.6	10.7	B
Segment 7: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		1151		4568		0.25		57.6		9.9		A
Segment 8: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.962	1151	86	4500	2000	0.26	0.04	51.2	51.2	11.2	12.0	B
Segment 9: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		1046		4568		0.23		57.3		9.0		A
Segment 10: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.952	1680	634	4500	2000	0.37	0.32	53.8	53.8	15.6	12.9	B
Segment 11: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.855		1677		4568		0.37		58.3		14.3		B
Segment 12: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.901	1677	52	4500	2000	0.37	0.03	51.3	51.3	16.3	13.7	B
Segment 13: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS

1	0.94	0.855	1622	4568	0.36	58.0	13.9	B
---	------	-------	------	------	------	------	------	---

Segment 14: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.962	1725	103	4500	2000	0.38	0.05	53.4	53.4	16.2	15.5	B

Segment 15: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.855	1738	4568	0.38	57.6	14.9	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1355	1282	1.17	29.17	55.6	11.9	9.8	5.40	B

Facility Overall Results

Space Mean Speed, mi/h	55.6	Average Density, veh/mi/ln	9.8
Average Travel Time, min	5.40	Average Density, pc/mi/ln	11.9
Total VMT, veh-mi/AP	1355	Total VHD, veh-h	1.17
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	29.17

1	0.94	0.806	1023	4568	0.22	57.8	8.8	A							
Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1129	106	4500	2000	0.25	0.05	54.0	54.0	10.5	8.7	A
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		1163		4568		0.25		58.3		10.0		A
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.935	1163	32	4500	2000	0.26	0.02	51.3	51.3	11.3	10.5	B
Segment 7: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		1125		4568		0.25		57.6		9.6		A
Segment 8: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.962	1125	113	4500	2000	0.25	0.06	51.2	51.2	11.0	11.8	B
Segment 9: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.794		989		4568		0.22		57.3		8.5		A
Segment 10: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.794	0.952	1569	580	4500	2000	0.35	0.29	53.8	53.8	14.6	12.0	B
Segment 11: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.855		1564		4568		0.34		58.3		13.4		B
Segment 12: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.901	1564	41	4500	2000	0.35	0.02	51.3	51.3	15.2	12.8	B
Segment 13: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS

1	0.94	0.855	1520	4568	0.33	58.0	13.0	B
---	------	-------	------	------	------	------	------	---

Segment 14: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.855	0.962	1659	139	4500	2000	0.37	0.07	53.4	53.4	15.5	15.0	B

Segment 15: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.855		1677		4568		0.37		57.6		14.3		B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1310	1240	1.13	28.25	55.6	11.5	9.5	5.40	B

Facility Overall Results

Space Mean Speed, mi/h	55.6	Average Density, veh/mi/ln	9.5
Average Travel Time, min	5.40	Average Density, pc/mi/ln	11.5
Total VMT, veh-mi/AP	1310	Total VHD, veh-h	1.13
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	28.25

Appendix D: Signal Warrant Analysis

STUDY AND ANALYSIS INFORMATION

Municipality:	Madison Township	Traffic Volumes Obtained By:	Tri-State Traffic Data
County:	Richland	Analysis Date:	6/28/2024
ODOT Engineering District:	3	Agency/ Company Name Performing Warrant Analysis:	GPD Group
Google map link:	Map		

Analysis Information

Data Collection Date:
 Day of the Week:

Is the intersection in a built-up area of an isolated community of <10,000 population?

Existing Traffic Signal at intersection:

Total Number of Approaches at Intersection:

Major Street Information

Major Street Name and Route Number:

Major Street Approach Direction:

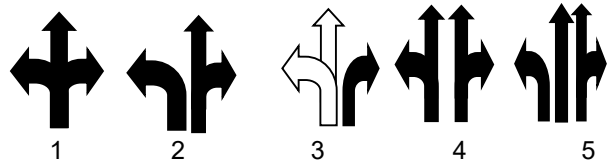
Number of Thru Lanes on Each Major Street Approach: LANE(S)

Speed Limit or 85th Percentile Speed on the Major Street*: MPH
*Unknown assumes below 45 mph

Minor Street Information

Minor Street Name and Route Number:

Minor Street Approach Configuration: N-Bound
 S-Bound



Number of Thru Lanes on Each Minor Street Approach: LANE(S)

Apply Right Turn Lane Reduction*:

*Right Turn Lane Reduction Shall be used for Warrants 1, 2, & 3 for New ODOT Signals. Please refer to TEM 402-3.2 for clarification and criteria under which Right Turn Reduction is not required.

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Warrant		Notes and Comments:			
	Applicable?	Satisfied?				
Warrant 1, Eight-Hour Vehicular Volume	Yes	Yes	Condition A was met. Condition B was met. Combination of A/B (80%) was met.*			
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes	Figure 4C-1 (100%)			
Warrant 3, Peak Hour	Yes	Yes	Signals installed under Warrant 3 should be traffic actuated.			
<table border="1" style="border-collapse: collapse;"> <tr><td style="text-align: center;">Peak Hour</td></tr> <tr><td style="text-align: center;">3:15 PM</td></tr> <tr><td style="text-align: center;">4:15 PM</td></tr> </table>				Peak Hour	3:15 PM	4:15 PM
Peak Hour						
3:15 PM						
4:15 PM						
For Warrants 1-3, new ODOT signals must be based off of 100% volume thresholds (TEM 402-3.2)						
Warrant 4, Pedestrian Volume	No		If this warrant is met, and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E of the OMUTCD.			
<table border="1" style="border-collapse: collapse;"> <tr><td style="text-align: center;">Peak Hour</td></tr> <tr><td style="text-align: center;">3:15 PM</td></tr> <tr><td style="text-align: center;">4:15 PM</td></tr> </table>				Peak Hour	3:15 PM	4:15 PM
Peak Hour						
3:15 PM						
4:15 PM						
Warrant 5, School Crossing	No		N/A			
Warrant 6, Coordinated Signal System	No		(Shall not be used as the sole warrant in the analysis)			
Warrant 7, Crash Experience	No		If this is the sole warrant, signal must be semi-actuated with control devices which provide proper coordination if installed at an intersection within a coordinated system and normally should be fully traffic actuated if installed at an isolated intersection.			
Warrant 8, Roadway Network	No		(Shall not be used as the sole warrant in the analysis)			
Warrant 9, Intersection Near a Grade Crossing	No		Figure 4C-9			
Multi-Way Stop Warrant	No		May be used as an interim measure if traffic signal warrants are satisfied.			

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

<p>If no warrants are satisfied, additional options may be considered:</p> <ol style="list-style-type: none"> 1. An engineering study, performed by a firm prequalified by ODOT for signal design, if approved by the ODOT district, may be used to justify a new signal installation or retention of an existing signal that otherwise does not meet the published warrants. An example of such an instance is a traffic signal in proximity to a railroad crossing that serves to reduce queuing across the tracks. 2. According to TEM 402-2, If the actual turning movement counts fail to satisfy a signal warrant, it may be acceptable to use traffic volumes projected to the second year after project completion. The Modeling and Forecasting Section should provide the projected traffic volumes. 3. A pedestrian hybrid beacon may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants (see Chapter 4C of TEM) or at a location that meets traffic signal warrants under Sections 4C.05 and/or 4C.06 but a decision is made to not install a traffic control signal. Please fill inputs on PHB Score Sheet and submit to ODOT.
--

Considerations such as geometrics and lack of sight distance generally have not been accepted in lieu of satisfying signal warrants. These considerations may allow an otherwise unwarranted traffic signal to be retained at **100 percent** local cost. Please review TEM 402-4 for details.

Conclusion: Install New Traffic Signal

Notes:

OMUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? No

**Only applicable after an adequate trial of other alternatives (See section 4C.02.06 of the 2012 OMUTCD)*

Lanes Major/ Minor	Adjusted Volumes		Condition A				Condition B				Combination A/B*							
			100%		70%		100%		70%		Cond. A		Cond. B		Cond. A		Cond. B	
	Major	Minor	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
			80%	80%	56%		56%											
1 / 1	X		500	150	350	105	750	75	525	53	400	120	600	60	280	84	420	42
2+ / 1			600	150	420	105	900	75	630	53	480	120	720	60	336	84	504	42
2+ / 2+			600	200	420	140	900	100	630	70	480	160	720	80	336	112	504	56
1 / 2+			500	200	350	140	750	100	525	70	400	160	600	80	280	112	420	56
12:00 AM	0	0																
12:15 AM	0	0																
12:30 AM	0	0																
12:45 AM	0	0																
1:00 AM	0	0																
1:15 AM	0	0																
1:30 AM	0	0																
1:45 AM	0	0																
2:00 AM	0	0																
2:15 AM	0	0																
2:30 AM	0	0																
2:45 AM	0	0																
3:00 AM	0	0																
3:15 AM	0	0																
3:30 AM	0	0																
3:45 AM	0	0																
4:00 AM	0	0																
4:15 AM	0	0																
4:30 AM	0	0																
4:45 AM	0	0																
5:00 AM	0	0																
5:15 AM	105	28																
5:30 AM	237	54																
5:45 AM	395	86			1									1	1			
6:00 AM	539	131	1						1	1	1	1					1	1
6:15 AM	620	152										1	1					
6:30 AM	707	190																
6:45 AM	786	213			1	1	1	1						1	1			
7:00 AM	838	222	1	1					1	1	1	1					1	1
7:15 AM	837	216										1	1					
7:30 AM	772	182																
7:45 AM	728	165			1	1								1	1			
8:00 AM	742	160	1	1					1	1	1	1					1	1
8:15 AM	723	159										1	1					
8:30 AM	727	172																
8:45 AM	706	182			1	1								1	1			
9:00 AM	652	173	1	1					1	1	1	1					1	1
9:15 AM	654	172										1	1					
9:30 AM	719	168																
9:45 AM	730	158			1	1								1	1			

2032 Warrant US 42 & EB Ramps

10:00 AM	770	161	1	1			1	1	1	1	1	1				1	1
10:15 AM	822	168											1	1			
10:30 AM	807	175															
10:45 AM	837	195			1	1									1	1	
11:00 AM	860	205	1	1			1	1	1	1	1	1				1	1
11:15 AM	887	227											1	1			
11:30 AM	922	229															
11:45 AM	928	227			1	1									1	1	
12:00 PM	923	219	1	1			1	1	1	1	1	1				1	1
12:15 PM	894	204											1	1			
12:30 PM	870	219															
12:45 PM	883	224			1	1									1	1	
1:00 PM	904	235	1	1			1	1	1	1	1	1				1	1
1:15 PM	926	267											1	1			
1:30 PM	947	273															
1:45 PM	992	307			1	1									1	1	
2:00 PM	1035	352	1	1			1	1	1	1	1	1				1	1
2:15 PM	1090	371											1	1			
2:30 PM	1187	403															
2:45 PM	1238	423			1	1									1	1	
3:00 PM	1270	435	1	1			1	1	1	1	1	1				1	1
3:15 PM	1303	448											1	1			
3:30 PM	1284	447															
3:45 PM	1283	447			1	1									1	1	
4:00 PM	1272	430	1	1			1	1	1	1	1	1				1	1
4:15 PM	1255	366											1	1			
4:30 PM	1239	331															
4:45 PM	1156	268			1	1									1	1	
5:00 PM	1099	204	1	1			1	1	1	1	1	1				1	1
5:15 PM	788	138											1	1			
5:30 PM	486	85															
5:45 PM	242	34															
6:00 PM	0	0															
6:15 PM	0	0															
6:30 PM	0	0															
6:45 PM	0	0															
7:00 PM	0	0															
7:15 PM	0	0															
7:30 PM	0	0															
7:45 PM	0	0															
8:00 PM	0	0															
8:15 PM	0	0															
8:30 PM	0	0															
8:45 PM	0	0															
9:00 PM	0	0															
9:15 PM	0	0															
9:30 PM	0	0															
9:45 PM	0	0															
HOURS MET			12	11	12	11	9	9	12	12	12	12	12	12	12	12	12
WARRANT SATISFIED?			YES	N/A	YES	N/A	YES	N/A	YES	YES	YES	YES	YES	YES	YES	YES	YES

Warrant Met: **Yes**

Notes: Condition A was met. Condition B was met. Combination of A/B (80%) was met.*

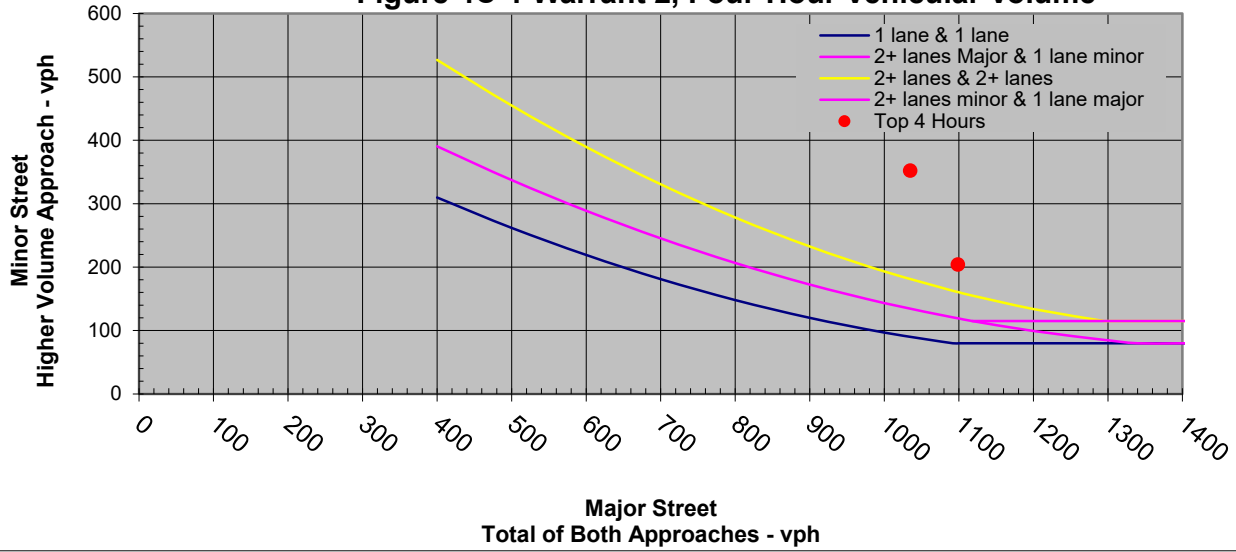
OMUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	Total Number of Unique Hours Met on Figure 4C-1	11
Major street: 1 Lane	Total Number of Unique Hours Met on Figure 4C-2 (70% Factor)	12
Minor Street: 1 Lane		

Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? **No**

Hour Interval Beginning At	Raw Traffic Counts				Total Major Approach Volumes	Highest Actual Minor Street Approach Volumes	Hour Met?	Hour Met? (70% Factor)
	Minor - US 30 EB Ramps		Major - Ashland Road (US 42)					
	N-Bound	S-Bound	W-Bound	E-Bound				
6:00 AM	0	131	232	307	539	131		Met
6:15 AM	0	152	274	346	620	152		
6:30 AM	0	190	315	392	707	190	Met	
6:45 AM	0	213	357	429	786	213		
7:00 AM	0	222	399	439	838	222		Met
7:15 AM	0	216	400	437	837	216		
7:30 AM	0	182	366	406	772	182	Met	
7:45 AM	0	165	341	387	728	165		
8:00 AM	0	160	324	418	742	160		Met
8:15 AM	0	159	304	419	723	159		
8:30 AM	0	172	315	412	727	172	Met	
8:45 AM	0	182	307	399	706	182		
9:00 AM	0	173	297	355	652	173		Met
9:15 AM	0	172	295	359	654	172		
9:30 AM	0	168	304	415	719	168		
9:45 AM	0	158	307	423	730	158		
10:00 AM	0	161	322	448	770	161	Met	Met
10:15 AM	0	168	341	481	822	168		
10:30 AM	0	175	348	459	807	175		
10:45 AM	0	195	353	484	837	195		
11:00 AM	0	205	359	501	860	205	Met	Met
11:15 AM	0	227	392	495	887	227		
11:30 AM	0	229	403	519	922	229		
11:45 AM	0	227	419	509	928	227		
12:00 PM	0	219	405	518	923	219	Met	Met
12:15 PM	0	204	375	519	894	204		
12:30 PM	0	219	351	519	870	219		
12:45 PM	0	224	346	537	883	224		
1:00 PM	0	235	344	560	904	235	Met	Met
1:15 PM	0	267	363	563	926	267		
1:30 PM	0	273	374	573	947	273		
1:45 PM	0	307	396	596	992	307		
2:00 PM	0	352	441	594	1035	352	Met	Met
2:15 PM	0	371	460	630	1090	371		
2:30 PM	0	403	514	673	1187	403		
2:45 PM	0	423	530	708	1238	423		
3:00 PM	0	435	531	739	1270	435	Met	Met
3:15 PM	0	448	556	747	1303	448		
3:30 PM	0	447	528	756	1284	447		
3:45 PM	0	447	530	753	1283	447		
4:00 PM	0	430	532	740	1272	430	Met	Met
4:15 PM	0	366	518	737	1255	366		
4:30 PM	0	331	532	707	1239	331		
4:45 PM	0	268	501	655	1156	268		
5:00 PM	0	204	485	614	1099	204	Met	Met
5:15 PM	0	138	349	439	788	138		
5:30 PM	0	85	221	265	486	85		
5:45 PM	0	34	116	126	242	34		
6:00 PM	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0		
6:45 PM	0	0	0	0	0	0		
7:00 PM	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0		

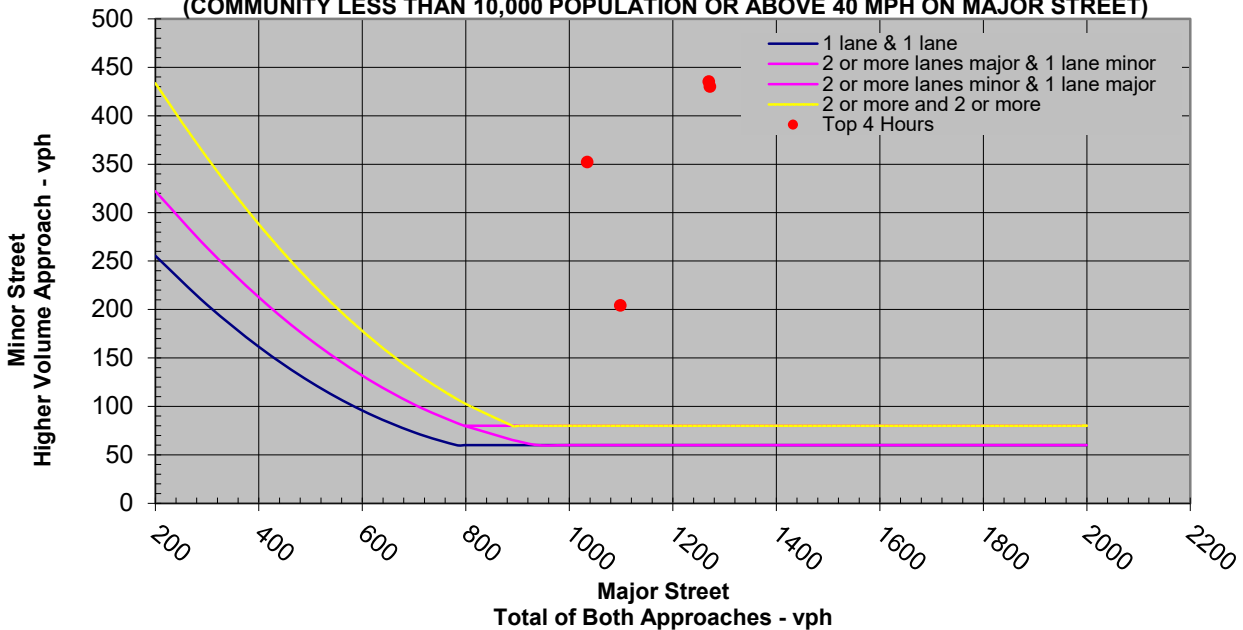
Figure 4C-1 Warrant 2, Four-Hour Vehicular Volume



Top Hours for Figure 4C-1	Start Time	End Time	Major Street	Minor Street
Top Hour	3:00 PM	4:00 PM	1270	435
2nd Highest Hour	4:00 PM	5:00 PM	1272	430
3rd Highest Hour	2:00 PM	3:00 PM	1035	352
4th Highest Hour	5:00 PM	6:00 PM	1099	204

Top Hours for Figure 4C-2	Start Time	End Time	Major Street	Minor Street
Top Hour	3:00 PM	4:00 PM	1270	435
2nd Highest Hour	4:00 PM	5:00 PM	1272	430
3rd Highest Hour	2:00 PM	3:00 PM	1035	352
4th Highest Hour	5:00 PM	6:00 PM	1099	204

**Figure 4C-2 Warrant 2 Four Hour Vehicular Volume (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)**



Are the requirements for Warrant 2 met?: Yes

OMUTCD WARRANT 3, PEAK HOUR		
Number of Lanes for Moving Traffic on Each Approach		Peak Hour Start time
Major Street:	1 Lane	3:15 PM
Minor Street:	1 Lane	Peak Hour End Time
		4:15 PM

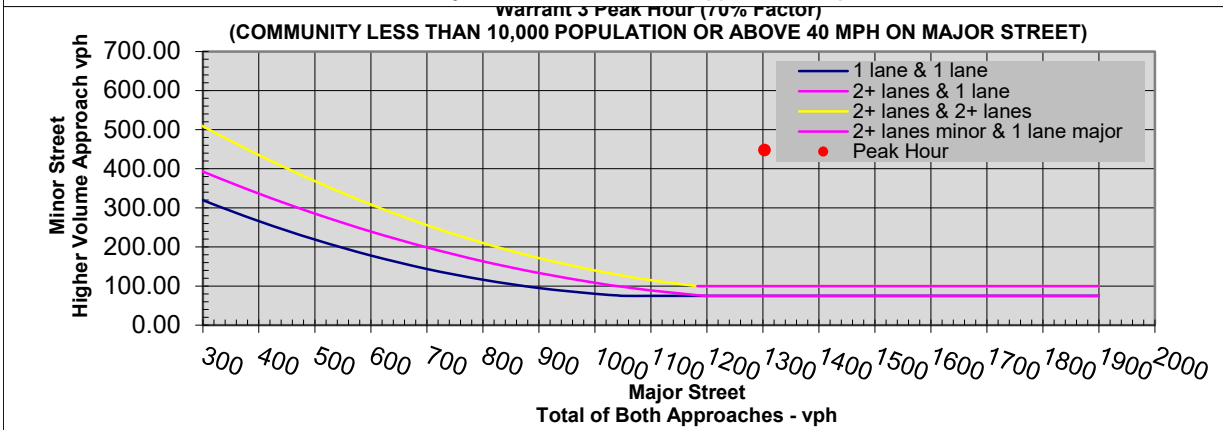
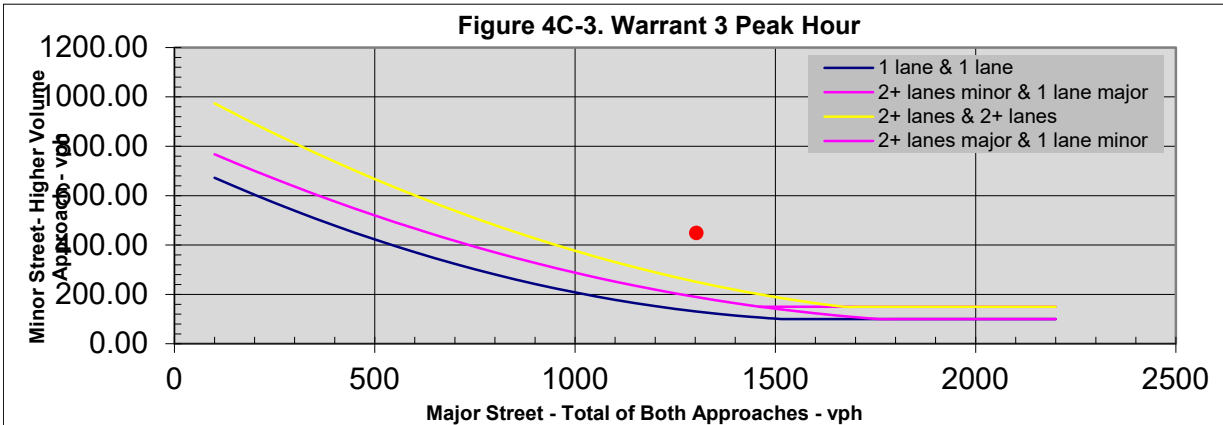
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street?	No
---	----

Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No
---	----

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes

**If applicable, attach all supporting calculations and documentation.*

Are the requirements for Warrant 3 met?: **Yes**



2032 Warrant US 42 & EB Ramps

Hour Vehicular Volume				
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Sum of Major Street and Highest Minor Street	Sum of Major Street and Combined Minor Street
6:00 AM	539	131	670	670
6:15 AM	620	152	772	772
6:30 AM	707	190	897	897
6:45 AM	786	213	999	999
7:00 AM	838	222	1060	1060
7:15 AM	837	216	1053	1053
7:30 AM	772	182	954	954
7:45 AM	728	165	893	893
8:00 AM	742	160	902	902
8:15 AM	723	159	882	882
8:30 AM	727	172	899	899
8:45 AM	706	182	888	888
9:00 AM	652	173	825	825
9:15 AM	654	172	826	826
9:30 AM	719	168	887	887
9:45 AM	730	158	888	888
10:00 AM	770	161	931	931
10:15 AM	822	168	990	990
10:30 AM	807	175	982	982
10:45 AM	837	195	1032	1032
11:00 AM	860	205	1065	1065
11:15 AM	887	227	1114	1114
11:30 AM	922	229	1151	1151
11:45 AM	928	227	1155	1155
12:00 PM	923	219	1142	1142
12:15 PM	894	204	1098	1098
12:30 PM	870	219	1089	1089
12:45 PM	883	224	1107	1107
1:00 PM	904	235	1139	1139
1:15 PM	926	267	1193	1193
1:30 PM	947	273	1220	1220
1:45 PM	992	307	1299	1299
2:00 PM	1035	352	1387	1387
2:15 PM	1090	371	1461	1461
2:30 PM	1187	403	1590	1590
2:45 PM	1238	423	1661	1661
3:00 PM	1270	435	1705	1705
3:15 PM	1303	448	1751	1751
3:30 PM	1284	447	1731	1731
3:45 PM	1283	447	1730	1730
4:00 PM	1272	430	1702	1702
4:15 PM	1255	366	1621	1621
4:30 PM	1239	331	1570	1570
4:45 PM	1156	268	1424	1424
5:00 PM	1099	204	1303	1303
5:15 PM	788	138	926	926
5:30 PM	486	85	571	571
5:45 PM	242	34	276	276
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
6:30 PM	0	0	0	0
6:45 PM	0	0	0	0
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	0	0
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0

Actual Peak Hour Major Traffic Volume	Actual Peak Hour Minor Traffic Volume	Required Peak Hour Minor Traffic Volume for Fig. 4C-3	Required Peak Hour Minor Traffic Volume for Fig. 4C-4
1303	448	131	75

STUDY AND ANALYSIS INFORMATION

Municipality:	Madison Township	Traffic Volumes Obtained By:	Tri-State Traffic Data
County:	Richland	Analysis Date:	6/28/2024
ODOT Engineering District:	3	Agency/ Company Name Performing Warrant Analysis:	GPD Group
Google map link:	Map		

Analysis Information

Data Collection Date: 3/12/2024
 Day of the Week: Tuesday

Is the intersection in a built-up area of an isolated community of <10,000 population? No

Existing Traffic Signal at intersection: No

Total Number of Approaches at Intersection: 3

Major Street Information

Major Street Name and Route Number: Ashland Road (US 42)

Major Street Approach Direction: E-Bound
W-Bound

Number of Thru Lanes on Each Major Street Approach: 1 LANE(S)

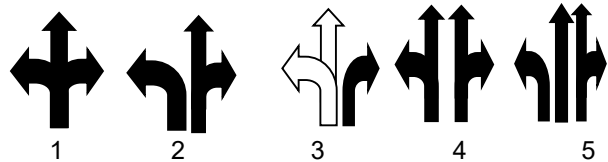
Speed Limit or 85th Percentile Speed on the Major Street*: 35 MPH
*Unknown assumes below 45 mph

Minor Street Information

Minor Street Name and Route Number: US 30 WB Ramps

Minor Street Approach Configuration:

1	N-Bound
1	S-Bound



Number of Thru Lanes on Each Minor Street Approach: 1 LANE(S)

Apply Right Turn Lane Reduction*: Yes

*Right Turn Lane Reduction Shall be used for Warrants 1, 2, & 3 for New ODOT Signals. Please refer to TEM 402-3.2 for clarification and criteria under which Right Turn Reduction is not required.

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Warrant		Notes and Comments:
	Applicable?	Satisfied?	
Warrant 1, Eight-Hour Vehicular Volume	Yes	Yes	Condition B was met.
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes	Figure 4C-1 (100%)
Warrant 3, Peak Hour	Yes	Yes	Signals installed under Warrant 3 should be traffic actuated.
For Warrants 1-3, new ODOT signals must be based off of 100% volume thresholds (TEM 402-3.2)			
Warrant 4, Pedestrian Volume	No		If this warrant is met, and a traffic control signal is justified by an engineering study, the traffic control signal shall be equipped with pedestrian signal heads complying with the provisions set forth in Chapter 4E of the OMUTCD.
Warrant 5, School Crossing	No		N/A
Warrant 6, Coordinated Signal System	No		(Shall not be used as the sole warrant in the analysis)
Warrant 7, Crash Experience	No		If this is the sole warrant, signal must be semi-actuated with control devices which provide proper coordination if installed at an intersection within a coordinated system and normally should be fully traffic actuated if installed at an isolated intersection.
Warrant 8, Roadway Network	No		(Shall not be used as the sole warrant in the analysis)
Warrant 9, Intersection Near a Grade Crossing	No		Figure 4C-9
Multi-Way Stop Warrant	No		May be used as an interim measure if traffic signal warrants are satisfied.

Peak Hour
4:45 PM
5:45 PM

Peak Hour
3:15 PM
4:15 PM

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

<p>If no warrants are satisfied, additional options may be considered:</p> <ol style="list-style-type: none"> 1. An engineering study, performed by a firm prequalified by ODOT for signal design, if approved by the ODOT district, may be used to justify a new signal installation or retention of an existing signal that otherwise does not meet the published warrants. An example of such an instance is a traffic signal in proximity to a railroad crossing that serves to reduce queuing across the tracks. 2. According to TEM 402-2, If the actual turning movement counts fail to satisfy a signal warrant, it may be acceptable to use traffic volumes projected to the second year after project completion. The Modeling and Forecasting Section should provide the projected traffic volumes. 3. A pedestrian hybrid beacon may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants (see Chapter 4C of TEM) or at a location that meets traffic signal warrants under Sections 4C.05 and/or 4C.06 but a decision is made to not install a traffic control signal. Please fill inputs on PHB Score Sheet and submit to ODOT.
--

Considerations such as geometrics and lack of sight distance generally have not been accepted in lieu of satisfying signal warrants. These considerations may allow an otherwise unwarranted traffic signal to be retained at **100 percent** local cost. Please review TEM 402-4 for details.

Conclusion: Install New Traffic Signal

Notes:

OMUTCD WARRANT 1, EIGHT-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	1 Lane

Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? No

*Only applicable after an adequate trial of other alternatives (See section 4C.02.06 of the 2012 OMUTCD)

Lanes Major/ Minor	Adjusted Volumes		Condition A				Condition B				Combination A/B*							
			100%		70%		100%		70%		Cond. A		Cond. B		Cond. A		Cond. B	
			Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.	Maj.	Min.
1 / 1	X		500	150	350	105	750	75	525	53	400	120	600	60	280	84	420	42
2+ / 1			600	150	420	105	900	75	630	53	480	120	720	60	336	84	504	42
2+ / 2+			600	200	420	140	900	100	630	70	480	160	720	80	336	112	504	56
1 / 2+			500	200	350	140	750	100	525	70	400	160	600	80	280	112	420	56
12:00 AM	0	0																
12:15 AM	0	0																
12:30 AM	0	0																
12:45 AM	0	0																
1:00 AM	0	0																
1:15 AM	0	0																
1:30 AM	0	0																
1:45 AM	0	0																
2:00 AM	0	0																
2:15 AM	0	0																
2:30 AM	0	0																
2:45 AM	0	0																
3:00 AM	0	0																
3:15 AM	0	0																
3:30 AM	0	0																
3:45 AM	0	0																
4:00 AM	0	0																
4:15 AM	0	0																
4:30 AM	0	0																
4:45 AM	0	0																
5:00 AM	0	0																
5:15 AM	136	20																
5:30 AM	323	36													1			
5:45 AM	549	63	1		1				1	1	1						1	1
6:00 AM	776	89					1	1				1	1					
6:15 AM	911	107																
6:30 AM	1037	115												1	1			
6:45 AM	1195	126	1		1	1			1	1	1	1					1	1
7:00 AM	1284	137					1	1				1	1					
7:15 AM	1255	140																
7:30 AM	1167	143												1	1			
7:45 AM	1038	136	1		1	1			1	1	1	1					1	1
8:00 AM	1001	124					1	1				1	1					
8:15 AM	998	110																
8:30 AM	1025	101												1	1			
8:45 AM	1009	99	1		1				1	1	1						1	1
9:00 AM	967	98					1	1				1	1					
9:15 AM	933	98																
9:30 AM	949	103												1	1			
9:45 AM	957	99	1		1				1	1	1						1	1

2032 Warrant US 42 & WB Ramps

10:00 AM	1002	100					1	1					1	1				
10:15 AM	1064	103																
10:30 AM	1082	99													1	1		
10:45 AM	1100	106	1		1	1			1	1	1						1	1
11:00 AM	1110	107					1	1					1	1				
11:15 AM	1181	109																
11:30 AM	1198	123													1	1		
11:45 AM	1215	116	1		1	1			1	1	1						1	1
12:00 PM	1227	113					1	1					1	1				
12:15 PM	1174	109																
12:30 PM	1182	109													1	1		
12:45 PM	1199	121	1		1	1			1	1	1	1					1	1
1:00 PM	1230	118					1	1					1	1				
1:15 PM	1290	120																
1:30 PM	1327	120													1	1		
1:45 PM	1429	116	1		1	1			1	1	1						1	1
2:00 PM	1515	139					1	1					1	1				
2:15 PM	1610	145																
2:30 PM	1711	163													1	1		
2:45 PM	1800	174	1	1	1	1			1	1	1	1					1	1
3:00 PM	1823	173					1	1					1	1				
3:15 PM	1861	182																
3:30 PM	1850	169													1	1		
3:45 PM	1824	177	1	1	1	1			1	1	1	1					1	1
4:00 PM	1812	184					1	1					1	1				
4:15 PM	1758	186																
4:30 PM	1755	186													1	1		
4:45 PM	1624	187	1	1	1	1			1	1	1	1					1	1
5:00 PM	1515	187					1	1					1	1				
5:15 PM	1091	138																
5:30 PM	656	99													1	1		
5:45 PM	323	48																
6:00 PM	0	0																
6:15 PM	0	0																
6:30 PM	0	0																
6:45 PM	0	0																
7:00 PM	0	0																
7:15 PM	0	0																
7:30 PM	0	0																
7:45 PM	0	0																
8:00 PM	0	0																
8:15 PM	0	0																
8:30 PM	0	0																
8:45 PM	0	0																
9:00 PM	0	0																
9:15 PM	0	0																
9:30 PM	0	0																
9:45 PM	0	0																
HOURS MET			12	3	12	9	12	12	12	12	12	6	12	12	13	12	12	12
WARRANT SATISFIED?			NO		N/A		YES		N/A		NO		YES					

Warrant Met: **Yes**

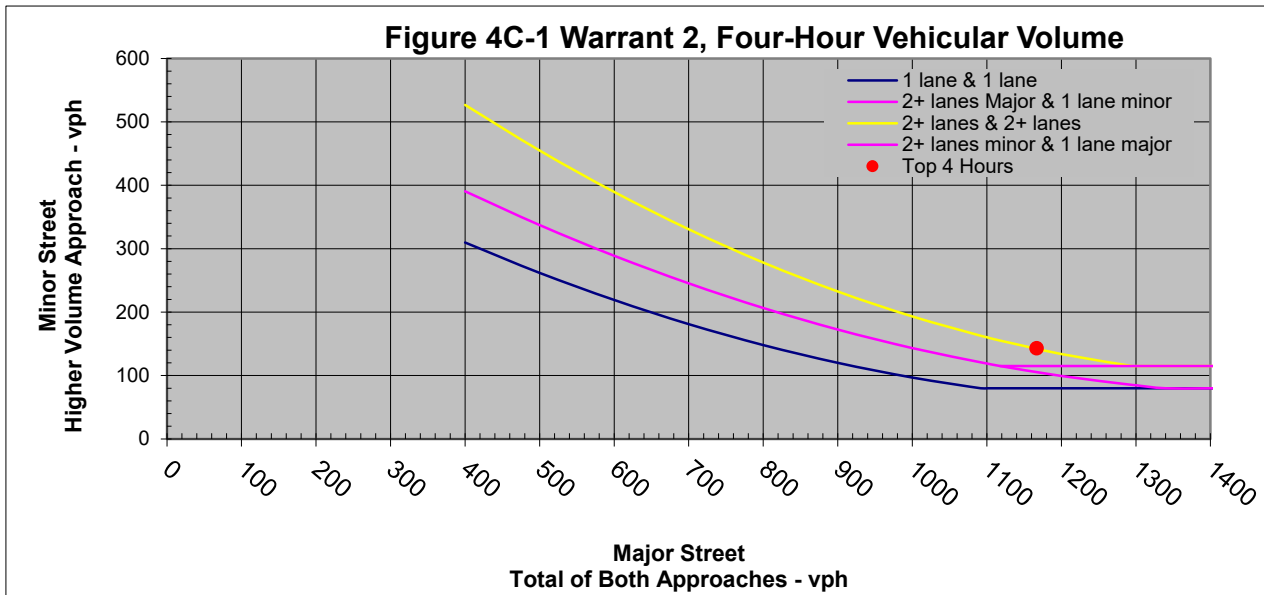
Notes: Condition B was met.

OMUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	Total Number of Unique Hours Met on Figure 4C-1	11
Major street: 1 Lane	Total Number of Unique Hours Met on Figure 4C-2 (70% Factor)	12
Minor Street: 1 Lane		

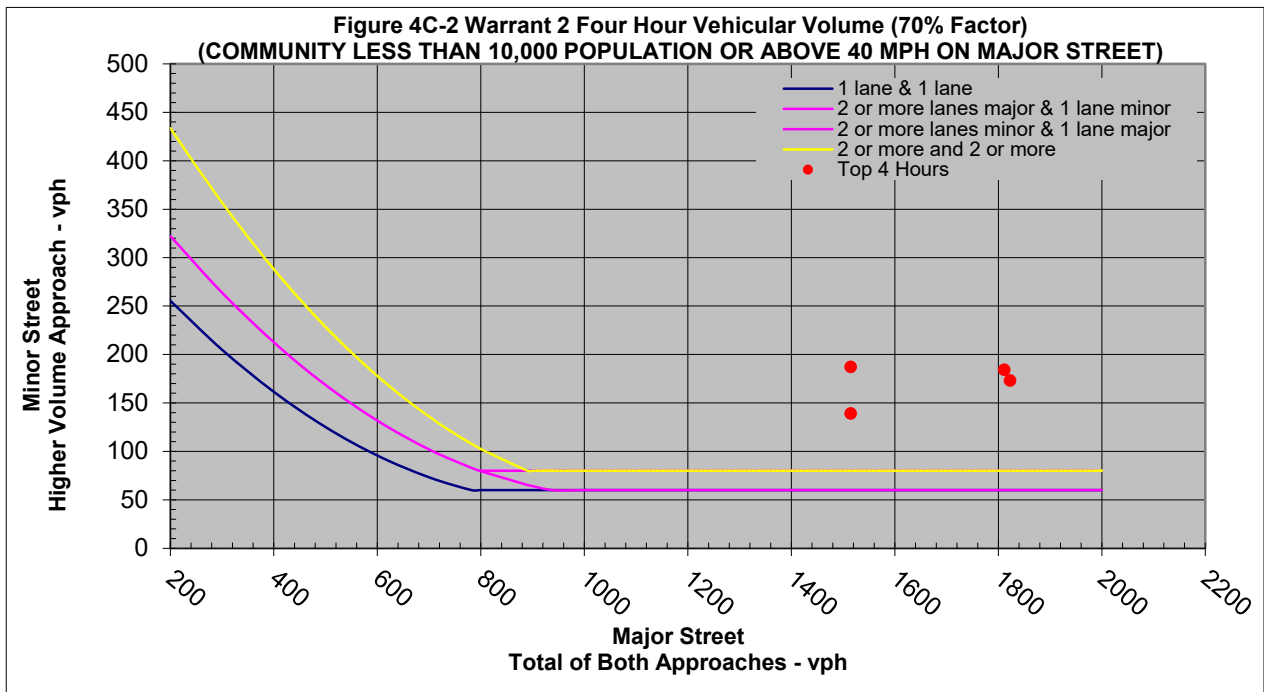
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street? **No**

Hour Interval Beginning At	Raw Traffic Counts				Total Major Approach Volumes	Highest Actual Minor Street Approach Volumes	Hour Met?	Hour Met? (70% Factor)
	Minor - US 30 WB Ramps		Major - Ashland Road (US 42)					
	N-Bound	S-Bound	W-Bound	E-Bound				
6:00 AM	89	0	354	422	776	89		Met
6:15 AM	107	0	416	495	911	107		
6:30 AM	115	0	486	551	1037	115	Met	
6:45 AM	126	0	581	614	1195	126		
7:00 AM	137	0	664	620	1284	137		Met
7:15 AM	140	0	663	592	1255	140		
7:30 AM	143	0	611	556	1167	143	Met	
7:45 AM	136	0	524	514	1038	136		
8:00 AM	124	0	466	535	1001	124		Met
8:15 AM	110	0	445	553	998	110		
8:30 AM	101	0	472	553	1025	101	Met	
8:45 AM	99	0	456	553	1009	99		
9:00 AM	98	0	447	520	967	98		Met
9:15 AM	98	0	430	503	933	98		
9:30 AM	103	0	411	538	949	103		
9:45 AM	99	0	423	534	957	99		
10:00 AM	100	0	442	560	1002	100	Met	Met
10:15 AM	103	0	473	591	1064	103		
10:30 AM	99	0	489	593	1082	99		
10:45 AM	106	0	474	626	1100	106		
11:00 AM	107	0	466	644	1110	107	Met	Met
11:15 AM	109	0	510	671	1181	109		
11:30 AM	123	0	522	676	1198	123		
11:45 AM	116	0	556	659	1215	116		
12:00 PM	113	0	562	665	1227	113	Met	Met
12:15 PM	109	0	510	664	1174	109		
12:30 PM	109	0	484	698	1182	109		
12:45 PM	121	0	481	718	1199	121		
1:00 PM	118	0	480	750	1230	118	Met	Met
1:15 PM	120	0	513	777	1290	120		
1:30 PM	120	0	539	788	1327	120		
1:45 PM	116	0	577	852	1429	116		
2:00 PM	139	0	656	859	1515	139	Met	Met
2:15 PM	145	0	704	906	1610	145		
2:30 PM	163	0	780	931	1711	163		
2:45 PM	174	0	816	984	1800	174		
3:00 PM	173	0	782	1041	1823	173	Met	Met
3:15 PM	182	0	781	1080	1861	182		
3:30 PM	169	0	739	1111	1850	169		
3:45 PM	177	0	728	1096	1824	177		
4:00 PM	184	0	754	1058	1812	184	Met	Met
4:15 PM	186	0	716	1042	1758	186		
4:30 PM	186	0	724	1031	1755	186		
4:45 PM	187	0	664	960	1624	187		
5:00 PM	187	0	587	928	1515	187	Met	Met
5:15 PM	138	0	439	652	1091	138		
5:30 PM	99	0	260	396	656	99		
5:45 PM	48	0	129	194	323	48		
6:00 PM	0	0	0	0	0	0		
6:15 PM	0	0	0	0	0	0		
6:30 PM	0	0	0	0	0	0		
6:45 PM	0	0	0	0	0	0		
7:00 PM	0	0	0	0	0	0		
7:15 PM	0	0	0	0	0	0		
7:30 PM	0	0	0	0	0	0		
7:45 PM	0	0	0	0	0	0		
8:00 PM	0	0	0	0	0	0		



Top Hours for Figure 4C-1		Start Time	End Time	Major Street	Minor Street
Top Hour		5:00 PM	6:00 PM	1515	187
2nd Highest Hour		4:00 PM	5:00 PM	1812	184
3rd Highest Hour		3:00 PM	4:00 PM	1823	173
4th Highest Hour		7:30 AM	8:30 AM	1167	143

Top Hours for Figure 4C-2		Start Time	End Time	Major Street	Minor Street
Top Hour		5:00 PM	6:00 PM	1515	187
2nd Highest Hour		4:00 PM	5:00 PM	1812	184
3rd Highest Hour		3:00 PM	4:00 PM	1823	173
4th Highest Hour		2:00 PM	3:00 PM	1515	139



Are the requirements for Warrant 2 met?: Yes

OMUTCD WARRANT 3, PEAK HOUR		
Number of Lanes for Moving Traffic on Each Approach		Peak Hour Start time
Major Street:	1 Lane	4:45 PM
Minor Street:	1 Lane	Peak Hour End Time
		5:45 PM

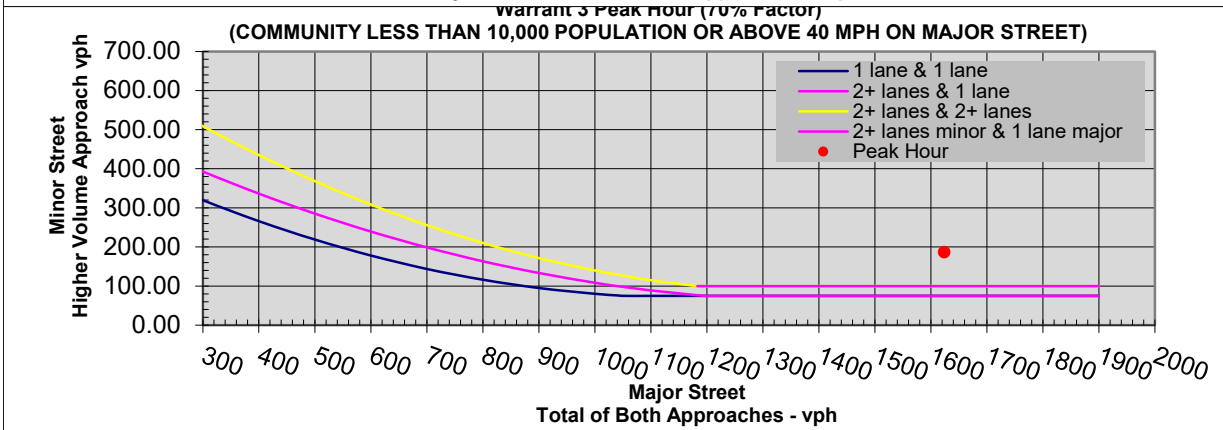
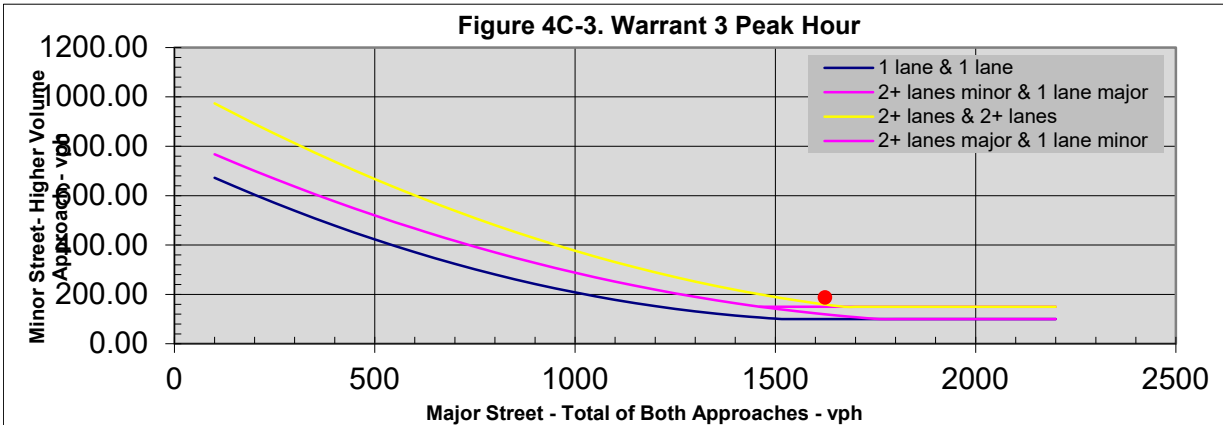
Built up Isolated Community with Less Than 10,000 Population or Above 40 MPH on Major Street?	No
---	----

Is this signal warrant being applied for an unusual case, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time?	No
---	----

Indicate whether all three of the following conditions for the same 1 hour (any four consecutive 15-minute periods) of an average day are present*	
Does the total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equal or exceed 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach?	
Does the volume on the same minor-street approach (one direction only) equal or exceed 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes?	Yes
Does the total entering volume serviced during the hour equal or exceed 650 vehicles per hour for intersection with three approaches or 800 vehicles per hour for intersections with four or more approaches?	Yes

**If applicable, attach all supporting calculations and documentation.*

Are the requirements for Warrant 3 met?: **Yes**



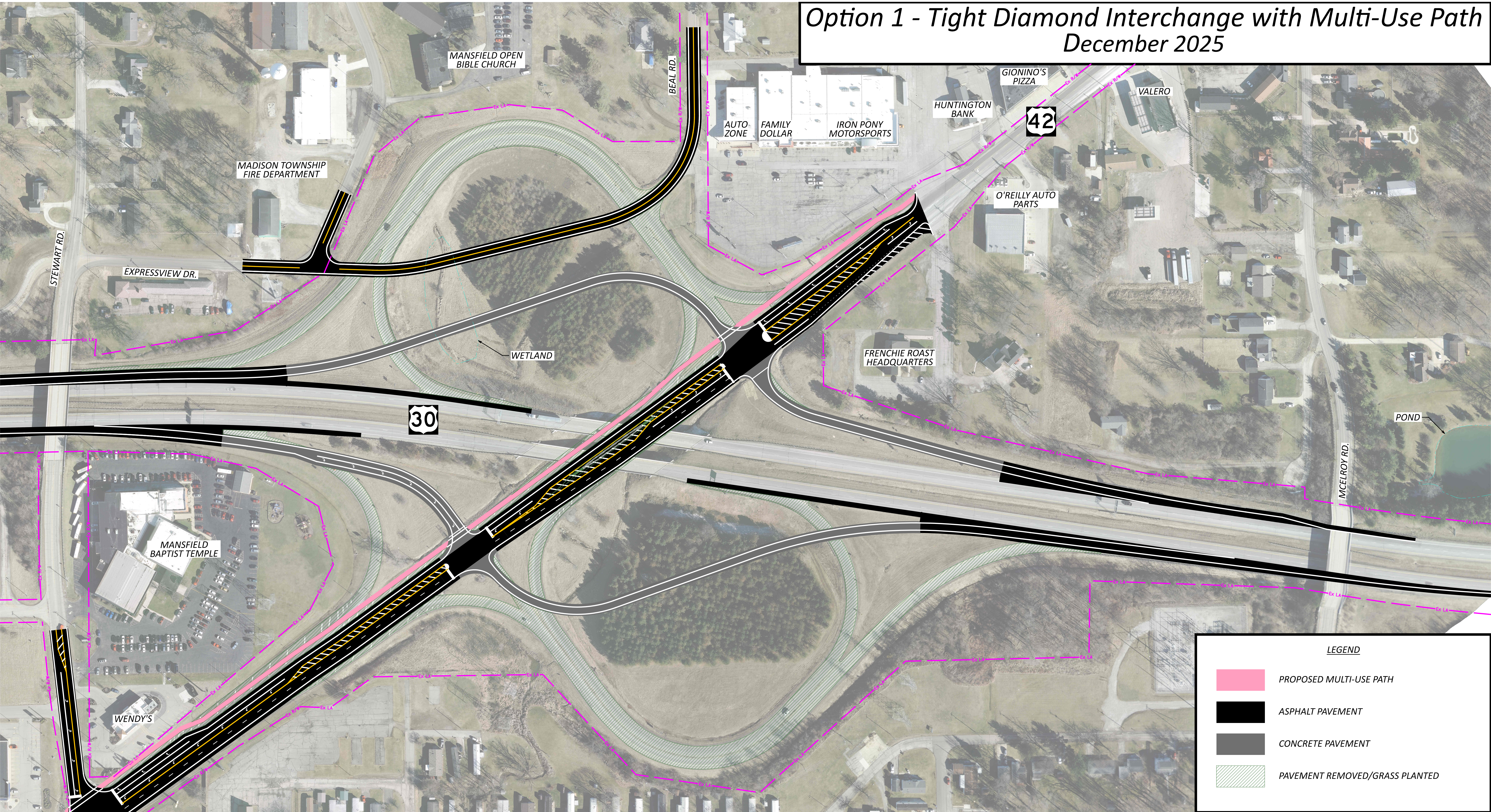
2032 Warrant US 42 & WB Ramps

Hour Vehicular Volume				
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Sum of Major Street and Highest Minor Street	Sum of Major Street and Combined Minor Street
6:00 AM	776	89	865	865
6:15 AM	911	107	1018	1018
6:30 AM	1037	115	1152	1152
6:45 AM	1195	126	1321	1321
7:00 AM	1284	137	1421	1421
7:15 AM	1255	140	1395	1395
7:30 AM	1167	143	1310	1310
7:45 AM	1038	136	1174	1174
8:00 AM	1001	124	1125	1125
8:15 AM	998	110	1108	1108
8:30 AM	1025	101	1126	1126
8:45 AM	1009	99	1108	1108
9:00 AM	967	98	1065	1065
9:15 AM	933	98	1031	1031
9:30 AM	949	103	1052	1052
9:45 AM	957	99	1056	1056
10:00 AM	1002	100	1102	1102
10:15 AM	1064	103	1167	1167
10:30 AM	1082	99	1181	1181
10:45 AM	1100	106	1206	1206
11:00 AM	1110	107	1217	1217
11:15 AM	1181	109	1290	1290
11:30 AM	1198	123	1321	1321
11:45 AM	1215	116	1331	1331
12:00 PM	1227	113	1340	1340
12:15 PM	1174	109	1283	1283
12:30 PM	1182	109	1291	1291
12:45 PM	1199	121	1320	1320
1:00 PM	1230	118	1348	1348
1:15 PM	1290	120	1410	1410
1:30 PM	1327	120	1447	1447
1:45 PM	1429	116	1545	1545
2:00 PM	1515	139	1654	1654
2:15 PM	1610	145	1755	1755
2:30 PM	1711	163	1874	1874
2:45 PM	1800	174	1974	1974
3:00 PM	1823	173	1996	1996
3:15 PM	1861	182	2043	2043
3:30 PM	1850	169	2019	2019
3:45 PM	1824	177	2001	2001
4:00 PM	1812	184	1996	1996
4:15 PM	1758	186	1944	1944
4:30 PM	1755	186	1941	1941
4:45 PM	1624	187	1811	1811
5:00 PM	1515	187	1702	1702
5:15 PM	1091	138	1229	1229
5:30 PM	656	99	755	755
5:45 PM	323	48	371	371
6:00 PM	0	0	0	0
6:15 PM	0	0	0	0
6:30 PM	0	0	0	0
6:45 PM	0	0	0	0
7:00 PM	0	0	0	0
7:15 PM	0	0	0	0
7:30 PM	0	0	0	0
7:45 PM	0	0	0	0
8:00 PM	0	0	0	0

Actual Peak Hour Major Traffic Volume	Actual Peak Hour Minor Traffic Volume	Required Peak Hour Minor Traffic Volume for Fig. 4C-3	Required Peak Hour Minor Traffic Volume for Fig. 4C-4
1624	187	100	75

Appendix E: Alternative Exhibits

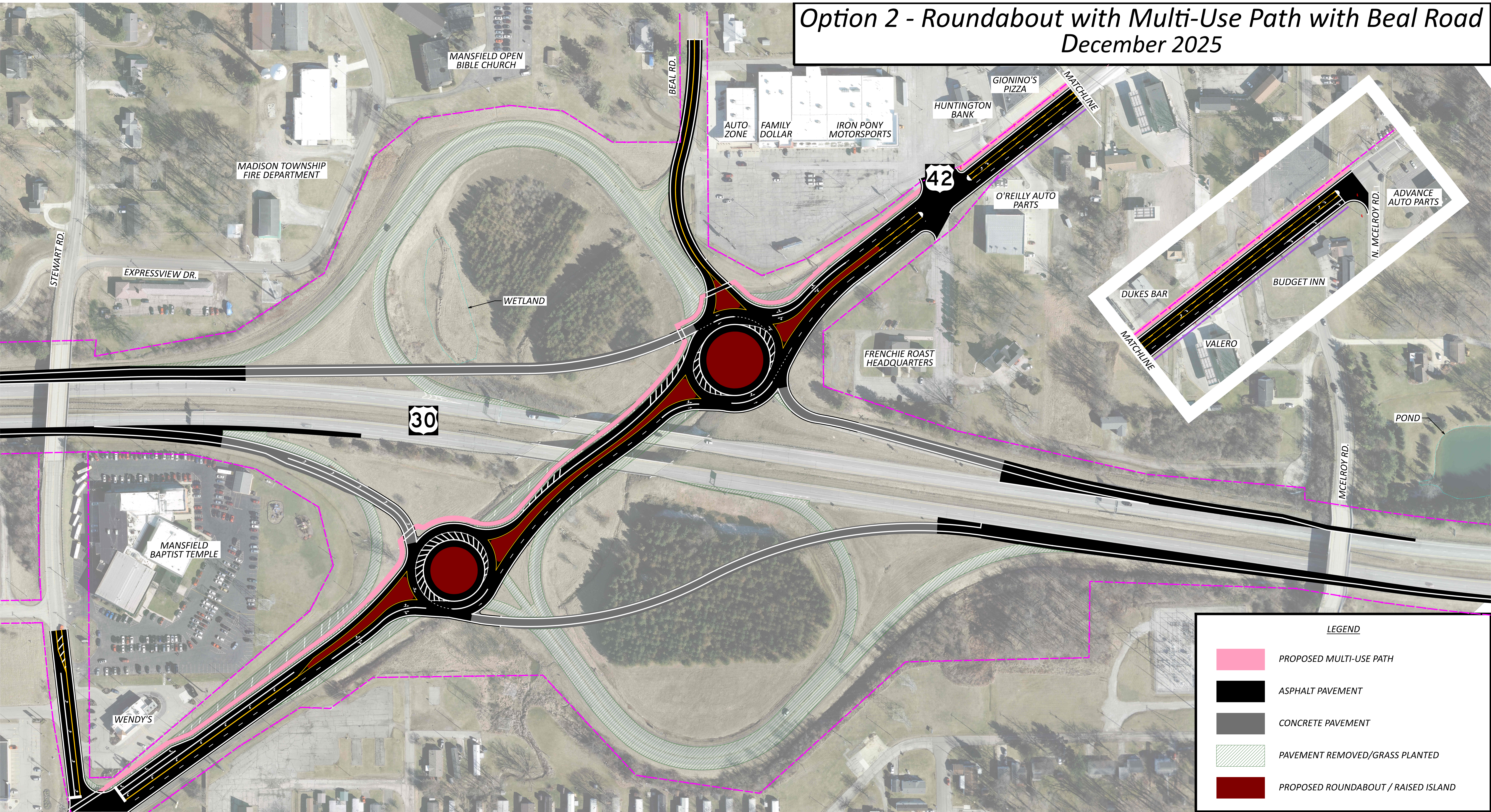
Option 1 - Tight Diamond Interchange with Multi-Use Path December 2025




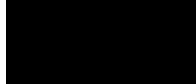



LEGEND

- PROPOSED MULTI-USE PATH
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVEMENT REMOVED/GRASS PLANTED

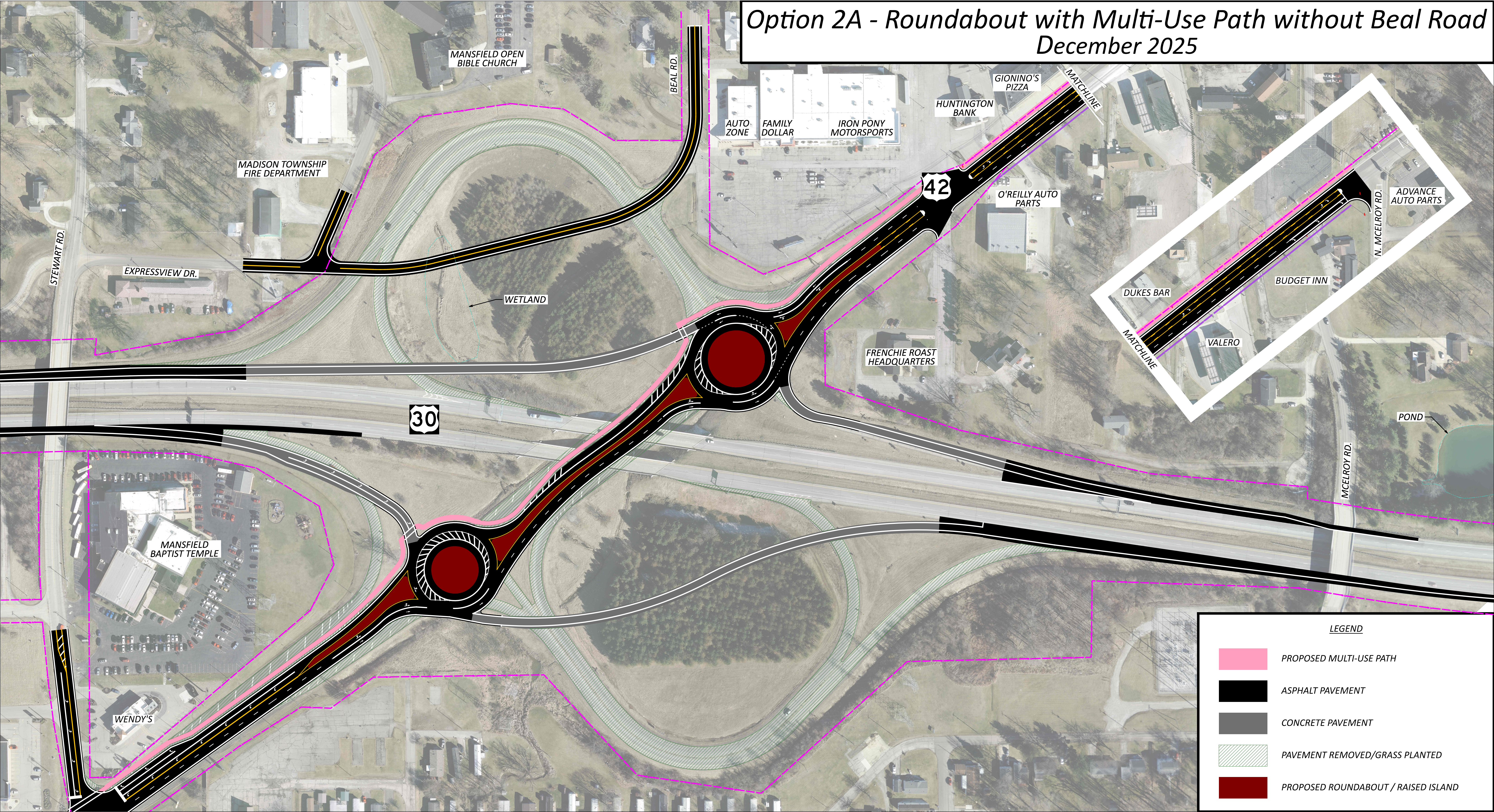
Option 2 - Roundabout with Multi-Use Path with Beal Road December 2025




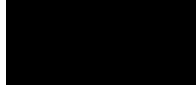



LEGEND

	PROPOSED MULTI-USE PATH
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	PAVEMENT REMOVED/GRASS PLANTED
	PROPOSED ROUNDABOUT / RAISED ISLAND

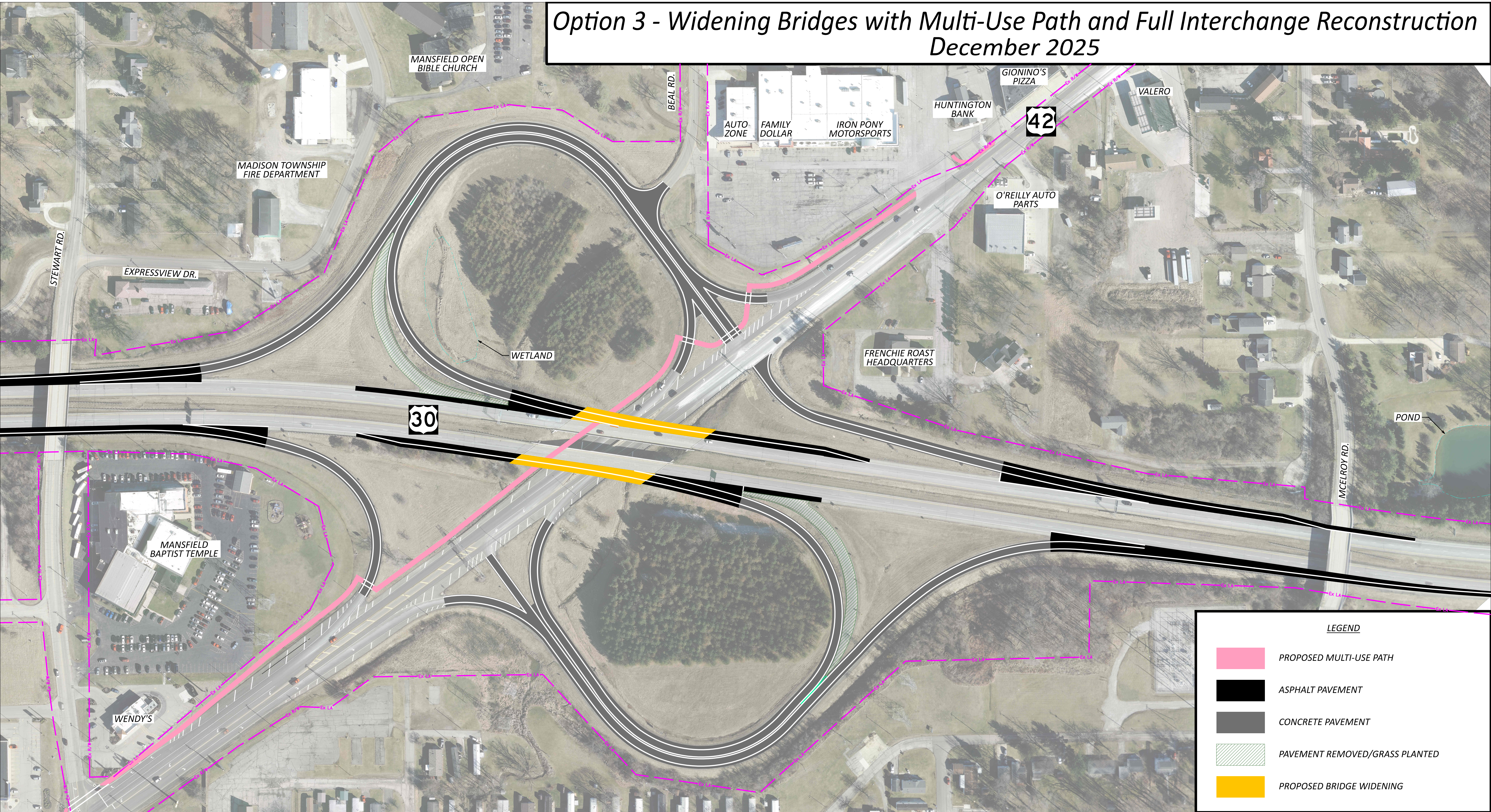
Option 2A - Roundabout with Multi-Use Path without Beal Road December 2025



LEGEND

	PROPOSED MULTI-USE PATH
	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	PAVEMENT REMOVED/GRASS PLANTED
	PROPOSED ROUNDABOUT / RAISED ISLAND

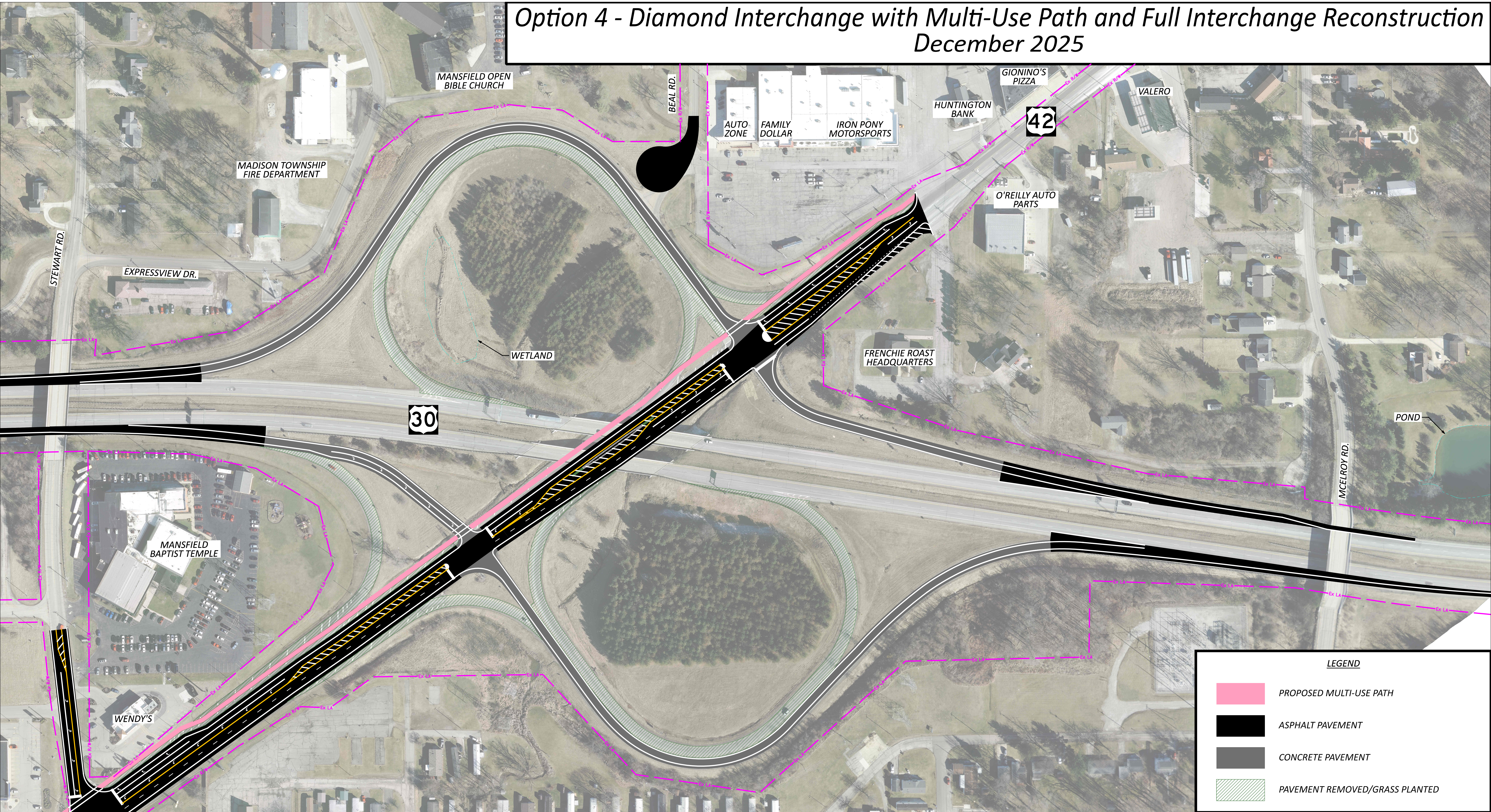
Option 3 - Widening Bridges with Multi-Use Path and Full Interchange Reconstruction December 2025







LEGEND

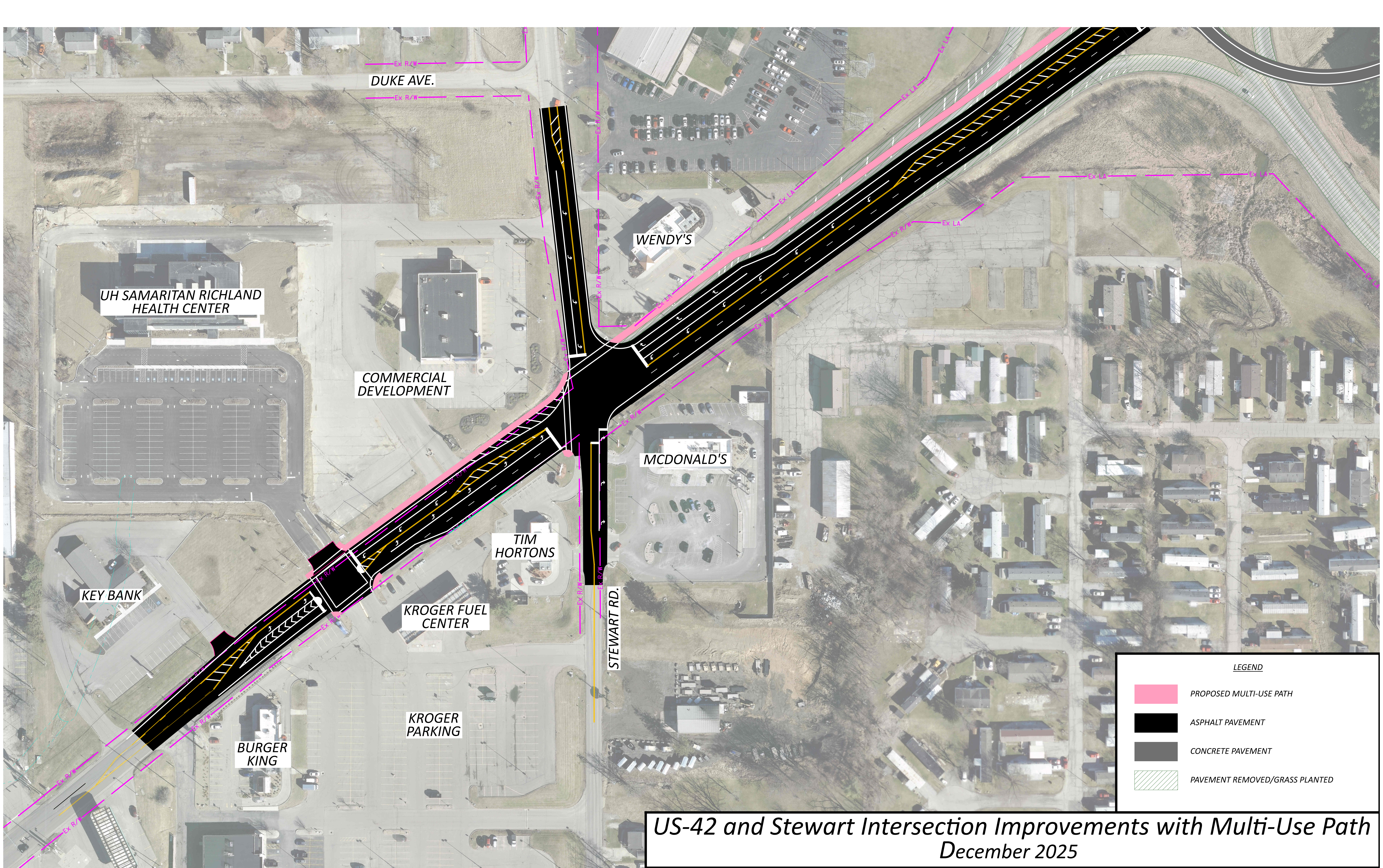
- PROPOSED MULTI-USE PATH
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVEMENT REMOVED/GRASS PLANTED
- PROPOSED BRIDGE WIDENING

Option 4 - Diamond Interchange with Multi-Use Path and Full Interchange Reconstruction December 2025



LEGEND

-  PROPOSED MULTI-USE PATH
-  ASPHALT PAVEMENT
-  CONCRETE PAVEMENT
-  PAVEMENT REMOVED/GRASS PLANTED



DUKE AVE.

WENDY'S

UH SAMARITAN RICHLAND HEALTH CENTER

COMMERCIAL DEVELOPMENT

MCDONALD'S

TIM HORTONS

STEWART RD.

KROGER FUEL CENTER

KROGER PARKING

KEY BANK

BURGER KING

LEGEND

- PROPOSED MULTI-USE PATH
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT
- PAVEMENT REMOVED/GRASS PLANTED

US-42 and Stewart Intersection Improvements with Multi-Use Path
December 2025

Appendix F: ECAT Analysis



Project Information

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 1 - Tight Diamond w/Signals & Alternative 4 - Diamond w/Signals	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		
Perform Benefit Cost Analysis?	No		

Do the proposed improvements fundamentally change the conditions of the base safety performance function (SPF), Or is crash data unavailable for the analysis condition, Or is only predicted (and not expected) analysis needed for the existing or proposed condition?	Yes
---	------------

(Examples: unsignalized to signalized, undivided to divided, increase or decrease in the number of lanes, change the number of approaches to an intersection, significant realignment of the roadway)

If Yes, are you analyzing the existing or proposed conditions?	Proposed
---	-----------------

Project Elements Description Table

Project Element ID (Must be Unique)	Site Type	Intersection Control Type	Location Information					
			NLFID	Begin Logpoint/ Intersection Midpoint	End Logpoint (Leave blank for Intersection)	Length (mi) OR Intersection Radius Buffer (mi)	Cross Route NLFID(s)	Common Name
US42; 13.552-13.665	Urban & Suburban Arterial Segment		SRICUS00042**C	13.552	13.665	0.113		Parry Ave to Kroger / UH
US42; 13.665-13.75	Urban & Suburban Arterial Segment		SRICUS00042**C	13.665	13.75	0.085		Kroger / UH to Stewart Rd
US42; 13.75-13.895	Urban & Suburban Arterial Segment		SRICUS00042**C	13.75	13.895	0.145		Stewart Rd to US 30 EB
US42; 13.895-14.089	Urban & Suburban Arterial Segment		SRICUS00042**C	13.895	14.089	0.194		US 30 EB to US 30 WB
US42; 14.089-14.385	Urban & Suburban Arterial Segment		SRICUS00042**C	14.089	14.385	0.296		US 30 WB to McElroy Rd
US42; 13.552	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.552		0.05	TRICTR01073	US 42 & Parry Ave
US42; 13.665	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.665		0.05		US 42 & Kroger / UH
US42; 13.75	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.75		0.05	TRICTR00267	US 42 & Stewart Rd
US42; 13.895	Ramp Terminal Intersection	Signalized	SRICUS00042**C	13.895		0.05	SRICRA70049	US 42 & US 30 EB Ramps
US42; 14.089	Ramp Terminal Intersection	Signalized	SRICUS00042**C	14.089		0.05	SRICRA70052	US 42 & US 30 WB Ramps
US42; 14.385	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	14.385		0.05	TRICTR00274	US 42 & McElroy Rd

Project Elements Description Table

Project Element ID (Must be Unique)	Site Type	Intersection Control Type	Location Information				Common Name
			NLFID	Begin Logpoint/ Intersection Midpoint	End Logpoint (Leave blank for Intersection)	Length (mi) OR Intersection Radius Buffer (mi)	

Select Other Non-Site Characteristic Based Countermeasures For Entire Project

CMF Nbr	Countermeasure	CMF KA Value	CMF B Value	CMF C Value	CMF O Value	CMF Valid for the Following Site Types
CMF 1	Introducing zero or positive offset left-turn lane on crossing roadway (Signalized Only)	By Crash Type	By Crash Type	By Crash Type	By Crash Type	7 / 10
CMF 2	Resurface pavement	By Crash Type	By Crash Type	By Crash Type	By Crash Type	1 / 3 / 4 / 6
CMF 3						
CMF 4						
CMF 5						
CMF 6						
CMF 7						
CMF 8						
CMF 9						
CMF 10						

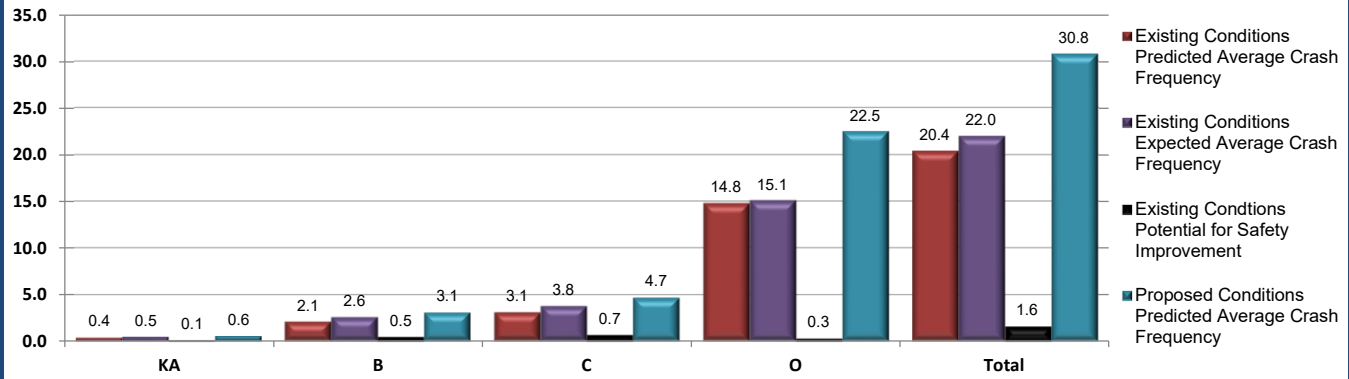


Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 1 - Tight Diamond w/Signals & Alternative 4 - Diamond w/Signals	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
N_{predicted} - Existing Conditions	0.4452	2.1035	3.0617	14.7877	20.3981
N_{expected} - Existing Conditions	0.5489	2.5605	3.7892	15.0669	21.9655
N_{potential for improvement} - Existing Conditions	0.1037	0.4570	0.7275	0.2792	1.5674
N_{predicted} - Proposed Conditions	0.5866	3.0801	4.7265	22.4531	30.8463

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0073	0.0216	0.024	0.1421	0.195
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0155	0.0173	0.1045	0.1425
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0087	0.0217	0.0204	0.1396	0.1904
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0082	0.0526	0.0449	0.2745	0.3802
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0333	0.0993	0.113	0.6297	0.8753
US42: 13.552	US 42 & Parry Ave	0.0684	0.373	0.5858	2.7512	3.7784
US42: 13.665	US 42 & Kroger / UH	0.075	0.4068	0.6367	3.0334	4.1519
US42: 13.75	US 42 & Stewart Rd	0.0931	0.5036	0.7874	3.7446	5.1287
US42: 13.895	US 42 & US 30 EB Ramps	0.0209	0.084	0.1107	0.5307	0.7463
US42: 14.089	US 42 & US 30 WB Ramps	0.0607	0.1889	0.2225	1.0953	1.5674
US42: 14.385	US 42 & McElroy Rd	0.0644	0.3365	0.499	2.3421	3.242

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0072	0.0213	0.0236	0.1325	0.1846
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0153	0.0171	0.0981	0.1357
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0107	0.0266	0.0251	0.205	0.2674
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0078	0.0495	0.0418	0.2177	0.3168
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0404	0.1195	0.1389	0.7957	1.0945
US42: 13.552	US 42 & Parry Ave	0.066	0.3593	0.5608	1.8775	2.8636
US42: 13.665	US 42 & Kroger / UH	0.0715	0.3868	0.6001	1.5975	2.6559
US42: 13.75	US 42 & Stewart Rd	0.1436	0.7954	1.3199	6.4402	8.6991
US42: 13.895	US 42 & US 30 EB Ramps	0.0279	0.1116	0.1465	0.97	1.256
US42: 14.089	US 42 & US 30 WB Ramps	0.1016	0.3229	0.3884	1.2344	2.0473
US42: 14.385	US 42 & McElroy Rd	0.067	0.3523	0.527	1.4983	2.4446



Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 1 - Tight Diamond w/Signals & Alternative 4 - Diamond w/Signals	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
US42: 13.552-13.665	Parry Ave to Kroger / UH	-1E-04	-0.0003	-0.0004	-0.0096	-0.0104
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0	-0.0002	-0.0002	-0.0064	-0.0068
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.002	0.0049	0.0047	0.0654	0.077
US42: 13.895-14.089	US 30 EB to US 30 WB	-0.0004	-0.0031	-0.0031	-0.0568	-0.0634
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0071	0.0202	0.0259	0.166	0.2192
US42: 13.552	US 42 & Parry Ave	-0.0024	-0.0137	-0.025	-0.8737	-0.9148
US42: 13.665	US 42 & Kroger / UH	-0.0035	-0.02	-0.0366	-1.4359	-1.496
US42: 13.75	US 42 & Stewart Rd	0.0505	0.2918	0.5325	2.6956	3.5704
US42: 13.895	US 42 & US 30 EB Ramps	0.007	0.0276	0.0358	0.4393	0.5097
US42: 14.089	US 42 & US 30 WB Ramps	0.0409	0.134	0.1659	0.1391	0.4799
US42: 14.385	US 42 & McElroy Rd	0.0026	0.0158	0.028	-0.8438	-0.7974

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				Total
		KA	B	C	O	
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0073	0.0216	0.024	0.1421	0.195
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0036	0.0092	0.0086	0.0582	0.0796
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0083	0.0209	0.0198	0.1397	0.1887
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0077	0.05	0.043	0.269	0.3697
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0219	0.0548	0.0522	0.3606	0.4895
US42: 13.552	US 42 & Parry Ave	0.0684	0.373	0.5858	2.7512	3.7784
US42: 13.665	US 42 & Kroger / UH	0.0666	0.365	0.5848	2.8426	3.859
US42: 13.75	US 42 & Stewart Rd	0.0963	0.521	0.8148	3.8756	5.3077
US42: 13.895	US 42 & US 30 EB Ramps	0.1119	0.6108	0.9591	4.5258	6.2076
US42: 14.089	US 42 & US 30 WB Ramps	0.1302	0.7173	1.1354	5.1462	7.1291
US42: 14.385	US 42 & McElroy Rd	0.0644	0.3365	0.499	2.3421	3.242

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Expected Crash Frequency
Unknown	0.0311	0.0299	-0.0012	
Head On	0.3192	0.3643	0.0450	
Rear End	8.6539	9.2869	0.6331	
Backing	0.6236	0.6466	0.0230	
Sideswipe - Meeting	0.0935	0.1154	0.0219	
Sideswipe - Passing	2.4471	2.5084	0.0613	
Angle	3.6978	4.1665	0.4687	
Parked Vehicle	0.2666	0.2955	0.0289	
Pedestrian	0.0759	0.0759	0.0000	
Animal	0.5492	0.3946	-0.1546	
Train	0.0017	0.0018	0.0002	
Pedalcycles	0.5619	0.5619	0.0000	
Other Non-Vehicle	0.0003	0.0003	0.0000	
Fixed Object	0.9002	0.9788	0.0786	
Other Object	0.0399	0.0388	-0.0011	
Overtuning	0.0357	0.0383	0.0026	
Other Non-Collision	0.0731	0.0737	0.0006	
Left Turn	1.6783	1.8438	0.1655	
Right Turn	0.9020	0.9389	0.0368	



Project Information

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 2 - Tight Diamond w/ Roundabouts	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		
Perform Benefit Cost Analysis?	No		

Do the proposed improvements fundamentally change the conditions of the base safety performance function (SPF), Or is crash data unavailable for the analysis condition, Or is only predicted (and not expected) analysis needed for the existing or proposed condition?	Yes
---	------------

(Examples: unsignalized to signalized, undivided to divided, increase or decrease in the number of lanes, change the number of approaches to an intersection, significant realignment of the roadway)

If Yes, are you analyzing the existing or proposed conditions?	Proposed
---	-----------------

Project Elements Description Table

Project Element ID (Must be Unique)	Site Type	Intersection Control Type	Location Information					
			NLFID	Begin Logpoint/ Intersection Midpoint	End Logpoint (Leave blank for Intersection)	Length (mi) OR Intersection Radius Buffer (mi)	Cross Route NLFID(s)	Common Name
US42; 13.552-13.665	Urban & Suburban Arterial Segment		SRICUS00042**C	13.552	13.665	0.113		Parry Ave to Kroger / UH
US42; 13.665-13.75	Urban & Suburban Arterial Segment		SRICUS00042**C	13.665	13.75	0.085		Kroger / UH to Stewart Rd
US42; 13.75-13.895	Urban & Suburban Arterial Segment		SRICUS00042**C	13.75	13.895	0.145		Stewart Rd to US 30 EB
US42; 13.895-14.089	Urban & Suburban Arterial Segment		SRICUS00042**C	13.895	14.089	0.194		US 30 EB to US 30 WB
US42; 14.089-14.385	Urban & Suburban Arterial Segment		SRICUS00042**C	14.089	14.385	0.296		US 30 WB to McElroy Rd
US42; 13.552	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.552		0.05	TRICTR01073	US 42 & Parry Ave
US42; 13.665	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.665		0.05		US 42 & Kroger / UH
US42; 13.75	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.75		0.05	TRICTR00267	US 42 & Stewart Rd
US42; 13.895	Roundabout	Unsignalized	SRICUS00042**C	13.895		0.05	SRICRA70049	US 42 & US 30 EB Ramps
US42; 14.089	Roundabout	Unsignalized	SRICUS00042**C	14.089		0.05	SRICRA70052	US 42 & US 30 WB Ramps
US42; 14.385	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	14.385		0.05	TRICTR00274	US 42 & McElroy Rd

Project Elements Description Table

Project Element ID (Must be Unique)	Site Type	Intersection Control Type	Location Information				Common Name
			NLFID	Begin Logpoint/ Intersection Midpoint	End Logpoint (Leave blank for Intersection)	Length (mi) OR Intersection Radius Buffer (mi)	

Select Other Non-Site Characteristic Based Countermeasures For Entire Project

CMF Nbr	Countermeasure	CMF KA Value	CMF B Value	CMF C Value	CMF O Value	CMF Valid for the Following Site Types
CMF 1	Introducing zero or positive offset left-turn lane on crossing roadway (Signalized Only)	By Crash Type	By Crash Type	By Crash Type	By Crash Type	7 / 10
CMF 2	Resurface pavement	By Crash Type	By Crash Type	By Crash Type	By Crash Type	1 / 3 / 4 / 6
CMF 3	Convert intersection with minor-road stop control to modern roundabout (Urban)	0.22	0.22	0.22	0.71	7 / 10
CMF 4						
CMF 5						
CMF 6						
CMF 7						
CMF 8						
CMF 9						
CMF 10						

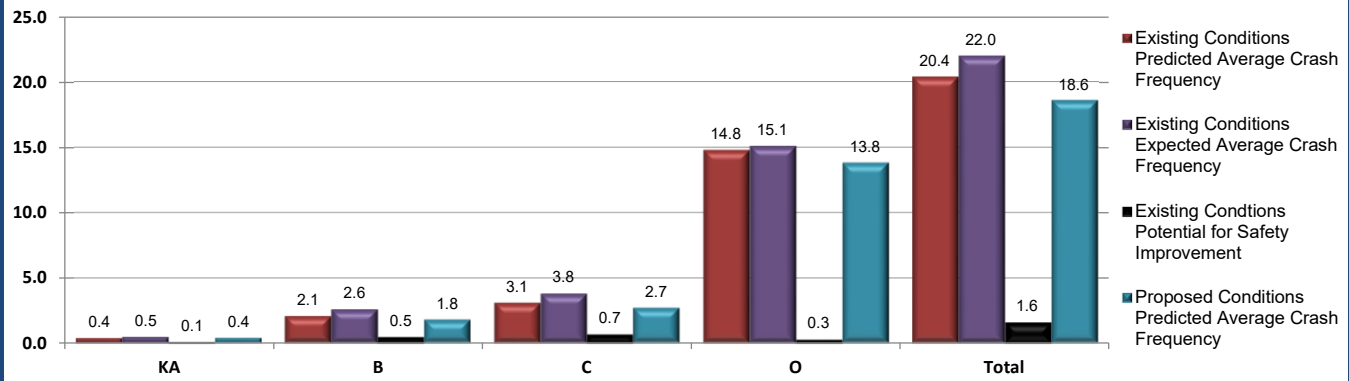


Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 2 - Tight Diamond w/ Roundabouts	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
N_{predicted} - Existing Conditions	0.4452	2.1035	3.0617	14.7877	20.3981
N_{expected} - Existing Conditions	0.5489	2.5605	3.7892	15.0669	21.9655
N_{potential for improvement} - Existing Conditions	0.1037	0.4570	0.7275	0.2792	1.5674
N_{predicted} - Proposed Conditions	0.3605	1.8043	2.6950	13.7766	18.6364

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0073	0.0216	0.024	0.1421	0.195
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0155	0.0173	0.1045	0.1425
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0087	0.0217	0.0204	0.1396	0.1904
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0082	0.0526	0.0449	0.2745	0.3802
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0333	0.0993	0.113	0.6297	0.8753
US42: 13.552	US 42 & Parry Ave	0.0684	0.373	0.5858	2.7512	3.7784
US42: 13.665	US 42 & Kroger / UH	0.075	0.4068	0.6367	3.0334	4.1519
US42: 13.75	US 42 & Stewart Rd	0.0931	0.5036	0.7874	3.7446	5.1287
US42: 13.895	US 42 & US 30 EB Ramps	0.0209	0.084	0.1107	0.5307	0.7463
US42: 14.089	US 42 & US 30 WB Ramps	0.0607	0.1889	0.2225	1.0953	1.5674
US42: 14.385	US 42 & McElroy Rd	0.0644	0.3365	0.499	2.3421	3.242

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0072	0.0213	0.0236	0.1325	0.1846
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0153	0.0171	0.0981	0.1357
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0107	0.0266	0.0251	0.205	0.2674
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0078	0.0495	0.0418	0.2177	0.3168
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0404	0.1195	0.1389	0.7957	1.0945
US42: 13.552	US 42 & Parry Ave	0.066	0.3593	0.5608	1.8775	2.8636
US42: 13.665	US 42 & Kroger / UH	0.0715	0.3868	0.6001	1.5975	2.6559
US42: 13.75	US 42 & Stewart Rd	0.1436	0.7954	1.3199	6.4402	8.6991
US42: 13.895	US 42 & US 30 EB Ramps	0.0279	0.1116	0.1465	0.97	1.256
US42: 14.089	US 42 & US 30 WB Ramps	0.1016	0.3229	0.3884	1.2344	2.0473
US42: 14.385	US 42 & McElroy Rd	0.067	0.3523	0.527	1.4983	2.4446



Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Alternative 2 - Tight Diamond w/ Roundabouts	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level					Total
		KA	B	C	O		
US42: 13.552-13.665	Parry Ave to Kroger / UH	-1E-04	-0.0003	-0.0004	-0.0096	-0.0104	
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0	-0.0002	-0.0002	-0.0064	-0.0068	
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.002	0.0049	0.0047	0.0654	0.077	
US42: 13.895-14.089	US 30 EB to US 30 WB	-0.0004	-0.0031	-0.0031	-0.0568	-0.0634	
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0071	0.0202	0.0259	0.166	0.2192	
US42: 13.552	US 42 & Parry Ave	-0.0024	-0.0137	-0.025	-0.8737	-0.9148	
US42: 13.665	US 42 & Kroger / UH	-0.0035	-0.02	-0.0366	-1.4359	-1.496	
US42: 13.75	US 42 & Stewart Rd	0.0505	0.2918	0.5325	2.6956	3.5704	
US42: 13.895	US 42 & US 30 EB Ramps	0.007	0.0276	0.0358	0.4393	0.5097	
US42: 14.089	US 42 & US 30 WB Ramps	0.0409	0.134	0.1659	0.1391	0.4799	
US42: 14.385	US 42 & McElroy Rd	0.0026	0.0158	0.028	-0.8438	-0.7974	

Proposed Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level					Total
		KA	B	C	O		
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0073	0.0216	0.024	0.1421	0.195	
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0036	0.0092	0.0086	0.0582	0.0796	
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0083	0.0209	0.0198	0.1397	0.1887	
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0077	0.05	0.043	0.269	0.3697	
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0219	0.0548	0.0522	0.3606	0.4895	
US42: 13.552	US 42 & Parry Ave	0.0684	0.373	0.5858	2.7512	3.7784	
US42: 13.665	US 42 & Kroger / UH	0.0666	0.365	0.5848	2.8426	3.859	
US42: 13.75	US 42 & Stewart Rd	0.0963	0.521	0.8148	3.8756	5.3077	
US42: 13.895	US 42 & US 30 EB Ramps	0.0027	0.0107	0.0141	0.2178	0.2453	
US42: 14.089	US 42 & US 30 WB Ramps	0.0133	0.0416	0.0489	0.7777	0.8815	
US42: 14.385	US 42 & McElroy Rd	0.0644	0.3365	0.499	2.3421	3.242	

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Expected Crash Frequency
Unknown	0.0311	0.0299	-0.0012	
Head On	0.3192	0.3643	0.0450	
Rear End	8.6539	9.2869	0.6331	
Backing	0.6236	0.6466	0.0230	
Sideswipe - Meeting	0.0935	0.1154	0.0219	
Sideswipe - Passing	2.4471	2.5084	0.0613	
Angle	3.6978	4.1665	0.4687	
Parked Vehicle	0.2666	0.2955	0.0289	
Pedestrian	0.0759	0.0759	0.0000	
Animal	0.5492	0.3946	-0.1546	
Train	0.0017	0.0018	0.0002	
Pedalcycles	0.5619	0.5619	0.0000	
Other Non-Vehicle	0.0003	0.0003	0.0000	
Fixed Object	0.9002	0.9788	0.0786	
Other Object	0.0399	0.0388	-0.0011	
Overtaking	0.0357	0.0383	0.0026	
Other Non-Collision	0.0731	0.0737	0.0006	
Left Turn	1.6783	1.8438	0.1655	
Right Turn	0.9020	0.9389	0.0368	



Project Information

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Existing Conditions	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		
Perform Benefit Cost Analysis?	No		

Do the proposed improvements fundamentally change the conditions of the base safety performance function (SPF), Or is crash data unavailable for the analysis condition, Or is only predicted (and not expected) analysis needed for the existing or proposed condition?	Yes
---	------------

(Examples: unsignalized to signalized, undivided to divided, increase or decrease in the number of lanes, change the number of approaches to an intersection, significant realignment of the roadway)

If Yes, are you analyzing the existing or proposed conditions?	Existing
---	-----------------

Project Elements Description Table

Project Element ID (Must be Unique)	Site Type	Intersection Control Type	Location Information					
			NLFID	Begin Logpoint/ Intersection Midpoint	End Logpoint (Leave blank for Intersection)	Length (mi) OR Intersection Radius Buffer (mi)	Cross Route NLFID(s)	Common Name
US42; 13.552-13.665	Urban & Suburban Arterial Segment		SRICUS00042**C	13.552	13.665	0.113		Parry Ave to Kroger / UH
US42; 13.665-13.75	Urban & Suburban Arterial Segment		SRICUS00042**C	13.665	13.75	0.085		Kroger / UH to Stewart Rd
US42; 13.75-13.895	Urban & Suburban Arterial Segment		SRICUS00042**C	13.75	13.895	0.145		Stewart Rd to US 30 EB
US42; 13.895-14.089	Urban & Suburban Arterial Segment		SRICUS00042**C	13.895	14.089	0.194		US 30 EB to US 30 WB
US42; 14.089-14.385	Urban & Suburban Arterial Segment		SRICUS00042**C	14.089	14.385	0.296		US 30 WB to McElroy Rd
US42; 13.552	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.552		0.05	TRICTR01073	US 42 & Parry Ave
US42; 13.665	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.665		0.05		US 42 & Kroger / UH
US42; 13.75	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	13.75		0.05	TRICTR00267	US 42 & Stewart Rd
US42; 13.895	Ramp Terminal Intersection	Unsignalized	SRICUS00042**C	13.895		0.05	SRICRA70049	US 42 & US 30 EB Ramps
US42; 14.089	Ramp Terminal Intersection	Unsignalized	SRICUS00042**C	14.089		0.05	SRICRA70052	US 42 & US 30 WB Ramps
US42; 14.385	Urban & Suburban Arterial Intersection	Signalized	SRICUS00042**C	14.385		0.05	TRICTR00274	US 42 & McElroy Rd

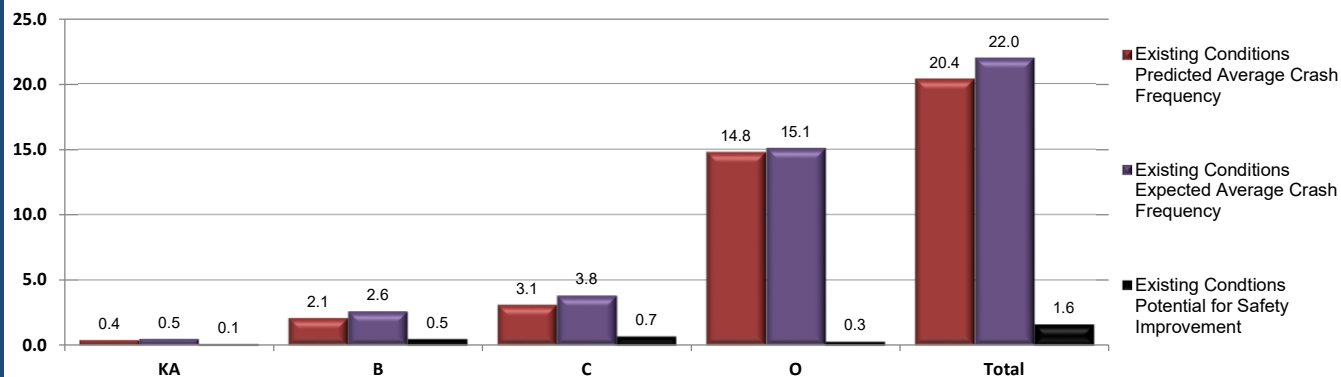


Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Existing Conditions	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Summary of Anticipated Safety Performance of the Project (average crashes/year)



Project Summary Results (Without Animal Crashes)

	KA	B	C	O	Total
N_{predicted} - Existing Conditions	0.4452	2.1035	3.0617	14.7877	20.3981
N_{expected} - Existing Conditions	0.5489	2.5605	3.7892	15.0669	21.9655
N_{potential for improvement} - Existing Conditions	0.1037	0.4570	0.7275	0.2792	1.5674

Existing Conditions Project Element Predicted Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level				
		KA	B	C	O	Total
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0073	0.0216	0.024	0.1421	0.195
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0155	0.0173	0.1045	0.1425
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0087	0.0217	0.0204	0.1396	0.1904
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0082	0.0526	0.0449	0.2745	0.3802
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0333	0.0993	0.113	0.6297	0.8753
US42: 13.552	US 42 & Parry Ave	0.0684	0.373	0.5858	2.7512	3.7784
US42: 13.665	US 42 & Kroger / UH	0.075	0.4068	0.6367	3.0334	4.1519
US42: 13.75	US 42 & Stewart Rd	0.0931	0.5036	0.7874	3.7446	5.1287
US42: 13.895	US 42 & US 30 EB Ramps	0.0209	0.084	0.1107	0.5307	0.7463
US42: 14.089	US 42 & US 30 WB Ramps	0.0607	0.1889	0.2225	1.0953	1.5674
US42: 14.385	US 42 & McElroy Rd	0.0644	0.3365	0.499	2.3421	3.242



Project Safety Performance Report

General Information

Project Name	RIC-30/42 Feasibility Study	Contact Email	jmbennett@gpdgroup.com
Project Description	Existing Conditions	Contact Phone	216-927-8654
Reference Number	PID 119315	Date Performed	12/5/2025
Analyst	Judith Bennett	Analysis Year	2021-2023
Agency/Company	GPD Group		

Existing Conditions Project Element Expected Crash Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level					Total
		KA	B	C	O		
US42: 13.552-13.665	Parry Ave to Kroger / UH	0.0072	0.0213	0.0236	0.1325	0.1846	
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0.0052	0.0153	0.0171	0.0981	0.1357	
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.0107	0.0266	0.0251	0.205	0.2674	
US42: 13.895-14.089	US 30 EB to US 30 WB	0.0078	0.0495	0.0418	0.2177	0.3168	
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0404	0.1195	0.1389	0.7957	1.0945	
US42: 13.552	US 42 & Parry Ave	0.066	0.3593	0.5608	1.8775	2.8636	
US42: 13.665	US 42 & Kroger / UH	0.0715	0.3868	0.6001	1.5975	2.6559	
US42: 13.75	US 42 & Stewart Rd	0.1436	0.7954	1.3199	6.4402	8.6991	
US42: 13.895	US 42 & US 30 EB Ramps	0.0279	0.1116	0.1465	0.97	1.256	
US42: 14.089	US 42 & US 30 WB Ramps	0.1016	0.3229	0.3884	1.2344	2.0473	
US42: 14.385	US 42 & McElroy Rd	0.067	0.3523	0.527	1.4983	2.4446	

Existing Conditions Project Element Potential for Safety Improvement Summary (Without Animal Crashes)

Project Element ID	Common Name	Crash Severity Level					Total
		KA	B	C	O		
US42: 13.552-13.665	Parry Ave to Kroger / UH	-1E-04	-0.0003	-0.0004	-0.0096	-0.0104	
US42: 13.665-13.75	Kroger / UH to Stewart Rd	0	-0.0002	-0.0002	-0.0064	-0.0068	
US42: 13.75-13.895	Stewart Rd to US 30 EB	0.002	0.0049	0.0047	0.0654	0.077	
US42: 13.895-14.089	US 30 EB to US 30 WB	-0.0004	-0.0031	-0.0031	-0.0568	-0.0634	
US42: 14.089-14.385	US 30 WB to McElroy Rd	0.0071	0.0202	0.0259	0.166	0.2192	
US42: 13.552	US 42 & Parry Ave	-0.0024	-0.0137	-0.025	-0.8737	-0.9148	
US42: 13.665	US 42 & Kroger / UH	-0.0035	-0.02	-0.0366	-1.4359	-1.496	
US42: 13.75	US 42 & Stewart Rd	0.0505	0.2918	0.5325	2.6956	3.5704	
US42: 13.895	US 42 & US 30 EB Ramps	0.007	0.0276	0.0358	0.4393	0.5097	
US42: 14.089	US 42 & US 30 WB Ramps	0.0409	0.134	0.1659	0.1391	0.4799	
US42: 14.385	US 42 & McElroy Rd	0.0026	0.0158	0.028	-0.8438	-0.7974	

Summary by Crash Type

Crash Type	Existing			Proposed
	Predicted Crash Frequency	Expected Crash Frequency	PSI	Expected Crash Frequency
Unknown	0.0311	0.0299	-0.0012	
Head On	0.3192	0.3643	0.0450	
Rear End	8.6539	9.2869	0.6331	
Backing	0.6236	0.6466	0.0230	
Sideswipe - Meeting	0.0935	0.1154	0.0219	
Sideswipe - Passing	2.4471	2.5084	0.0613	
Angle	3.6978	4.1665	0.4687	
Parked Vehicle	0.2666	0.2955	0.0289	
Pedestrian	0.0759	0.0759	0.0000	
Animal	0.5492	0.3946	-0.1546	
Train	0.0017	0.0018	0.0002	
Pedalcycles	0.5619	0.5619	0.0000	
Other Non-Vehicle	0.0003	0.0003	0.0000	
Fixed Object	0.9002	0.9788	0.0786	
Other Object	0.0399	0.0388	-0.0011	
Overtuning	0.0357	0.0383	0.0026	
Other Non-Collision	0.0731	0.0737	0.0006	
Left Turn	1.6783	1.8438	0.1655	
Right Turn	0.9020	0.9389	0.0368	

Appendix G: Traffic Operations Report

FUTURE CONDITIONS CAPACITY ANALYSIS US 30 / US 42 Interchange

Madison Township, Richland County, Ohio

Prepared For:

ODOT District 3
906 Clark Avenue
Ashland, OH 44805

Revised December 2025

Engineer's Seal

Prepared By:

Prepared
Under The Responsible
Charge of:

Judith M. Bennett, P.E., PTOE
Registration No. 64654
Certification No. 4173

Michael A. Hobbs, P.E., PTOE
Registration No. 68713
Certification No. 1346

Date



TABLE OF CONTENTS

I. Purpose:1
 II. Study Area:.....1
 III. Traffic Plates:1
 IV. Alternatives:.....1
 V. Traffic Analysis:2
 Intersection Capacity Analysis2
 Freeway Capacity Analysis..... 52

LIST OF ATTACHMENTS

- Attachment A: Traffic Plates
- Attachment B: Intersection Capacity Analysis
- Attachment C: Freeway Capacity Analysis

LIST OF TABLES

- Table 1: HCS Intersection Capacity Analysis Summary - Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
- Table 2: HCS Intersection Capacity Analysis Summary - Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions
- Table 3: HCS Intersection Capacity Analysis Summary - Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions
- Table 4: HCS Intersection Capacity Analysis Summary - Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
- Table 5: HCS Intersection Capacity Analysis Summary - Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions
- Table 6: HCS Intersection Capacity Analysis Summary - Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions
- Table 7: HCS Freeway Capacity Analysis Facility Summary - Opening Year 2032 'No-Build' vs. 'Build' Conditions - US 30 Corridor
- Table 8: HCS Freeway Capacity Analysis Facility Summary - Opening Year 2032 'No-Build' vs. 'Build' Conditions - US 30 Corridor Overall
- Table 9: HCS Freeway Capacity Analysis Facility Summary - Design Year 2052 'No-Build' vs. 'Build' Conditions - US 30 Corridor
- Table 10: HCS Freeway Capacity Analysis Facility Summary - Design Year 2052 'No-Build' vs. 'Build' Conditions - US 30 Corridor Overall



I. Purpose:

The purpose of this report is to analyze future vehicular operations in the vicinity of the US 30 / US 42 interchange and identify expected capacity issues for the US 30 & US 42 Planning Study. The US 30 / US 42 interchange is located in Madison Township, Richland County, Ohio. The purpose of the US 30 & US 42 Planning Study is to analyze the vehicular operating conditions in the vicinity of the existing interchange and recommend improvements to the interchange and surrounding roadway network.

II. Study Area:

The study area includes the US 30 / US 42 interchange, the US 30 / 5th Avenue interchange to the west, the US 30 / Laver Road interchange to the east, and US 42 (Ashland Road) within a half mile of the US 30 interchange. The segment of US 42 included in the study area extends from Parry Avenue to the southwest, to McElroy Road in the northeast. In addition, portions of Beal Road, Rayfield Drive, Expressview Drive, and Stewart Road are included in the study to determine the effect of eliminating the US 30 WB Ramps / Beal Road intersection on the surrounding roadway network in the 'Build' condition.

III. Traffic Plates:

Traffic plates were created for the Existing Year 2024, Opening Year 2032, and Design Year 2052 'No Build' ADT, 'No Build' AM, 'No-Build' PM, 'Build' ADT, 'Build' AM, and 'Build' PM traffic volumes. These traffic plates were created using the process outlined in the Ohio Traffic Forecasting Manual. The full process to development these traffic plates are outlined in the previously completed Traffic Forecast Report from July 12, 2024. See **Attachment A** for the traffic plates.

IV. Alternatives:

Four 'Build' alternatives were considered during the preliminary engineering phase, as follows:

- Alternative 1 – Tight Diamond Interchange with Multi-Use Path
- Alternative 2 – Roundabout with Multi-Use Path with Beal Road
- Alternative 2A – Roundabout with Multi-Use Path without Beal Road
- Alternative 3 – Widening Bridges with Multi-Use Path
- Alternative 4 – Diamond Interchange with Multi-Use Path

'Build' alternative capacity analysis was only performed for Alternatives 1 and 2. Alternative 1 analysis was performed using HCS to evaluate the entire study area, including rerouting of traffic due to the disconnection of Beal Road from the ramp. Alternative 2 analysis was performed using Transmodeler to determine how the two roundabouts would operate in conjunction and with the adjacent signalized intersections. Alternative 2A was not analyzed since the roundabouts operate similar to Alternative 2, but with some movements different due to the Beal Road connection.



Other US 42 intersections for Alternative 2A would operate the same as 'No-Build'. Alternative 3 is essentially the existing condition, therefore operations would be the same as No-Build. Alternative 4 was analyzed with Alternative 1 because intersection configurations are the same.

V. Traffic Analysis:

Intersection Capacity Analysis

Intersection capacity analyses were performed for the Opening Year 2032 and Design Year 2052 'No-Build' and 'Build' scenarios to determine the operating conditions that would be expected at each study intersection. The quality of the operating conditions experienced by an intersection is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F.

The analysis was performed utilizing the computer program HCS 2024 which is developed by McTrans Corporation and based on the Highway Capacity Manual, 7th Edition. Based on criteria established by ODOT, Highway Capacity Software (HCS) is used to determine the required number of lanes and the lane assignments at intersections (i.e. the needed intersection capacity). The existing peak hour factors and heavy vehicle percentages were utilized during the AM and PM peak hours for the capacity analysis.

The US 42 intersections with the US 30 EB Ramps and US WB Ramps were analyzed as roundabouts under the 'Build Alternative 2' conditions using TransModeler 7.0, developed by Caliper and based on the Highway Capacity Manual (HCM), 7th Edition. TransModeler can provide a microscopic analysis of an entire roadway system and take into account the interactions and impact of traffic traveling between intersections. The software also supports the analysis of complex and non-standard intersection geometries, such as the proposed five-approach configuration at the US 42 / US 30 Westbound Exit / Beal Road intersection under 'Build Alternative 2'.

Opening Year 2032 Intersection Capacity Analysis

Tables 1-3 summarize the results of the capacity analysis for the study intersections under the Opening Year 2032 'No Build' vs. 'Build Alternative 1' & 'Build Alternative 4', 'Build Alternative 2', and 'Build Alternative 2A' traffic conditions during the AM and PM peak hours. See **Attachment B** for the Intersection Capacity Analysis printouts. Note that outside of the US 30 ramp intersections, the US 42 corridor operates the same across most alternatives. Tables comparing each 'Build' alternative to 'No-Build' conditions are provided to highlight where there are differences.



Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	4.6	0.02	0.04	3	A	4.6	0.02	0.04	3
EB Thru-Right	A	3.4	0.25	0.20	49	A	3.4	0.25	0.20	49
<i>EB Approach</i>	A	3.4	-	-	-	A	3.4	-	-	-
WB Left	A	3.8	0.04	0.11	7	A	3.8	0.04	0.11	7
WB Thru-Right	A	4.0	0.36	0.17	80	A	4.0	0.36	0.17	80
<i>WB Approach</i>	A	4.0	-	-	-	A	4.0	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	5.8	0.02	0.04	3	A	5.4	0.02	0.04	3
EB Thru-Right	A	8.5	0.34	0.24	124	A	8.1	0.34	0.23	122
<i>EB Approach</i>	A	8.5	-	-	-	A	8.0	-	-	-
WB Left	A	4.6	0.08	0.11	10	A	4.2	0.08	0.05	9
WB Thru	A	7.0	0.37	0.39	128	A	6.5	0.36	0.37	120
WB Right	A	4.7	0.01	0.01	2	A	4.4	0.01	0.01	2
<i>WB Approach</i>	A	6.7	-	-	-	A	6.2	-	-	-
NB Left-Thru-Right	C	31.3	0.36	0.82	74	C	31.3	0.36	0.82	74
<i>NB Approach</i>	C	31.3	-	-	-	C	31.3	-	-	-
SB Left-Thru	C	29.3	0.08	0.17	17	C	29.3	0.08	0.17	17
SB Right	C	29.1	0.06	0.08	8	C	29.1	0.06	0.08	8
<i>SB Approach</i>	C	29.2	-	-	-	C	29.2	-	-	-
Intersection Total	B	10.3	-	-	-	A	9.9	-	-	-



**Table 1: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)**

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Stewart Road										
EB Left	D	37.8	0.33	0.23	20	D	35.7	0.44	0.17	48
EB Thru	B	17.2	0.39	0.51	164	C	21.4	0.30	0.33	107
EB Right	B	13.9	0.09	0.27	27	C	21.6	0.31	0.32	104
<i>EB Approach</i>	<i>B</i>	<i>17.9</i>	-	-	-	<i>C</i>	<i>23.6</i>	-	-	-
WB Left	D	38.7	0.82	0.43	187	D	40.7	0.83	0.43	194
WB Thru	B	10.3	0.23	0.14	79	C	20.8	0.51	0.24	217
WB Right	A	9.3	0.07	0.13	20	B	15.5	0.09	0.14	29
<i>WB Approach</i>	<i>B</i>	<i>19.1</i>	-	-	-	<i>C</i>	<i>27.1</i>	-	-	-
NB Left-Thru	C	25.7	0.32	0.07	74	C	28.1	0.32	0.07	78
NB Right	D	42.4	0.84	2.23	245	C	22.3	0.53	1.13	169
<i>NB Approach</i>	<i>D</i>	<i>37.6</i>	-	-	-	<i>C</i>	<i>24.0</i>	-	-	-
SB Left	C	32.3	0.28	0.73	51	C	20.5	0.29	0.25	70
SB Thru-Right	C	27.8	0.54	0.38	143	C	20.1	0.44	0.40	151
<i>SB Approach</i>	<i>C</i>	<i>28.9</i>	-	-	-	<i>C</i>	<i>20.3</i>	-	-	-
Intersection Total	C	24.6	-	-	-	C	24.2	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	4.5	0.25	0.07	64
EB Right	-	-	-	-	-	A	4.5	0.25	0.06	63
<i>EB Approach</i>	-	-	-	-	-	<i>A</i>	<i>4.5</i>	-	-	-
WB Left	A	8.6	0.02	-	3	A	5.3	0.04	0.06	6
WB Thru	-	-	-	-	-	A	5.2	0.37	0.16	105
<i>WB Approach</i>	<i>A</i>	<i>0.3</i>	-	-	-	<i>A</i>	<i>5.2</i>	-	-	-
SB Left-Thru	-	-	-	-	-	D	42.6	0.83	0.36	218
SB Right	-	-	-	-	-	C	30.2	0.51	0.30	98
<i>SB Approach</i>	-	-	-	-	-	<i>D</i>	<i>38.3</i>	-	-	-
Intersection Total	-	-	-	-	-	B	13.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.2	0.22		21	A	5.7	0.39	0.24	47
EB Thru	-	-	-		-	A	4.7	0.43	0.17	110
<i>EB Approach</i>	A	2.6	-		-	A	5.0	-	-	-
WB Thru	-	-	-		-	A	10.0	0.42	0.17	174
WB Right	-	-	-		-	B	11.5	0.51	0.49	197
<i>WB Approach</i>	-	-	-		-	B	10.7	-	-	-
NB Left-Thru-Right	D	25.3	0.21		22	D	35.9	0.71	0.22	129
<i>NB Approach</i>	D	25.3	-		-	D	35.9	-	-	-
SB Left	F	82.1	0.20		18					
<i>SB Approach</i>	F	82.1	-		-					
Intersection Total	-	-	-			B	10.1	-	-	-
US 42 / McElroy Road										
EB Thru-Right	A	5.8	0.55	0.11	154	A	5.8	0.55	0.11	154
<i>EB Approach</i>	A	5.8	-	-	-	A	5.8	-	-	-
WB Left	B	12.5	0.42	1.32	99	B	12.5	0.42	1.32	99
WB Thru	A	6.3	0.59	0.12	182	A	6.3	0.59	0.12	182
<i>WB Approach</i>	A	7.6	-	-	-	A	7.6	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.6	0.74	2.79	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
<i>NB Approach</i>	D	36.4	-	-	-	D	36.4	-	-	-
Intersection Total	B	11.2	-	-	-	B	11.2	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	9.1	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	1.0	-		-					
SB Left-Right	C	16.9	0.25		25					
SB Approach	C	16.9	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.04		3	A	9.3	0.06		5
EB Approach	A	9.3	-		-	A	9.3	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	2.5	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.7	0.02		3	A	9.5	0.15		13
WB Approach	A	8.7	-		-	A	9.5	-		-
SB Left	A	7.3	0.01		0	A	7.3	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	10.5	0.08		8	B	10.6	0.08		8
EB Approach	B	10.5	-		-	B	10.6	-		-
WB Left-Thru-Right	B	10.8	0.05		5	B	13.9	0.28		28
WB Approach	B	10.8	-		-	B	13.9	-		-
NB Left	A	7.7	0.01		-	A	7.7	0.01		-
NB Approach	A	0.9	-		-	A	0.7	-		-
SB Left	A	7.4	0.01		-	A	7.5	0.01		-
SB Approach	A	0.5	-		-	A	0.5	-		-



**Table 1: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)**

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.5	0.02	0.05	3	A	5.5	0.02	0.05	3
EB Thru-Right	A	4.9	0.53	0.68	170	A	4.9	0.53	0.68	170
<i>EB Approach</i>	A	4.9	-	-	-	A	4.9	-	-	-
WB Left	A	6.4	0.04	0.12	7	A	6.4	0.04	0.12	7
WB Thru-Right	A	4.4	0.48	0.32	145	A	4.4	0.48	0.32	145
<i>WB Approach</i>	A	4.5	-	-	-	A	4.5	-	-	-
NB Left-Thru-Right	D	42.3	0.46	0.10	102	D	42.3	0.46	0.10	102
<i>NB Approach</i>	D	42.3	-	-	-	D	42.3	-	-	-
SB Left	D	43.8	0.08	0.23	11	D	43.8	0.08	0.23	11
SB Thru-Right	D	39.1	0.12	0.42	21	D	39.1	0.12	0.42	21
<i>SB Approach</i>	D	40.7	-	-	-	D	40.7	-	-	-
Intersection Total	A	7.5	-	-	-	A	7.5	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	8.1	0.02	0.06	4	A	7.7	0.02	0.05	4
EB Thru-Right	B	17.3	0.69	0.77	406	B	16.4	0.67	0.75	393
<i>EB Approach</i>	B	17.2	-	-	-	B	16.2	-	-	-
WB Left	B	10.7	0.31	0.41	39	B	10.1	0.30	0.23	37
WB Thru	A	9.8	0.47	0.73	236	A	9.3	0.46	0.70	228
WB Right	A	6.0	0.01	0.01	3	A	5.7	0.01	0.01	3
<i>WB Approach</i>	A	9.9	-	-	-	A	9.4	-	-	-
NB Left-Thru-Right	D	45.1	0.73	2.74	247	D	45.1	0.73	2.74	247
<i>NB Approach</i>	D	45.1	-	-	-	D	45.1	-	-	-
SB Left-Thru	C	33.1	0.07	0.19	19	C	33.1	0.07	0.19	19
SB Right	C	32.9	0.04	0.09	9	C	32.9	0.04	0.09	9
<i>SB Approach</i>	C	33.1	-	-	-	C	33.1	-	-	-
Intersection Total	B	18.2	-	-	-	B	17.6	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



Table 1: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Stewart Road										
EB Left	E	56.4	0.73	1.44	129	D	52.7	0.86	0.87	253
EB Thru	D	35.0	0.80	1.44	469	C	28.0	0.44	0.66	216
EB Right	B	19.1	0.10	0.41	41	C	28.2	0.44	0.65	211
<i>EB Approach</i>	D	36.7	-	-	-	D	35.6	-	-	-
WB Left	E	62.2	0.90	0.79	346	E	61.0	0.90	0.78	352
WB Thru	B	15.2	0.32	0.30	163	C	33.6	0.74	0.45	409
WB Right	B	14.1	0.18	0.50	80	C	22.3	0.25	0.53	106
<i>WB Approach</i>	C	28.9	-	-	-	D	40.7	-	-	-
NB Left-Thru	D	35.5	0.61	0.19	203	D	40.1	0.61	0.19	201
NB Right	D	39.8	0.73	2.44	268	C	24.6	0.51	1.46	220
<i>NB Approach</i>	D	38.0	-	-	-	C	30.9	-	-	-
SB Left	F	102.1	0.94	3.29	230	C	29.1	0.54	0.52	144
SB Thru-Right	D	38.5	0.71	0.76	285	C	31.0	0.67	0.80	302
<i>SB Approach</i>	E	57.7	-	-	-	C	30.4	-	-	-
Intersection Total	D	37.5	-	-	-	D	35.5	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	B	10.2	0.42	0.22	214
EB Right	-	-	-	-	-	B	10.3	0.42	0.21	213
<i>EB Approach</i>	-	-	-	-	-	B	10.2	-	-	-
WB Left	A	9.8	0.04	-	3	B	14.2	0.09	0.19	18
WB Thru	-	-	-	-	-	B	12.5	0.57	0.48	312
<i>WB Approach</i>	A	0.4	-	-	-	B	12.6	-	-	-
SB Left-Thru	-	-	-	-	-	D	48.1	0.90	0.71	423
SB Right	-	-	-	-	-	D	36.1	0.73	0.88	285
<i>SB Approach</i>	-	-	-	-	-	D	43.0	-	-	-
Intersection Total	-	-	-	-	-	C	21.2	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.5	0.22		20	A	5.5	0.28	0.17	34
EB Thru	-	-	-		-	A	7.9	0.69	0.45	294
<i>EB Approach</i>	A	1.7	-		-	A	7.5	-	-	-
WB Thru	-	-	-		-	A	9.6	0.46	0.23	233
WB Right	-	-	-		-	A	8.8	0.37	0.39	157
<i>WB Approach</i>	-	-	-		-	A	9.3	-	-	-
NB Left-Thru-Right	F	50.6	0.35		37	D	49.3	0.83	0.33	199
<i>NB Approach</i>	F	50.6	-		-	D	49.3	-	-	-
SB Left	F	252.6	0.45		33					
<i>SB Approach</i>	F	252.6	-		-					
Intersection Total	-	-	-		-	B	11.3	-	-	-
US 42 / McElroy Road										
EB Thru-Right	A	8.6	0.72	0.22	312	A	8.6	0.72	0.22	312
<i>EB Approach</i>	A	8.6	-	-	-	A	8.6	-	-	-
WB Left	C	21.7	0.46	1.70	128	C	21.7	0.46	1.70	128
WB Thru	A	5.8	0.55	0.13	206	A	5.8	0.55	0.13	206
<i>WB Approach</i>	A	8.5	-	-	-	A	8.5	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	40.3	0.46	2.03	102
NB Thru-Right	D	47.0	0.78	0.19	168	D	47.0	0.78	0.19	168
<i>NB Approach</i>	D	44.3	-	-	-	D	44.3	-	-	-
Intersection Total	B	12.6	-	-	-	B	12.6	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 1: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.8	-		-					
SB Left-Right	C	17.6	0.33		35					
SB Approach	C	17.6	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.05		5	A	9.9	0.20		18
EB Approach	A	9.3	-		-	A	9.9	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.3	0.18		16
WB Approach	A	8.9	-		-	B	10.3	-		-
SB Left	A	7.3	0.01		0	A	7.7	0.01		0
SB Approach	A	3.7	-		-	A	3.9	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	11.9	0.11		10	B	12.5	0.12		10
EB Approach	B	11.9	-		-	B	12.5	-		-
WB Left-Thru-Right	B	14.7	0.10		8	D	25.2	0.46		62
WB Approach	B	14.7	-		-	D	25.2	-		-
NB Left	A	7.8	0.03		-	A	7.8	0.03		-
NB Approach	A	1.3	-		-	A	1.0	-		-
SB Left	A	7.8	0.01		-	A	8.1	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Yellow highlighted cells indicate a Level-of-Service D



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	4.6	0.02	0.04	3	A	4.6	0.02	0.04	3
EB Thru-Right	A	3.4	0.25	0.20	49	A	3.4	0.25	0.20	49
<i>EB Approach</i>	A	3.4	-	-	-	A	3.4	-	-	-
WB Left	A	3.8	0.04	0.11	7	A	3.8	0.04	0.11	7
WB Thru-Right	A	4.0	0.36	0.17	80	A	4.0	0.36	0.17	80
<i>WB Approach</i>	A	4.0	-	-	-	A	4.0	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	5.8	0.02	0.04	3	A	5.4	0.02	0.04	3
EB Thru-Right	A	8.5	0.34	0.24	124	A	8.1	0.34	0.23	122
<i>EB Approach</i>	A	8.5	-	-	-	A	8.0	-	-	-
WB Left	A	4.6	0.08	0.11	10	A	4.2	0.08	0.05	9
WB Thru	A	7.0	0.37	0.39	128	A	6.5	0.36	0.37	120
WB Right	A	4.7	0.01	0.01	2	A	4.4	0.01	0.01	2
<i>WB Approach</i>	A	6.7	-	-	-	A	6.2	-	-	-
NB Left-Thru-Right	C	31.3	0.36	0.82	74	C	31.3	0.36	0.82	74
<i>NB Approach</i>	C	31.3	-	-	-	C	31.3	-	-	-
SB Left-Thru	C	29.3	0.08	0.17	17	C	29.3	0.08	0.17	17
SB Right	C	29.1	0.06	0.08	8	C	29.1	0.06	0.08	8
<i>SB Approach</i>	C	29.2	-	-	-	C	29.2	-	-	-
Intersection Total	B	10.3	-	-	-	A	9.9	-	-	-



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Stewart Road										
EB Left	D	37.8	0.33	0.23	20	D	37.8	0.33	0.07	20
EB Thru	B	17.2	0.39	0.51	164	C	21.2	0.32	0.36	117
EB Right	B	13.9	0.09	0.27	27	C	21.4	0.33	0.35	114
<i>EB Approach</i>	<i>B</i>	<i>17.9</i>	-	-	-	<i>C</i>	<i>22.3</i>	-	-	-
WB Left	D	38.7	0.82	0.43	187	D	37.9	0.83	0.44	200
WB Thru	B	10.3	0.23	0.14	79	B	18.4	0.52	0.26	230
WB Right	A	9.3	0.07	0.13	20	B	13.0	0.07	0.10	20
<i>WB Approach</i>	<i>B</i>	<i>19.1</i>	-	-	-	<i>C</i>	<i>25.1</i>	-	-	-
NB Left-Thru	C	25.7	0.32	0.07	74	C	27.9	0.32	0.07	78
NB Right	D	42.4	0.84	2.23	245	C	21.5	0.52	1.10	165
<i>NB Approach</i>	<i>D</i>	<i>37.6</i>	-	-	-	<i>C</i>	<i>23.4</i>	-	-	-
SB Left	C	32.3	0.28	0.73	51	C	20.7	0.17	0.14	38
SB Thru-Right	C	27.8	0.54	0.38	143	C	20.1	0.35	0.31	116
<i>SB Approach</i>	<i>C</i>	<i>28.9</i>	-	-	-	<i>C</i>	<i>20.2</i>	-	-	-
Intersection Total	C	24.6	-	-	-	C	23.3	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	3.8	-	-	9
EB Thru-Right	-	-	-	-	-	A	3.7	-	-	21
WB Left	A	8.6	0.02	-	3	A	2.4	-	-	0
WB Thru	-	-	-	-	-	-	-	-	-	-
SB Left-Thru	-	-	-	-	-	A	6.7	-	-	32
SB Right	-	-	-	-	-	A	8.3	-	-	20
Intersection Total	-	-	-	-	-	A	4.2	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



Table 2: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.2	0.22		21					
EB Thru						A	2.0			0
EB Thru	-	-	-		-	A	0.1			0
WB Thru	-	-	-		-	A	4.4			32
WB Thru-Right	-	-	-		-	A	3.5			20
NB Left-Thru-Right	D	25.3	0.21		22	A	8.1			28
SB Left-Right	F	82.1	0.20		18	A	8.4			6
Intersection Total	-	-	-			A	3.1			-
US 42 / McElroy Road										
EB Thru	A	5.8	0.55	0.11	154	A	4.4	0.40	0.07	97
EB Right						A	3.1	0.15	0.02	24
<i>EB Approach</i>	A	5.8	-	-	-	A	4.1	-	-	-
WB Left	B	12.5	0.42	1.32	99	A	8.2	0.33	0.95	71
WB Thru	A	6.3	0.59	0.12	182	A	6.4	0.59	0.12	186
<i>WB Approach</i>	A	7.6	-	-	-	A	6.7	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.7	0.75	2.80	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
<i>NB Approach</i>	D	36.4	-	-	-	D	36.5	-	-	-
Intersection Total	B	11.2	-	-	-	B	10.2	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	9.1	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	1.0	-		-					
SB Left-Right	C	16.9	0.25		25					
SB Approach	C	16.9	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.04		3	A	9.3	0.06		5
EB Approach	A	9.3	-		-	A	9.3	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	2.5	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.7	0.02		3	A	9.5	0.15		13
WB Approach	A	8.7	-		-	A	9.5	-		-
SB Left	A	7.3	0.01		0	A	7.3	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	10.5	0.08		8	B	10.6	0.08		8
EB Approach	B	10.5	-		-	B	10.6	-		-
WB Left-Thru-Right	B	10.8	0.05		5	B	13.9	0.28		28
WB Approach	B	10.8	-		-	B	13.9	-		-
NB Left	A	7.7	0.01		-	A	7.7	0.01		-
NB Approach	A	0.9	-		-	A	0.7	-		-
SB Left	A	7.4	0.01		-	A	7.5	0.01		-
SB Approach	A	0.5	-		-	A	0.5	-		-



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.5	0.02	0.05	3	A	5.5	0.02	0.05	3
EB Thru-Right	A	4.9	0.53	0.68	170	A	4.9	0.53	0.68	170
<i>EB Approach</i>	A	4.9	-	-	-	A	4.9	-	-	-
WB Left	A	6.4	0.04	0.12	7	A	6.4	0.04	0.12	7
WB Thru-Right	A	4.4	0.48	0.32	145	A	4.4	0.48	0.32	145
<i>WB Approach</i>	A	4.5	-	-	-	A	4.5	-	-	-
NB Left-Thru-Right	D	42.3	0.46	0.10	102	D	42.3	0.46	0.10	102
<i>NB Approach</i>	D	42.3	-	-	-	D	42.3	-	-	-
SB Left	D	43.8	0.08	0.23	11	D	43.8	0.08	0.23	11
SB Thru-Right	D	39.1	0.12	0.42	21	D	39.1	0.12	0.42	21
<i>SB Approach</i>	D	40.7	-	-	-	D	40.7	-	-	-
Intersection Total	A	7.5	-	-	-	A	7.5	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	8.1	0.02	0.06	4	A	7.7	0.02	0.05	4
EB Thru-Right	B	17.3	0.69	0.77	406	B	16.4	0.67	0.75	393
<i>EB Approach</i>	B	17.2	-	-	-	B	16.2	-	-	-
WB Left	B	10.7	0.31	0.41	39	B	10.1	0.30	0.23	37
WB Thru	A	9.8	0.47	0.73	236	A	9.3	0.46	0.70	228
WB Right	A	6.0	0.01	0.01	3	A	5.7	0.01	0.01	3
<i>WB Approach</i>	A	9.9	-	-	-	A	9.4	-	-	-
NB Left-Thru-Right	D	45.1	0.73	2.74	247	D	45.1	0.73	2.74	247
<i>NB Approach</i>	D	45.1	-	-	-	D	45.1	-	-	-
SB Left-Thru	C	33.1	0.07	0.19	19	C	33.1	0.07	0.19	19
SB Right	C	32.9	0.04	0.09	9	C	32.9	0.04	0.09	9
<i>SB Approach</i>	C	33.1	-	-	-	C	33.1	-	-	-
Intersection Total	B	18.2	-	-	-	B	17.6	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Stewart Road										
EB Left	E	56.4	0.73	1.44	129	D	49.8	0.73	0.41	118
EB Thru	D	35.0	0.80	1.44	469	C	28.9	0.52	0.80	261
EB Right	B	19.1	0.10	0.41	41	C	29.1	0.53	0.79	255
<i>EB Approach</i>	D	36.7	-	-	-	C	31.9	-	-	-
WB Left	E	62.2	0.90	0.79	346	E	58.3	0.90	0.77	344
WB Thru	B	15.2	0.32	0.30	163	C	25.5	0.68	0.44	396
WB Right	B	14.1	0.18	0.50	80	B	16.7	0.19	0.41	82
<i>WB Approach</i>	C	28.9	-	-	-	C	34.4	-	-	-
NB Left-Thru	D	35.5	0.61	0.19	203	D	38.6	0.58	0.18	196
NB Right	D	39.8	0.73	2.44	268	C	24.1	0.50	1.45	218
<i>NB Approach</i>	D	38.0	-	-	-	C	30.0	-	-	-
SB Left	F	102.1	0.94	3.29	230	C	28.6	0.41	0.36	100
SB Thru-Right	D	38.5	0.71	0.76	285	C	29.0	0.57	0.66	248
<i>SB Approach</i>	E	57.7	-	-	-	C	28.9	-	-	-
Intersection Total	D	37.5	-	-	-	C	32.0	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	9.2	-	-	78
EB Thru-Right	-	-	-	-	-	B	11.7	-	-	153
WB Left	A	9.8	0.04	-	3	A	2.8	-	-	0
WB Thru	-	-	-	-	-	C	15.4	-	-	122
SB Left-Thru	-	-	-	-	-	C	18.5	-	-	110
SB Right	-	-	-	-	-	C	18.5	-	-	110
Intersection Total	-	-	-	-	-	B	10.5	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 2: HCS Intersection Capacity Analysis Summary Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.5	0.22		20					
EB Thru	-	-	-		-	A	2.2			0
EB Thru						A	0.1			0
WB Thru	-	-	-		-	A	4.7			33
WB Thru-Right	-	-	-		-	A	3.2			14
NB Left-Thru-Right	F	50.6	0.35		37	C	24.4			108
SB Left-Right	F	252.6	0.45		33	A	6.9			0
Intersection Total	-	-	-		-	A	4.1			-
US 42 / McElroy Road										
EB Thru	A	8.6	0.72	0.22	312	A	6.6	0.61	0.17	242
EB Right						A	2.9	0.11	0.02	22
<i>EB Approach</i>	A	8.6	-	-	-	A	6.1	-	-	-
WB Left	C	21.7	0.46	1.70	128	B	14.5	0.38	1.29	97
WB Thru	A	5.8	0.55	0.13	206	A	5.9	0.55	0.14	209
<i>WB Approach</i>	A	8.5	-	-	-	A	7.3	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	40.3	0.46	2.03	102
NB Thru-Right	D	47.0	0.78	0.19	168	D	47.1	0.78	0.19	168
<i>NB Approach</i>	D	44.3	-	-	-	D	44.4	-	-	-
Intersection Total	B	12.6	-	-	-	B	11.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 2: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.8	-		-					
SB Left-Right	C	17.6	0.33		35					
SB Approach	C	17.6	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.05		5	A	9.9	0.20		18
EB Approach	A	9.3	-		-	A	9.9	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.3	0.18		16
WB Approach	A	8.9	-		-	B	10.3	-		-
SB Left	A	7.3	0.01		0	A	7.7	0.01		0
SB Approach	A	3.7	-		-	A	3.9	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	11.9	0.11		10	B	12.5	0.12		10
EB Approach	B	11.9	-		-	B	12.5	-		-
WB Left-Thru-Right	B	14.7	0.10		8	D	25.2	0.46		62
WB Approach	B	14.7	-		-	D	25.2	-		-
NB Left	A	7.8	0.03		-	A	7.8	0.03		-
NB Approach	A	1.3	-		-	A	1.0	-		-
SB Left	A	7.8	0.01		-	A	8.1	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Yellow highlighted cells indicate a Level-of-Service D



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	4.6	0.02	0.04	3	A	4.6	0.02	0.04	3
EB Thru-Right	A	3.4	0.25	0.20	49	A	3.4	0.25	0.20	49
<i>EB Approach</i>	A	3.4	-	-	-	A	3.4	-	-	-
WB Left	A	3.8	0.04	0.11	7	A	3.8	0.04	0.11	7
WB Thru-Right	A	4.0	0.36	0.17	80	A	4.0	0.36	0.17	80
<i>WB Approach</i>	A	4.0	-	-	-	A	4.0	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	5.8	0.02	0.04	3	A	5.4	0.02	0.04	3
EB Thru-Right	A	8.5	0.34	0.24	124	A	8.1	0.34	0.23	122
<i>EB Approach</i>	A	8.5	-	-	-	A	8.0	-	-	-
WB Left	A	4.6	0.08	0.11	10	A	4.2	0.08	0.05	9
WB Thru	A	7.0	0.37	0.39	128	A	6.5	0.36	0.37	120
WB Right	A	4.7	0.01	0.01	2	A	4.4	0.01	0.01	2
<i>WB Approach</i>	A	6.7	-	-	-	A	6.2	-	-	-
NB Left-Thru-Right	C	31.3	0.36	0.82	74	C	31.3	0.36	0.82	74
<i>NB Approach</i>	C	31.3	-	-	-	C	31.3	-	-	-
SB Left-Thru	C	29.3	0.08	0.17	17	C	29.3	0.08	0.17	17
SB Right	C	29.1	0.06	0.08	8	C	29.1	0.06	0.08	8
<i>SB Approach</i>	C	29.2	-	-	-	C	29.2	-	-	-
Intersection Total	B	10.3	-	-	-	A	9.9	-	-	-



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Stewart Road										
EB Left	D	37.8	0.33	0.23	20	D	35.7	0.44	0.17	48
EB Thru	B	17.2	0.39	0.51	164	C	21.4	0.30	0.33	107
EB Right	B	13.9	0.09	0.27	27	C	21.6	0.31	0.32	104
<i>EB Approach</i>	<i>B</i>	<i>17.9</i>	-	-	-	<i>C</i>	<i>23.6</i>	-	-	-
WB Left	D	38.7	0.82	0.43	187	D	40.7	0.83	0.43	194
WB Thru	B	10.3	0.23	0.14	79	C	20.8	0.51	0.24	217
WB Right	A	9.3	0.07	0.13	20	B	15.5	0.09	0.14	29
<i>WB Approach</i>	<i>B</i>	<i>19.1</i>	-	-	-	<i>C</i>	<i>27.1</i>	-	-	-
NB Left-Thru	C	25.7	0.32	0.07	74	C	28.1	0.32	0.07	78
NB Right	D	42.4	0.84	2.23	245	C	22.3	0.53	1.13	169
<i>NB Approach</i>	<i>D</i>	<i>37.6</i>	-	-	-	<i>C</i>	<i>24.0</i>	-	-	-
SB Left	C	32.3	0.28	0.73	51	C	20.5	0.29	0.25	70
SB Thru-Right	C	27.8	0.54	0.38	143	C	20.1	0.44	0.40	151
<i>SB Approach</i>	<i>C</i>	<i>28.9</i>	-	-	-	<i>C</i>	<i>20.3</i>	-	-	-
Intersection Total	C	24.6	-	-	-	C	24.2	-	-	-
US 42 / US 30 EB Ramps										
WB Left	A	8.6	0.02		3	Similar To Alternative 2				
<i>WB Approach</i>	<i>A</i>	<i>0.3</i>	-		-					

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.2	0.22		21	Similar To Alternative 2				
EB Approach	A	2.6	-		-					
NB Left-Thru-Right	D	25.3	0.21		22					
NB Approach	D	25.3	-		-					
SB Left	F	82.1	0.20		18					
SB Approach	F	82.1	-		-					
US 42 / McElroy Road										
EB Thru	A	5.8	0.55	0.11	154	A	4.4	0.40	0.07	97
EB Right						A	3.1	0.15	0.02	24
EB Approach	A	5.8	-	-	-	A	4.1	-	-	-
WB Left	B	12.5	0.42	1.32	99	A	8.2	0.33	0.95	71
WB Thru	A	6.3	0.59	0.12	182	A	6.4	0.59	0.12	186
WB Approach	A	7.6	-	-	-	A	6.7	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.7	0.75	2.80	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
NB Approach	D	36.4	-	-	-	D	36.5	-	-	-
Intersection Total	B	11.2	-	-	-	B	10.2	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	9.1	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	1.0	-		-					
SB Left-Right	C	16.9	0.25		25					
SB Approach	C	16.9	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.04		3	A	9.3	0.06		5
EB Approach	A	9.3	-		-	A	9.3	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	2.5	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.7	0.02		3	A	9.5	0.15		13
WB Approach	A	8.7	-		-	A	9.5	-		-
SB Left	A	7.3	0.01		0	A	7.3	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	10.5	0.08		8	B	10.6	0.08		8
EB Approach	B	10.5	-		-	B	10.6	-		-
WB Left-Thru-Right	B	10.8	0.05		5	B	13.9	0.28		28
WB Approach	B	10.8	-		-	B	13.9	-		-
NB Left	A	7.7	0.01		-	A	7.7	0.01		-
NB Approach	A	0.9	-		-	A	0.7	-		-
SB Left	A	7.4	0.01		-	A	7.5	0.01		-
SB Approach	A	0.5	-		-	A	0.5	-		-



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.5	0.02	0.05	3	A	5.5	0.02	0.05	3
EB Thru-Right	A	4.9	0.53	0.68	170	A	4.9	0.53	0.68	170
<i>EB Approach</i>	A	4.9	-	-	-	A	4.9	-	-	-
WB Left	A	6.4	0.04	0.12	7	A	6.4	0.04	0.12	7
WB Thru-Right	A	4.4	0.48	0.32	145	A	4.4	0.48	0.32	145
<i>WB Approach</i>	A	4.5	-	-	-	A	4.5	-	-	-
NB Left-Thru-Right	D	42.3	0.46	0.10	102	D	42.3	0.46	0.10	102
<i>NB Approach</i>	D	42.3	-	-	-	D	42.3	-	-	-
SB Left	D	43.8	0.08	0.23	11	D	43.8	0.08	0.23	11
SB Thru-Right	D	39.1	0.12	0.42	21	D	39.1	0.12	0.42	21
<i>SB Approach</i>	D	40.7	-	-	-	D	40.7	-	-	-
Intersection Total	A	7.5	-	-	-	A	7.5	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	8.1	0.02	0.06	4	A	7.7	0.02	0.05	4
EB Thru-Right	B	17.3	0.69	0.77	406	B	16.4	0.67	0.75	393
<i>EB Approach</i>	B	17.2	-	-	-	B	16.2	-	-	-
WB Left	B	10.7	0.31	0.41	39	B	10.1	0.30	0.23	37
WB Thru	A	9.8	0.47	0.73	236	A	9.3	0.46	0.70	228
WB Right	A	6.0	0.01	0.01	3	A	5.7	0.01	0.01	3
<i>WB Approach</i>	A	9.9	-	-	-	A	9.4	-	-	-
NB Left-Thru-Right	D	45.1	0.73	2.74	247	D	45.1	0.73	2.74	247
<i>NB Approach</i>	D	45.1	-	-	-	D	45.1	-	-	-
SB Left-Thru	C	33.1	0.07	0.19	19	C	33.1	0.07	0.19	19
SB Right	C	32.9	0.04	0.09	9	C	32.9	0.04	0.09	9
<i>SB Approach</i>	C	33.1	-	-	-	C	33.1	-	-	-
Intersection Total	B	18.2	-	-	-	B	17.6	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Stewart Road										
EB Left	E	56.4	0.73	1.44	129	D	52.7	0.86	0.87	253
EB Thru	D	35.0	0.80	1.44	469	C	28.0	0.44	0.66	216
EB Right	B	19.1	0.10	0.41	41	C	28.2	0.44	0.65	211
<i>EB Approach</i>	D	36.7	-	-	-	D	35.6	-	-	-
WB Left	E	62.2	0.90	0.79	346	E	61.0	0.90	0.78	352
WB Thru	B	15.2	0.32	0.30	163	C	33.6	0.74	0.45	409
WB Right	B	14.1	0.18	0.50	80	C	22.3	0.25	0.53	106
<i>WB Approach</i>	C	28.9	-	-	-	D	40.7	-	-	-
NB Left-Thru	D	35.5	0.61	0.19	203	D	40.1	0.61	0.19	201
NB Right	D	39.8	0.73	2.44	268	C	24.6	0.51	1.46	220
<i>NB Approach</i>	D	38.0	-	-	-	C	30.9	-	-	-
SB Left	F	102.1	0.94	3.29	230	C	29.1	0.54	0.52	144
SB Thru-Right	D	38.5	0.71	0.76	285	C	31.0	0.67	0.80	302
<i>SB Approach</i>	E	57.7	-	-	-	C	30.4	-	-	-
Intersection Total	D	37.5	-	-	-	D	35.5	-	-	-
US 42 / US 30 EB Ramps										
WB Left	A	9.8	0.04		3	Similar To Alternative 2				
<i>WB Approach</i>	A	0.4	-		-					

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.5	0.22		20	Similar To Alternative 2				
EB Approach	A	1.7	-		-					
NB Left-Thru-Right	F	50.6	0.35		37					
NB Approach	F	50.6	-		-					
SB Left	F	252.6	0.45		33					
SB Approach	F	252.6	-		-					
US 42 / McElroy Road										
EB Thru	A	8.6	0.72	0.22	312	A	6.6	0.61	0.17	242
EB Right						A	2.9	0.11	0.02	22
EB Approach	A	8.6	-	-	-	A	6.1	-	-	-
WB Left	C	21.7	0.46	1.70	128	B	14.5	0.38	1.29	97
WB Thru	A	5.8	0.55	0.13	206	A	5.9	0.55	0.14	209
WB Approach	A	8.5	-	-	-	A	7.3	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	40.3	0.46	2.03	102
NB Thru-Right	D	47.0	0.78	0.19	168	D	47.1	0.78	0.19	168
NB Approach	D	44.3	-	-	-	D	44.4	-	-	-
Intersection Total	B	12.6	-	-	-	B	11.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 3: HCS Intersection Capacity Analysis Summary
Opening Year 2032 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.8	-		-					
SB Left-Right	C	17.6	0.33		35					
SB Approach	C	17.6	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.3	0.05		5	A	9.9	0.20		18
EB Approach	A	9.3	-		-	A	9.9	-		-
NB Left	A	7.5	0.01		0	A	7.5	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.3	0.18		16
WB Approach	A	8.9	-		-	B	10.3	-		-
SB Left	A	7.3	0.01		0	A	7.7	0.01		0
SB Approach	A	3.7	-		-	A	3.9	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	11.9	0.11		10	B	12.5	0.12		10
EB Approach	B	11.9	-		-	B	12.5	-		-
WB Left-Thru-Right	B	14.7	0.10		8	D	25.2	0.46		62
WB Approach	B	14.7	-		-	D	25.2	-		-
NB Left	A	7.8	0.03		-	A	7.8	0.03		-
NB Approach	A	1.3	-		-	A	1.0	-		-
SB Left	A	7.8	0.01		-	A	8.1	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Yellow highlighted cells indicate a Level-of-Service D

As shown in **Tables 1-3**, under the Opening Year 2032 'No-Build' conditions, the southbound approach of the US 42 / US 30 WB Ramps is anticipated to experience failing Levels-of-Service and be over capacity during the AM and PM peak hours and at the northbound approach during the PM peak hour. The southbound left-turning movement at the US 42 / Stewart Road intersection is expected to experience failing Levels-of-Service and be approaching capacity during the PM peak hour. The northbound right-turn lane at the US 42 / Stewart Road intersection is expected to queue beyond the provided storage length during the AM and PM peak hours, while the eastbound and southbound left-turn lanes are expected to exceed the provided storage during the PM peak hour. The westbound and northbound left-turn lanes at the US 42 / McElroy intersections are expected to queue beyond the provided storage length during both peak hours. The eastbound approach of the US 42 / Stewart Road



intersection is anticipated to queue beyond the US 42 / Kroger Driveway / University Hospital Driveway intersection during the PM peak hour. The northbound approach of the US 42 / Kroger Driveway / University Hospital Driveway intersection is anticipated to queue beyond its provided storage during the PM peak hour, but all queueing will occur on private property with no impacts to operations along US 42. There are minor lane use and signal improvements anticipated as part of a private development at US 42 / Stewart Road that were not included in the HCS analysis since it was completed prior to conditional approval of the project.

Under the Opening Year 2032 'Build Alternative 1' & 'Build Alternative 4' conditions, all movements and approaches at the study intersections are anticipated to operate with acceptable Levels-of-Service and have sufficient roadway capacity during the AM and PM peak hours. The northbound right-turn lane at the US 42 / Stewart Road intersection is still expected to queue beyond the provided storage, but the queue length is expected to be reduced. The westbound and northbound left-turn lanes at the US 42 / McElroy intersections are expected to queue beyond the provided storage length during both peak hours.

Under the Opening Year 2032 'Build Alternative 2' and 'Build Alternative 2A' conditions, the US 42 intersections with the US 30 EB and WB ramps are expected to operate with acceptable Levels-of-Service. All other study intersections under the 'Build Alternative 2 and 2A' conditions are expected to operate similar to 'Build Alternatives 1 & 4'. The westbound left-turn lane at the US 42 / McElroy intersection is not expected to queue beyond the provided storage during the AM peak hour.

Design Year 2052 Capacity Analysis

Tables 4-6 summarize the results of the capacity analysis for the study intersections under the Design Year 2052 'No Build' vs. 'Build Alternative 1' & 'Build Alternative 4', 'Build Alternative 2', and 'Build Alternative 2A' traffic conditions during the AM and PM peak hours. See **Attachment B** for the Intersection Capacity Analysis printouts.



**Table 4: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions**

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.2	0.02	0.05	3	A	5.2	0.02	0.05	3
EB Thru-Right	A	3.6	0.29	0.24	60	A	3.6	0.29	0.24	60
<i>EB Approach</i>	A	3.6	-	-	-	A	3.6	-	-	-
WB Left	A	4.2	0.05	0.12	7	A	4.2	0.05	0.12	7
WB Thru-Right	A	4.4	0.42	0.22	100	A	4.4	0.42	0.22	100
<i>WB Approach</i>	A	4.4	-	-	-	A	4.4	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	6.1	0.02	0.04	3	A	5.8	0.02	0.04	3
EB Thru-Right	A	9.5	0.41	0.31	164	A	8.9	0.40	0.30	156
<i>EB Approach</i>	A	9.4	-	-	-	A	8.8	-	-	-
WB Left	A	5.0	0.09	0.11	10	A	4.5	0.08	0.06	9
WB Thru	A	7.8	0.44	0.50	164	A	7.4	0.44	0.49	158
WB Right	A	4.8	0.01	0.01	3	A	4.5	0.01	0.01	2
<i>WB Approach</i>	A	7.5	-	-	-	A	7.0	-	-	-
NB Left-Thru-Right	C	31.9	0.44	1.04	94	C	31.9	0.44	1.04	94
<i>NB Approach</i>	C	31.9	-	-	-	C	31.9	-	-	-
SB Left-Thru	C	29.0	0.08	0.17	17	C	29.0	0.08	0.17	17
SB Right	C	28.9	0.06	0.08	8	C	28.9	0.06	0.08	8
<i>SB Approach</i>	C	29.0	-	-	-	C	29.0	-	-	-
Intersection Total	B	11.2	-	-	-	B	10.7	-	-	-

Note: Red highlighted cells indicate a QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Stewart Road										
EB Left	D	37.8	0.33	0.23	20	D	35.6	0.48	0.20	57
EB Thru	C	22.9	0.57	0.74	240	C	24.4	0.40	0.43	141
EB Right	B	16.6	0.12	0.37	37	C	24.6	0.40	0.42	137
<i>EB Approach</i>	C	22.7	-	-	-	C	26.1	-	-	-
WB Left	D	46.4	0.85	0.53	233	D	45.0	0.85	0.51	230
WB Thru	B	12.0	0.28	0.18	100	C	23.9	0.62	0.29	263
WB Right	B	10.8	0.09	0.17	27	B	16.5	0.12	0.18	36
<i>WB Approach</i>	C	22.7	-	-	-	C	30.4	-	-	-
NB Left-Thru	C	23.9	0.34	0.07	71	C	28.0	0.32	0.07	78
NB Right	D	39.5	0.81	2.37	261	C	21.8	0.56	1.26	189
<i>NB Approach</i>	D	35.4	-	-	-	C	23.5	-	-	-
SB Left	C	34.2	0.40	1.02	71	C	21.2	0.40	0.38	106
SB Thru-Right	C	29.0	0.65	0.54	204	C	21.1	0.54	0.53	197
<i>SB Approach</i>	C	30.3	-	-	-	C	21.1	-	-	-
Intersection Total	C	26.7	-	-	-	C	25.9	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	5.0	0.31	0.09	86
EB Right	-	-	-	-	-	A	5.0	0.31	0.08	83
<i>EB Approach</i>	-	-	-	-	-	A	5.0	-	-	-
WB Left	A	9.0	0.03	-	3	A	6.3	0.06	0.10	10
WB Thru	-	-	-	-	-	A	6.1	0.45	0.22	141
<i>WB Approach</i>	A	0.4	-	-	-	A	6.1	-	-	-
SB Left-Thru	-	-	-	-	-	D	43.8	0.84	0.38	230
SB Right	-	-	-	-	-	C	29.7	0.49	0.30	97
<i>SB Approach</i>	-	-	-	-	-	D	39.0	-	-	-
Intersection Total	-	-	-	-	-	B	12.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Red highlighted cells indicate a QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	A	9.6	0.23		23	A	8.0	0.49	0.32	64
EB Thru	-	-	-		-	A	6.7	0.54	0.28	182
<i>EB Approach</i>	A	2.4	-		-	A	7.1	-	-	-
WB Thru	-	-	-		-	B	12.9	0.52	0.23	232
WB Right	-	-	-		-	B	14.2	0.58	0.58	232
<i>WB Approach</i>	-	-	-		-	B	13.5	-	-	-
NB Left-Thru-Right	D	30.7	0.30		33	D	46.6	0.85	0.38	225
<i>NB Approach</i>	D	30.7	-		-	D	46.6	-	-	-
SB Left	F	138.0	0.31		26					
<i>SB Approach</i>	F	138.0	-		-					
Intersection Total	-	-	-		-	B	13.8	-	-	-
US 42 / McElroy Road										
EB Thru-Right	A	7.3	0.65	0.15	211	A	7.5	0.65	0.15	215
<i>EB Approach</i>	A	7.3	-	-	-	A	7.5	-	-	-
WB Left	C	21.6	0.60	2.31	173	C	22.0	0.61	2.34	175
WB Thru	A	8.1	0.70	0.16	244	A	8.2	0.70	0.16	248
<i>WB Approach</i>	B	10.9	-	-	-	B	11.1	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.7	0.75	2.80	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
<i>NB Approach</i>	D	36.4	-	-	-	D	36.5	-	-	-
Intersection Total	B	12.9	-	-	-	B	13.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	9.1	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.9	-		-					
SB Left-Right	C	18.2	0.31		33					
SB Approach	C	18.2	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.04		3	A	9.4	0.07		5
EB Approach	A	9.4	-		-	A	9.4	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	1.9	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.7	0.02		3	A	9.7	0.18		15
WB Approach	A	8.7	-		-	A	9.7	-		-
SB Left	A	7.3	0.01		0	A	7.4	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	10.7	0.10		8	B	10.7	0.10		8
EB Approach	B	10.7	-		-	B	10.7	-		-
WB Left-Thru-Right	B	11.1	0.06		5	C	15.7	0.36		40
WB Approach	B	11.1	-		-	C	15.7	-		-
NB Left	A	7.7	0.01		-	A	7.7	0.01		-
NB Approach	A	0.8	-		-	A	0.7	-		-
SB Left	A	7.4	0.01		-	A	7.5	0.01		-
SB Approach	A	0.4	-		-	A	0.5	-		-



**Table 4: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)**

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	7.0	0.02	0.06	4	A	7.0	0.02	0.06	4
EB Thru-Right	A	6.0	0.62	0.90	224	A	6.0	0.62	0.90	224
<i>EB Approach</i>	A	6.0	-	-	-	A	6.0	-	-	-
WB Left	A	8.5	0.05	0.15	9	A	8.5	0.05	0.15	9
WB Thru-Right	A	5.3	0.57	0.42	195	A	5.3	0.57	0.42	195
<i>WB Approach</i>	A	5.4	-	-	-	A	5.4	-	-	-
NB Left-Thru-Right	D	42.8	0.51	0.11	114	D	42.8	0.51	0.11	114
<i>NB Approach</i>	D	42.8	-	-	-	D	42.8	-	-	-
SB Left	D	44.5	0.08	0.23	11	D	44.5	0.08	0.23	11
SB Thru-Right	D	39.0	0.12	0.42	21	D	39.0	0.12	0.42	21
<i>SB Approach</i>	D	40.8	-	-	-	D	40.8	-	-	-
Intersection Total	A	8.4	-	-	-	A	8.4	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	9.5	0.03	0.06	4	A	9.1	0.02	0.06	4
EB Thru-Right	C	26.7	0.86	1.16	607	C	24.9	0.84	1.11	584
<i>EB Approach</i>	C	26.5	-	-	-	C	24.7	-	-	-
WB Left	B	18.3	0.46	0.81	77	B	17.3	0.44	0.45	74
WB Thru	B	12.1	0.56	0.93	303	B	11.6	0.56	0.92	299
WB Right	A	6.7	0.01	0.01	4	A	6.3	0.01	0.01	3
<i>WB Approach</i>	B	13.2	-	-	-	B	12.5	-	-	-
NB Left-Thru-Right	D	46.9	0.76	3.11	280	D	46.9	0.76	3.11	280
<i>NB Approach</i>	D	46.9	-	-	-	D	46.9	-	-	-
SB Left-Thru	C	31.7	0.07	0.18	18	C	31.7	0.07	0.18	18
SB Right	C	31.5	0.04	0.19	9	C	31.5	0.04	0.09	9
<i>SB Approach</i>	C	31.6	-	-	-	C	31.6	-	-	-
Intersection Total	C	23.8	-	-	-	C	22.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Stewart Road										
EB Left	E	67.2	0.81	1.93	174	E	57.5	0.88	1.05	303
EB Thru	F	66.1	1.01	2.34	759	C	31.8	0.57	0.84	274
EB Right	B	19.9	0.12	0.49	49	C	32.1	0.57	0.82	267
EB Approach	E	62.6	-	-	-	D	39.5	-	-	-
WB Left	E	71.4	0.94	0.91	402	E	70.2	0.94	0.91	409
WB Thru	B	16.0	0.37	0.35	192	D	50.0	0.91	0.61	553
WB Right	B	14.9	0.23	0.63	101	C	24.9	0.31	0.65	130
WB Approach	C	31.8	-	-	-	D	52.5	-	-	-
NB Left-Thru	F	97.5	1.00	0.30	322	E	67.5	0.86	0.24	260
NB Right	D	43.5	0.78	2.70	297	C	26.4	0.55	1.56	235
NB Approach	E	64.8	-	-	-	D	42.7	-	-	-
SB Left	F	737.1	2.49	10.6	738	D	44.3	0.81	1.04	286
SB Thru-Right	E	72.3	0.98	1.33	499	D	39.5	0.83	1.09	410
SB Approach	F	275.1	-	-	-	D	41.2	-	-	-
Intersection Total	F	92.8	-	-	-	D	44.8	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	B	11.7	0.51	0.28	271
EB Right	-	-	-	-	-	B	11.8	0.51	0.26	268
EB Approach	-	-	-	-	-	B	11.7	-	-	-
WB Left	B	10.6	0.06	-	5	B	19.1	0.15	0.30	30
WB Thru	-	-	-	-	-	B	15.2	0.68	0.62	405
WB Approach	A	0.5	-	-	-	B	15.4	-	-	-
SB Left-Thru	-	-	-	-	-	D	44.3	0.88	0.68	408
SB Right	-	-	-	-	-	C	34.6	0.72	0.86	279
SB Approach	-	-	-	-	-	D	40.2	-	-	-
Intersection Total	-	-	-	-	-	C	20.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, v/c ≥ 1.0, QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions
(Cont.)

Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	B	10.1	0.24		23	A	7.9	0.33	0.21	42
EB Thru	-	-	-		-	B	13.7	0.82	0.74	480
<i>EB Approach</i>	A	1.6	-		-	B	12.9	-	-	-
WB Thru	-	-	-		-	B	12.7	0.57	0.31	311
WB Right	-	-	-		-	B	10.6	0.41	0.48	190
<i>WB Approach</i>	-	-	-		-	B	11.9	-	-	-
NB Left-Thru-Right	F	79.4	0.54		64	D	53.8	0.86	0.43	260
<i>NB Approach</i>	F	79.4	-		-	D	53.8	-	-	-
SB Left	F	633.6	0.88		49					
<i>SB Approach</i>	F	633.6	-		-					
Intersection Total	-	-	-		-	B	15.9	-	-	-
US 42 / McElroy Road										
EB Thru-Right	B	13.3	0.84	0.32	460	A	7.5	0.65	0.15	215
<i>EB Approach</i>	B	13.3	-	-	-	A	7.5	-	-	-
WB Left	E	58.3	0.81	3.46	260	C	22.0	0.61	2.34	215
WB Thru	A	7.2	0.65	0.17	266	A	8.2	0.70	0.16	248
<i>WB Approach</i>	B	15.9	-	-	-	B	11.1	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	36.7	0.75	2.80	140
NB Thru-Right	D	47.0	0.78	0.19	168	D	36.2	0.71	0.13	118
<i>NB Approach</i>	D	44.3	-	-	-	D	36.5	-	-	-
Intersection Total	B	17.5	-	-	-	B	13.0	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



Table 4: HCS Intersection Capacity Analysis Summary Design Year 2052 'No-Build' vs. 'Build Alternative 1' & 'Build Alternative 4' Conditions (Cont.)										
Movement	'No-Build' Condition					'Build Alternative 1' & 'Build Alternative 4' Conditions				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.7	-		-					
SB Left-Right	C	18.4	0.35		38					
SB Approach	C	18.4	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.05		5	B	10.3	0.24		23
EB Approach	A	9.4	-		-	B	10.3	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.8	0.21		21
WB Approach	A	8.9	-		-	B	10.8	-		-
SB Left	A	7.4	0.01		0	A	7.8	0.01		0
SB Approach	A	3.7	-		-	A	2.6	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	12.4	0.12		10	B	12.8	0.14		13
EB Approach	B	12.4	-		-	B	12.8	-		-
WB Left-Thru-Right	C	15.9	0.11		11	E	38.5	0.65		111
WB Approach	C	15.9	-		-	E	38.5	-		-
NB Left	A	7.9	0.04		-	A	7.8	0.04		-
NB Approach	A	1.5	-		-	A	1.2	-		-
SB Left	A	7.9	0.01		-	A	8.3	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Orange highlighted cells indicate a Level-of-Service E



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.2	0.02	0.05	3	A	5.2	0.02	0.05	3
EB Thru-Right	A	3.6	0.29	0.24	60	A	3.6	0.29	0.24	60
<i>EB Approach</i>	A	3.6	-	-	-	A	3.6	-	-	-
WB Left	A	4.2	0.05	0.12	7	A	4.2	0.05	0.12	7
WB Thru-Right	A	4.4	0.42	0.22	100	A	4.4	0.42	0.22	100
<i>WB Approach</i>	A	4.4	-	-	-	A	4.4	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	6.1	0.02	0.04	3	A	5.8	0.02	0.04	3
EB Thru-Right	A	9.5	0.41	0.31	164	A	8.9	0.40	0.30	156
<i>EB Approach</i>	A	9.4	-	-	-	A	8.8	-	-	-
WB Left	A	5.0	0.09	0.11	10	A	4.5	0.08	0.06	9
WB Thru	A	7.8	0.44	0.50	164	A	7.4	0.44	0.49	158
WB Right	A	4.8	0.01	0.01	3	A	4.5	0.01	0.01	2
<i>WB Approach</i>	A	7.5	-	-	-	A	7.0	-	-	-
NB Left-Thru-Right	C	31.9	0.44	1.04	94	C	31.9	0.44	1.04	94
<i>NB Approach</i>	C	31.9	-	-	-	C	31.9	-	-	-
SB Left-Thru	C	29.0	0.08	0.17	17	C	29.0	0.08	0.17	17
SB Right	C	28.9	0.06	0.08	8	C	28.9	0.06	0.08	8
<i>SB Approach</i>	C	29.0	-	-	-	C	29.0	-	-	-
Intersection Total	B	11.2	-	-	-	B	10.7	-	-	-

Note: Red highlighted cells indicate a QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Stewart Road										
EB Left	D	37.8	0.33	0.23	20	D	37.8	0.33	0.07	20
EB Thru	C	22.9	0.57	0.74	240	C	24.8	0.43	0.48	155
EB Right	B	16.6	0.12	0.37	37	C	25.1	0.43	0.46	150
<i>EB Approach</i>	C	22.7	-	-	-	C	25.6	-	-	-
WB Left	D	46.4	0.85	0.53	233	D	44.7	0.85	0.51	229
WB Thru	B	12.0	0.28	0.18	100	C	22.2	0.64	0.32	286
WB Right	B	10.8	0.09	0.17	27	B	14.2	0.09	0.13	27
<i>WB Approach</i>	C	22.7	-	-	-	C	28.7	-	-	-
NB Left-Thru	C	23.9	0.34	0.07	71	C	27.3	0.31	0.07	77
NB Right	D	39.5	0.81	2.37	261	C	21.1	0.55	1.23	185
<i>NB Approach</i>	D	35.4	-	-	-	C	22.8	-	-	-
SB Left	C	34.2	0.40	1.02	71	B	20.0	0.23	0.21	56
SB Thru-Right	C	29.0	0.65	0.54	204	B	19.4	0.40	0.37	140
<i>SB Approach</i>	C	30.3	-	-	-	B	19.6	-	-	-
Intersection Total	C	26.7	-	-	-	C	25.2	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	4.2	-	-	18
EB Thru-Right	-	-	-	-	-	A	4.3	-	-	34
WB Left	B	10.6	0.06	-	5	A	2.6	-	-	0
WB Thru	-	-	-	-	-	A	8.6	-	-	49
SB Left-Thru	-	-	-	-	-	B	11.2	-	-	32
SB Right	-	-	-	-	-	A	4.9	-	-	-
Intersection Total	-	-	-	-	-	A	4.9	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	B	10.1	0.24		23	A	2.1			0
EB Thru	-	-	-		-	A	0.1			0
EB Thru						A	5.4			58
WB Thru	-	-	-		-	A	3.9			33
WB Thru-Right	-	-	-		-	A	10.5			51
NB Left-Thru-Right	F	79.4	0.54		64	B	10.3			7
SB Left-Right	F	633.6	0.88		49	B				-
Intersection Total	-	-	-		-	A	3.7			-
US 42 / McElroy Road										
EB Thru	A	7.3	0.65	0.15	211	A	5.0	0.47	0.09	126
EB Right	A	7.3	-	-	-	A	3.3	0.18	0.02	30
<i>EB Approach</i>	A	7.3	-	-	-	A	4.6	-	-	-
WB Left	C	21.6	0.60	2.31	173	B	11.3	0.44	1.43	107
WB Thru	A	8.1	0.70	0.16	244	A	8.2	0.70	0.16	248
<i>WB Approach</i>	B	10.9	-	-	-	A	8.9	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.7	0.75	2.80	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
<i>NB Approach</i>	D	36.4	-	-	-	D	36.5	-	-	-
Intersection Total	B	12.9	-	-	-	B	10.9	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.7	-		-					
SB Left-Right	C	18.4	0.35		38					
SB Approach	C	18.4	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.05		5	A	9.4	0.07		5
EB Approach	A	9.4	-		-	A	9.4	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	A	9.7	0.18		15
WB Approach	A	8.9	-		-	A	9.7	-		-
SB Left	A	7.4	0.01		0	A	7.4	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	12.4	0.12		10	B	10.7	0.10		8
EB Approach	B	12.4	-		-	B	10.7	-		-
WB Left-Thru-Right	C	15.9	0.11		11	C	15.7	0.36		40
WB Approach	C	15.9	-		-	C	15.7	-		-
NB Left	A	7.9	0.04		-	A	7.7	0.01		-
NB Approach	A	1.5	-		-	A	0.7	-		-
SB Left	A	7.9	0.01		-	A	7.5	0.01		-
SB Approach	A	0.4	-		-	A	0.5	-		-



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	7.0	0.02	0.06	4	A	7.0	0.02	0.06	4
EB Thru-Right	A	6.0	0.62	0.90	224	A	6.0	0.62	0.90	224
<i>EB Approach</i>	A	6.0	-	-	-	A	6.0	-	-	-
WB Left	A	8.5	0.05	0.15	9	A	8.5	0.05	0.15	9
WB Thru-Right	A	5.3	0.57	0.42	195	A	5.3	0.57	0.42	195
<i>WB Approach</i>	A	5.4	-	-	-	A	5.4	-	-	-
NB Left-Thru-Right	D	42.8	0.51	0.11	114	D	42.8	0.51	0.11	114
<i>NB Approach</i>	D	42.8	-	-	-	D	42.8	-	-	-
SB Left	D	44.5	0.08	0.23	11	D	44.5	0.08	0.23	11
SB Thru-Right	D	39.0	0.12	0.42	21	D	39.0	0.12	0.42	21
<i>SB Approach</i>	D	40.8	-	-	-	D	40.8	-	-	-
Intersection Total	A	8.4	-	-	-	A	8.4	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	9.5	0.03	0.06	4	A	9.1	0.02	0.06	4
EB Thru-Right	C	26.7	0.86	1.16	607	C	24.9	0.84	1.11	584
<i>EB Approach</i>	C	26.5	-	-	-	C	24.7	-	-	-
WB Left	B	18.3	0.46	0.81	77	B	17.3	0.44	0.45	74
WB Thru	B	12.1	0.56	0.93	303	B	11.6	0.56	0.92	299
WB Right	A	6.7	0.01	0.01	4	A	6.3	0.01	0.01	3
<i>WB Approach</i>	B	13.2	-	-	-	B	12.5	-	-	-
NB Left-Thru-Right	D	46.9	0.76	3.11	280	D	46.9	0.76	3.11	280
<i>NB Approach</i>	D	46.9	-	-	-	D	46.9	-	-	-
SB Left-Thru	C	31.7	0.07	0.18	18	C	31.7	0.07	0.18	18
SB Right	C	31.5	0.04	0.19	9	C	31.5	0.04	0.09	9
<i>SB Approach</i>	C	31.6	-	-	-	C	31.6	-	-	-
Intersection Total	C	23.8	-	-	-	C	22.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Stewart Road										
EB Left	E	67.2	0.81	1.93	174	D	50.8	0.79	0.49	143
EB Thru	F	66.1	1.01	2.34	759	D	36.0	0.69	1.06	344
EB Right	B	19.9	0.12	0.49	49	D	36.2	0.70	1.03	336
<i>EB Approach</i>	E	62.6	-	-	-	D	38.1	-	-	-
WB Left	E	71.4	0.94	0.91	402	E	69.9	0.94	0.91	408
WB Thru	B	16.0	0.37	0.35	192	C	34.2	0.83	0.57	515
WB Right	B	14.9	0.23	0.63	101	B	18.6	0.23	0.51	102
<i>WB Approach</i>	C	31.8	-	-	-	D	42.7	-	-	-
NB Left-Thru	F	97.5	1.00	0.30	322	D	40.5	0.61	0.19	202
NB Right	D	43.5	0.78	2.70	297	C	24.2	0.51	1.50	224
<i>NB Approach</i>	E	64.8	-	-	-	C	30.7	-	-	-
SB Left	F	737.1	2.49	10.6	738	C	29.1	0.56	0.55	152
SB Thru-Right	E	72.3	0.98	1.33	499	C	30.7	0.66	0.82	307
<i>SB Approach</i>	F	275.1	-	-	-	C	30.2	-	-	-
Intersection Total	F	92.8	-	-	-	D	37.2	-	-	-
US 42 / US 30 EB Ramps										
EB Thru	-	-	-	-	-	A	9.4	-	-	83
EB Right	-	-	-	-	-	B	12.2	-	-	152
WB Left	B	10.6	0.06	-	5	A	3.1	-	-	0
WB Thru	-	-	-	-	-	-	-	-	-	-
SB Left-Thru	-	-	-	-	-	D	33.2	-	-	256
SB Right	-	-	-	-	-	E	35.6	-	-	202
Intersection Total	-	-	-	-	-	C	15.6	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, v/c ≥ 1.0, QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	B	10.1	0.24		23	A	2.3			0
EB Thru	-	-	-		-	A	0.1			0
EB Thru						A	5.6			60
WB Thru	-	-	-		-	A	3.3			11
WB Thru-Right	-	-	-		-	A	36.9			188
NB Left-Thru-Right	F	79.4	0.54		64	E	7.4			0
SB Left-Right	F	633.6	0.88		49	A				
Intersection Total	-	-	-		-	A	5.9			-
US 42 / McElroy Road										
EB Thru	B	13.3	0.84	0.32	460	A	8.8	0.72	0.23	326
EB Right						A	3.0	0.12	0.02	25
<i>EB Approach</i>	<i>B</i>	<i>13.3</i>	-	-	-	<i>A</i>	<i>8.0</i>	-	-	-
WB Left	E	58.3	0.81	3.46	260	C	26.6	0.57	2.32	174
WB Thru	A	7.2	0.65	0.17	266	A	7.3	0.65	0.18	270
<i>WB Approach</i>	<i>B</i>	<i>15.9</i>	-	-	-	<i>B</i>	<i>10.6</i>	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	40.3	0.46	2.03	102
NB Thru-Right	D	47.0	0.78	0.19	168	D	47.1	0.78	0.19	168
<i>NB Approach</i>	<i>D</i>	<i>44.3</i>	-	-	-	<i>D</i>	<i>44.4</i>	-	-	-
Intersection Total	B	17.5	-	-	-	B	12.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 5: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.7	-		-					
SB Left-Right	C	18.4	0.35		38					
SB Approach	C	18.4	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.05		5	B	10.3	0.24		23
EB Approach	A	9.4	-		-	B	10.3	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.8	0.21		21
WB Approach	A	8.9	-		-	B	10.8	-		-
SB Left	A	7.4	0.01		0	A	7.8	0.01		0
SB Approach	A	3.7	-		-	A	2.6	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	12.4	0.12		10	B	12.8	0.14		13
EB Approach	B	12.4	-		-	B	12.8	-		-
WB Left-Thru-Right	C	15.9	0.11		11	E	38.5	0.65		111
WB Approach	C	15.9	-		-	E	38.5	-		-
NB Left	A	7.9	0.04		-	A	7.8	0.04		-
NB Approach	A	1.5	-		-	A	1.2	-		-
SB Left	A	7.9	0.01		-	A	8.3	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Orange highlighted cells indicate a Level-of-Service E



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	5.2	0.02	0.05	3	A	5.2	0.02	0.05	3
EB Thru-Right	A	3.6	0.29	0.24	60	A	3.6	0.29	0.24	60
<i>EB Approach</i>	A	3.6	-	-	-	A	3.6	-	-	-
WB Left	A	4.2	0.05	0.12	7	A	4.2	0.05	0.12	7
WB Thru-Right	A	4.4	0.42	0.22	100	A	4.4	0.42	0.22	100
<i>WB Approach</i>	A	4.4	-	-	-	A	4.4	-	-	-
NB Left-Thru-Right	C	31.1	0.29	0.06	58	C	31.1	0.29	0.06	58
<i>NB Approach</i>	C	31.1	-	-	-	C	31.1	-	-	-
SB Left	C	32.2	0.06	0.18	9	C	32.2	0.06	0.18	9
SB Thru-Right	C	29.8	0.11	0.35	18	C	29.8	0.11	0.35	18
<i>SB Approach</i>	C	30.6	-	-	-	C	30.6	-	-	-
Intersection Total	A	6.6	-	-	-	A	6.6	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	6.1	0.02	0.04	3	A	5.8	0.02	0.04	3
EB Thru-Right	A	9.5	0.41	0.31	164	A	8.9	0.40	0.30	156
<i>EB Approach</i>	A	9.4	-	-	-	A	8.8	-	-	-
WB Left	A	5.0	0.09	0.11	10	A	4.5	0.08	0.06	9
WB Thru	A	7.8	0.44	0.50	164	A	7.4	0.44	0.49	158
WB Right	A	4.8	0.01	0.01	3	A	4.5	0.01	0.01	2
<i>WB Approach</i>	A	7.5	-	-	-	A	7.0	-	-	-
NB Left-Thru-Right	C	31.9	0.44	1.04	94	C	31.9	0.44	1.04	94
<i>NB Approach</i>	C	31.9	-	-	-	C	31.9	-	-	-
SB Left-Thru	C	29.0	0.08	0.17	17	C	29.0	0.08	0.17	17
SB Right	C	28.9	0.06	0.08	8	C	28.9	0.06	0.08	8
<i>SB Approach</i>	C	29.0	-	-	-	C	29.0	-	-	-
Intersection Total	B	11.2	-	-	-	B	10.7	-	-	-

Note: Red highlighted cells indicate a QSR ≥ 1.0



Table 6: HCS Intersection Capacity Analysis Summary Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)											
Movement	'No-Build' Condition					'Build Alternative 2A' Condition					
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	
AM Peak Hour											
US 42 / Stewart Road											
EB Left	D	37.8	0.33	0.23	20	D	35.6	0.48	0.20	57	
EB Thru	C	22.9	0.57	0.74	240	C	24.4	0.40	0.43	141	
EB Right	B	16.6	0.12	0.37	37	C	24.6	0.40	0.42	137	
<i>EB Approach</i>	C	22.7	-	-	-	C	26.1	-	-	-	
WB Left	D	46.4	0.85	0.53	233	D	45.0	0.85	0.51	230	
WB Thru	B	12.0	0.28	0.18	100	C	23.9	0.62	0.29	263	
WB Right	B	10.8	0.09	0.17	27	B	16.5	0.12	0.18	36	
<i>WB Approach</i>	C	22.7	-	-	-	C	30.4	-	-	-	
NB Left-Thru	C	23.9	0.34	0.07	71	C	28.0	0.32	0.07	78	
NB Right	D	39.5	0.81	2.37	261	C	21.8	0.56	1.26	189	
<i>NB Approach</i>	D	35.4	-	-	-	C	23.5	-	-	-	
SB Left	C	34.2	0.40	1.02	71	C	21.2	0.40	0.38	106	
SB Thru-Right	C	29.0	0.65	0.54	204	C	21.1	0.54	0.53	197	
<i>SB Approach</i>	C	30.3	-	-	-	C	21.1	-	-	-	
Intersection Total	C	26.7	-	-	-	C	25.9	-	-	-	
US 42 / US 30 EB Ramps											
WB Left	B	10.6	0.06		5	Similar To Alternative 2					
<i>WB Approach</i>	A	0.5	-		-						

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	B	10.1	0.24		23	Similar To Alternative 2				
EB Approach	A	1.6	-		-					
NB Left-Thru-Right	F	79.4	0.54		64					
NB Approach	F	79.4	-		-					
SB Left	F	633.6	0.88		49					
SB Approach	F	633.6	-		-					
US 42 / McElroy Road										
EB Thru	A	7.3	0.65	0.15	211	A	5.0	0.47	0.09	126
EB Right						A	3.3	0.18	0.02	30
EB Approach	A	7.3	-	-	-	A	4.6	-	-	-
WB Left	C	21.6	0.60	2.31	173	B	11.3	0.44	1.43	107
WB Thru	A	8.1	0.70	0.16	244	A	8.2	0.70	0.16	248
WB Approach	B	10.9	-	-	-	A	8.9	-	-	-
NB Left	D	36.6	0.74	2.79	140	D	36.7	0.75	2.80	140
NB Thru-Right	D	36.2	0.71	0.13	118	D	36.2	0.71	0.13	118
NB Approach	D	36.4	-	-	-	D	36.5	-	-	-
Intersection Total	B	12.9	-	-	-	B	10.9	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
AM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.7	-		-					
SB Left-Right	C	18.4	0.35		38					
SB Approach	C	18.4	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.05		5	A	9.4	0.07		5
EB Approach	A	9.4	-		-	A	9.4	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	A	9.7	0.18		15
WB Approach	A	8.9	-		-	A	9.7	-		-
SB Left	A	7.4	0.01		0	A	7.4	0.01		0
SB Approach	A	3.7	-		-	A	3.7	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	12.4	0.12		10	B	10.7	0.10		8
EB Approach	B	12.4	-		-	B	10.7	-		-
WB Left-Thru-Right	C	15.9	0.11		11	C	15.7	0.36		40
WB Approach	C	15.9	-		-	C	15.7	-		-
NB Left	A	7.9	0.04		-	A	7.7	0.01		-
NB Approach	A	1.5	-		-	A	0.7	-		-
SB Left	A	7.9	0.01		-	A	7.5	0.01		-
SB Approach	A	0.4	-		-	A	0.5	-		-



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / Parry Avenue / Mansfield Storage Center Driveway										
EB Left	A	7.0	0.02	0.06	4	A	7.0	0.02	0.06	4
EB Thru-Right	A	6.0	0.62	0.90	224	A	6.0	0.62	0.90	224
<i>EB Approach</i>	A	6.0	-	-	-	A	6.0	-	-	-
WB Left	A	8.5	0.05	0.15	9	A	8.5	0.05	0.15	9
WB Thru-Right	A	5.3	0.57	0.42	195	A	5.3	0.57	0.42	195
<i>WB Approach</i>	A	5.4	-	-	-	A	5.4	-	-	-
NB Left-Thru-Right	D	42.8	0.51	0.11	114	D	42.8	0.51	0.11	114
<i>NB Approach</i>	D	42.8	-	-	-	D	42.8	-	-	-
SB Left	D	44.5	0.08	0.23	11	D	44.5	0.08	0.23	11
SB Thru-Right	D	39.0	0.12	0.42	21	D	39.0	0.12	0.42	21
<i>SB Approach</i>	D	40.8	-	-	-	D	40.8	-	-	-
Intersection Total	A	8.4	-	-	-	A	8.4	-	-	-
US 42 / Kroger Driveway / University Hospital Driveway										
EB Left	A	9.5	0.03	0.06	4	A	9.1	0.02	0.06	4
EB Thru-Right	C	26.7	0.86	1.16	607	C	24.9	0.84	1.11	584
<i>EB Approach</i>	C	26.5	-	-	-	C	24.7	-	-	-
WB Left	B	18.3	0.46	0.81	77	B	17.3	0.44	0.45	74
WB Thru	B	12.1	0.56	0.93	303	B	11.6	0.56	0.92	299
WB Right	A	6.7	0.01	0.01	4	A	6.3	0.01	0.01	3
<i>WB Approach</i>	B	13.2	-	-	-	B	12.5	-	-	-
NB Left-Thru-Right	D	46.9	0.76	3.11	280	D	46.9	0.76	3.11	280
<i>NB Approach</i>	D	46.9	-	-	-	D	46.9	-	-	-
SB Left-Thru	C	31.7	0.07	0.18	18	C	31.7	0.07	0.18	18
SB Right	C	31.5	0.04	0.19	9	C	31.5	0.04	0.09	9
<i>SB Approach</i>	C	31.6	-	-	-	C	31.6	-	-	-
Intersection Total	C	23.8	-	-	-	C	22.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
Red highlighted cells indicate a QSR ≥ 1.0



Table 6: HCS Intersection Capacity Analysis Summary Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)											
Movement	'No-Build' Condition					'Build Alternative 2A' Condition					
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	
PM Peak Hour											
US 42 / Stewart Road											
EB Left	E	67.2	0.81	1.93	174	E	57.5	0.88	1.05	303	
EB Thru	F	66.1	1.01	2.34	759	C	31.8	0.57	0.84	274	
EB Right	B	19.9	0.12	0.49	49	C	32.1	0.57	0.82	267	
<i>EB Approach</i>	E	62.6	-	-	-	D	39.5	-	-	-	
WB Left	E	71.4	0.94	0.91	402	E	70.2	0.94	0.91	409	
WB Thru	B	16.0	0.37	0.35	192	D	50.0	0.91	0.61	553	
WB Right	B	14.9	0.23	0.63	101	C	24.9	0.31	0.65	130	
<i>WB Approach</i>	C	31.8	-	-	-	D	52.5	-	-	-	
NB Left-Thru	F	97.5	1.00	0.30	322	E	67.5	0.86	0.24	260	
NB Right	D	43.5	0.78	2.70	297	C	26.4	0.55	1.56	235	
<i>NB Approach</i>	E	64.8	-	-	-	D	42.7	-	-	-	
SB Left	F	737.1	2.49	10.6	738	D	44.3	0.81	1.04	286	
SB Thru-Right	E	72.3	0.98	1.33	499	D	39.5	0.83	1.09	410	
<i>SB Approach</i>	F	275.1	-	-	-	D	41.2	-	-	-	
Intersection Total	F	92.8	-	-	-	D	44.8	-	-	-	
US 42 / US 30 EB Ramps											
WB Left	B	10.6	0.06		5	Similar To Alternative 2					
<i>WB Approach</i>	A	0.5	-		-						

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E, v/c ≥ 0.93
 Red highlighted cells indicate a Level-of-Service F, v/c ≥ 1.0, QSR ≥ 1.0



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 42 / US 30 WB Ramps										
EB Left	B	10.1	0.24		23	Similar To Alternative 2				
EB Approach	A	1.6	-		-					
NB Left-Thru-Right	F	79.4	0.54		64					
NB Approach	F	79.4	-		-					
SB Left	F	633.6	0.88		49					
SB Approach	F	633.6	-		-					
US 42 / McElroy Road										
EB Thru	B	13.3	0.84	0.32	460	A	8.8	0.72	0.23	326
EB Right						A	3.0	0.12	0.02	25
EB Approach	B	13.3	-	-	-	A	8.0	-	-	-
WB Left	E	58.3	0.81	3.46	260	C	26.6	0.57	2.32	174
WB Thru	A	7.2	0.65	0.17	266	A	7.3	0.65	0.18	270
WB Approach	B	15.9	-	-	-	B	10.6	-	-	-
NB Left	D	40.3	0.46	2.03	102	D	40.3	0.46	2.03	102
NB Thru-Right	D	47.0	0.78	0.19	168	D	47.1	0.78	0.19	168
NB Approach	D	44.3	-	-	-	D	44.4	-	-	-
Intersection Total	B	17.5	-	-	-	B	12.7	-	-	-

Note: Yellow highlighted cells indicate a Level-of-Service D
 Orange highlighted cells indicate a Level-of-Service E
 Red highlighted cells indicate a Level-of-Service F, QSR ≥ 1.0



**Table 6: HCS Intersection Capacity Analysis Summary
Design Year 2052 'No-Build' vs. 'Build Alternative 2A' Conditions (Cont.)**

Movement	'No-Build' Condition					'Build Alternative 2A' Condition				
	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)	LOS	Delay (sec)	V/C Ratio	QSR	95 th % Queue (feet)
PM Peak Hour										
US 30 WB Ramps / Beal Road										
EB Left	A	8.9	0.01		0	Intersection Removed In All 'Build' Alternatives				
EB Approach	A	0.7	-		-					
SB Left-Right	C	18.4	0.35		38					
SB Approach	C	18.4	-		-					
Beal Road / Rayfield Drive										
EB Left-Right	A	9.4	0.05		5	B	10.3	0.24		23
EB Approach	A	9.4	-		-	B	10.3	-		-
NB Left	A	7.5	0.01		0	A	7.6	0.01		0
NB Approach	A	0.6	-		-	A	3.8	-		-
Rayfield Drive / Expressview Drive										
WB Left-Right	A	8.9	0.03		3	B	10.8	0.21		21
WB Approach	A	8.9	-		-	B	10.8	-		-
SB Left	A	7.4	0.01		0	A	7.8	0.01		0
SB Approach	A	3.7	-		-	A	2.6	-		-
Stewart Road / Expressview Drive / Yale Avenue										
EB Left-Thru-Right	B	12.4	0.12		10	B	12.8	0.14		13
EB Approach	B	12.4	-		-	B	12.8	-		-
WB Left-Thru-Right	C	15.9	0.11		11	E	38.5	0.65		111
WB Approach	C	15.9	-		-	E	38.5	-		-
NB Left	A	7.9	0.04		-	A	7.8	0.04		-
NB Approach	A	1.5	-		-	A	1.2	-		-
SB Left	A	7.9	0.01		-	A	8.3	0.01		-
SB Approach	A	0.4	-		-	A	0.4	-		-

Note: Orange highlighted cells indicate a Level-of-Service E

As shown in **Tables 4-6**, under the Design Year 2052 'No-Build' conditions, the northbound and southbound approaches of the US 42 / US 30 WB Ramps are anticipated to experience failing Levels-of-Service and be over capacity during the AM and PM peak hours. The eastbound thru, northbound left-thru, southbound left, southbound approach, and overall intersection at the US 42 / Stewart Road intersection are expected to experience failing Levels-of-Service during the PM peak hour. The eastbound thru, northbound left-thru, and southbound left turning movements are expected to be over capacity while the westbound left and southbound thru-right movements are expected to be approaching capacity. The northbound right-turn lane and southbound left-turn lane at the US 42 / Stewart Road intersection are expected to queue beyond the provided storage length during the AM and PM peak hours, while the eastbound left-turn lanes are expected to exceed the provided storage



during the PM peak hour. The westbound and northbound left-turn lanes at the US 42 / McElroy intersections are expected to queue beyond the provided storage length during both peak hours. The eastbound approach of the US 42 / Stewart Road intersection is anticipated to queue beyond the US 42 / Kroger Driveway / University Hospital Driveway intersection during the PM peak hour. The southbound approach is expected to queue beyond the Stewart Road / Duke Avenue intersection during the PM peak hour. The eastbound approach of the US 42 / Kroger Driveway / University Hospital Driveway intersection is anticipated to queue beyond the US 42 / Parry Avenue / Mansfield Storage Center Driveway intersection during the PM peak hour. The northbound approach is expected to queue beyond its provided storage during both peak hours, but all queueing will occur on private property with no impacts to operations along US 42.

Under the Design Year 2052 'Build Alternative 1' conditions, all movements and approaches at the study intersections are anticipated to operate with acceptable Levels-of-Service and have sufficient roadway capacity during the AM and PM peak hours. The westbound left-turning movement at the US 42 / Stewart Road intersection is expected to be approaching capacity during the PM peak hour. The northbound right-turn lane at the US 42 / Stewart Road intersection is still expected to queue beyond the provided storage, but the queue length is expected to be reduced. The westbound and northbound left-turn lanes at the US 42 / McElroy intersections are expected to queue beyond the provided storage length during both peak hours.

Under the Design Year 2052 'Build Alternative 2' and 'Build Alternative 2A' conditions, the US 42 intersections with the US 30 EB and WB ramps are expected to operate with acceptable Levels-of-Service. All other study intersections under the 'Build Alternative 2 and 2A' conditions are expected to operate similar to 'Build Alternatives 1 & 4'. The eastbound right-turn lane at the US 42 / Stewart Road intersection is expected to queue beyond the provided storage under the 'Build Alternative 2' condition during the PM peak hour, while the eastbound approach is anticipated to queue beyond the US 42 / Kroger Driveway / University Hospital Driveway intersection during the PM peak hour.

Freeway Capacity Analysis

Freeway capacity analyses were performed for the Opening Year 2032 and Design Year 2052 'No-Build' and 'Build' scenarios to determine the operating conditions that would be expected at each freeway segment of the US 30 / US 42 interchange. The quality of the operating conditions experienced by a freeway segment is measured in terms of Level-of-Service (LOS). Levels-of-Service can range from LOS A to LOS F.

Opening Year 2032 and Design Year 2052 Freeway Capacity Analysis

Tables 5-8 summarizes the results of the freeway capacity analysis for the US 30 / US 42 interchange under the Opening Year 2032 and Design Year 2052 'No-Build' and 'Build' traffic conditions during the AM and PM peak hours. The eastbound and westbound loop exit ramps are proposed to be removed under all 'Build' alternatives except 'Build Alternative 3'. Geometric changes to the US 30 / US 42 interchange are expected to have the same impact on US 30 operations, therefore, all alternatives will be evaluated under the 'Build' alternative for the freeway capacity analysis. See **Attachment C** for the HCS Freeway Capacity Analysis printouts.



Table 7: HCS Freeway Capacity Analysis Facility Summary Opening Year 2032 'No-Build' vs. 'Build' Conditions US 30 Corridor							
Analysis Type	Location	'No-Build' Condition'			'Build' Condition'		
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
EB US 30							
AM Peak Hour							
Basic	EB US 30 MM 12.5	B	0.31	-	B	0.31	-
Diverge	EB US 30 5th Avenue Off Ramp	B	0.31	0.07	B	0.31	0.06
Basic	EB US 30 @ 5th Avenue	A	0.28	-	A	0.28	-
Merge	EB US 30 5th Avenue On Ramp	B	0.29	0.02	B	0.29	0.02
Basic	EB US 30 MM 13.5	B	0.30	-	B	0.30	-
Diverge	EB US 30 WB US 42 Off Ramp	B	0.30	0.06	B	0.30	0.18
Diverge	EB US 30 EB US 42 Off Ramp	B	0.27	0.13			
Basic	EB US 30 MM 14.1	A	0.19	-	A	0.19	-
Merge	EB US 30 US 42 On Ramp	A	0.22	0.05	A	0.22	0.06
Basic	EB US 30 MM 15.0	A	0.22	-	A	0.23	-
Diverge	EB US 30 Laver Road Off Ramp	A	0.23	0.03	A	0.23	0.03
Basic	EB US 30 @ Laver Road	A	0.21	-	A	0.21	-
Merge	EB US 30 Laver Road On Ramp	A	0.22	0.02	A	0.22	0.02
Basic	EB US 30 MM 16.0	A	0.21	-	A	0.21	-
PM Peak Hour							
Basic	EB US 30 MM 12.5	C	0.54	-	C	0.53	-
Diverge	EB US 30 5th Avenue Off Ramp	C	0.55	0.11	C	0.53	0.10
Basic	EB US 30 @ 5th Avenue	C	0.49	-	C	0.48	-
Merge	EB US 30 5th Avenue On Ramp	B	0.51	0.04	B	0.50	0.04
Basic	EB US 30 MM 13.5	C	0.52	-	C	0.52	-
Diverge	EB US 30 WB US 42 Off Ramp	B	0.53	0.16	B	0.52	0.38
Diverge	EB US 30 EB US 42 Off Ramp	B	0.44	0.23			
Basic	EB US 30 MM 14.1	B	0.31	-	B	0.30	-
Merge	EB US 30 US 42 On Ramp	B	0.36	0.10	B	0.35	0.10
Basic	EB US 30 MM 15.0	B	0.37	-	B	0.36	-
Diverge	EB US 30 Laver Road Off Ramp	B	0.37	0.10	B	0.36	0.10
Basic	EB US 30 @ Laver Road	B	0.31	-	B	0.31	-
Merge	EB US 30 Laver Road On Ramp	B	0.32	0.02	B	0.31	0.02
Basic	EB US 30 MM 16.0	B	0.31	-	B	0.30	-



Table 7: HCS Freeway Capacity Analysis Facility Summary Opening Year 2032 'No-Build' vs. 'Build' Conditions US 30 Corridor (Cont.)							
Analysis Type	Location	'No-Build' Condition'			'Build' Condition'		
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
WB US 30							
AM Peak Hour							
Basic	WB US 30 MM 16.0	A	0.24	-	A	0.25	-
Diverge	WB US 30 Laver Road Off Ramp	A	0.24	0.01	A	0.25	0.01
Basic	WB US 30 @ Laver Road	A	0.24	-	A	0.25	-
Merge	WB US 30 Laver Road On Ramp	A	0.27	0.07	A	0.28	0.07
Basic	WB US 30 MM 15.0	A	0.28	-	B	0.30	-
Diverge	WB US 30 EB US 42 Off Ramp	B	0.29	0.02	B	0.30	0.07
Diverge	WB US 30 WB US 42 Off Ramp	B	0.28	0.05			
Basic	WB US 30 MM 14.0	A	0.24	-	A	0.26	-
Merge	WB US 30 US 42 On Ramp	B	0.40	0.34	B	0.41	0.35
Basic	WB US 30 MM 13.5	B	0.42	-	B	0.45	-
Diverge	WB US 30 5th Avenue Off Ramp	B	0.43	0.04	B	0.45	0.04
Basic	WB US 30 @ 5th Avenue	B	0.41	-	B	0.43	-
Merge	WB US 30 5th Avenue On Ramp	B	0.44	0.06	B	0.46	0.06
Basic	WB US 30 MM 12.5	B	0.42	-	B	0.45	-
PM Peak Hour							
Basic	WB US 30 MM 16.0	A	0.25	-	A	0.27	-
Diverge	WB US 30 Laver Road Off Ramp	A	0.26	0.02	B	0.27	0.02
Basic	WB US 30 @ Laver Road	A	0.24	-	A	0.26	-
Merge	WB US 30 Laver Road On Ramp	A	0.27	0.06	A	0.28	0.06
Basic	WB US 30 MM 15.0	A	0.28	-	B	0.30	-
Diverge	WB US 30 EB US 42 Off Ramp	B	0.29	0.02	B	0.30	0.10
Diverge	WB US 30 WB US 42 Off Ramp	B	0.28	0.06			
Basic	WB US 30 MM 14.0	A	0.24	-	A	0.25	-
Merge	WB US 30 US 42 On Ramp	B	0.37	0.30	B	0.38	0.31
Basic	WB US 30 MM 13.5	B	0.39	-	B	0.41	-
Diverge	WB US 30 5th Avenue Off Ramp	B	0.40	0.03	B	0.41	0.03
Basic	WB US 30 @ 5th Avenue	B	0.38	-	B	0.40	-
Merge	WB US 30 5th Avenue On Ramp	B	0.43	0.09	B	0.44	0.09
Basic	WB US 30 MM 12.5	B	0.41	-	B	0.43	-



Table 8: HCS Freeway Capacity Analysis Facility Summary Opening Year 2032 'No-Build' vs. 'Build' Conditions US 30 Corridor Overall				
Facility Overall Results	'No-Build' Condition		'Build' Condition	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
EB US 30				
Facility Length (miles)	3.57	3.57	3.57	3.57
Space Mean Speed (mph)	54.7	54.5	55.9	55.6
Density (pc/mi/ln)	10.6	17.7	10.2	16.8
Density (veh/mi/ln)	8.3	13.8	8.0	13.2
Travel Time (min)	3.9	3.9	3.8	3.9
LOS	A	B	A	B
WB US 30				
Facility Length (miles)	3.74	3.74	3.74	3.74
Space Mean Speed (mph)	55.7	55.7	56.7	56.6
Density (pc/mi/ln)	13.2	13.0	13.7	13.3
Density (veh/mi/ln)	10.4	10.1	10.8	10.4
Travel Time (min)	4.0	4.0	4.0	4.0
LOS	B	B	B	B



Table 9: HCS Freeway Capacity Analysis Facility Summary Design Year 2052 'No-Build' vs. 'Build' Conditions US 30 Corridor							
Analysis Type	Location	'No-Build' Condition'			'Build' Condition'		
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
EB US 30							
AM Peak Hour							
Basic	EB US 30 MM 12.5	B	0.35	-	B	0.36	-
Diverge	EB US 30 5th Avenue Off Ramp	B	0.36	0.08	B	0.36	0.08
Basic	EB US 30 @ 5th Avenue	B	0.32	-	B	0.33	-
Merge	EB US 30 5th Avenue On Ramp	B	0.33	0.03	B	0.34	0.03
Basic	EB US 30 MM 13.5	B	0.34	-	B	0.35	-
Diverge	EB US 30 WB US 42 Off Ramp	B	0.34	0.06	B	0.35	0.19
Diverge	EB US 30 EB US 42 Off Ramp	B	0.31	0.13			
Basic	EB US 30 MM 14.1	A	0.24	-	A	0.24	-
Merge	EB US 30 US 42 On Ramp	A	0.27	0.07	A	0.28	0.08
Basic	EB US 30 MM 15.0	A	0.28	-	B	0.29	-
Diverge	EB US 30 Laver Road Off Ramp	B	0.28	0.05	B	0.29	0.05
Basic	EB US 30 @ Laver Road	A	0.25	-	A	0.27	-
Merge	EB US 30 Laver Road On Ramp	A	0.27	0.03	A	0.28	0.03
Basic	EB US 30 MM 16.0	A	0.26	-	A	0.27	-
PM Peak Hour							
Basic	EB US 30 MM 12.5	C	0.64	-	C	0.62	-
Diverge	EB US 30 5th Avenue Off Ramp	C	0.65	0.13	C	0.62	0.13
Basic	EB US 30 @ 5th Avenue	C	0.58	-	C	0.56	-
Merge	EB US 30 5th Avenue On Ramp	C	0.61	0.04	C	0.58	0.05
Basic	EB US 30 MM 13.5	C	0.62	-	C	0.60	-
Diverge	EB US 30 WB US 42 Off Ramp	C	0.63	0.16	C	0.60	0.38
Diverge	EB US 30 EB US 42 Off Ramp	C	0.54	0.23			
Basic	EB US 30 MM 14.1	B	0.41	-	B	0.39	-
Merge	EB US 30 US 42 On Ramp	B	0.47	0.13	B	0.45	0.13
Basic	EB US 30 MM 15.0	C	0.48	-	B	0.46	-
Diverge	EB US 30 Laver Road Off Ramp	B	0.49	0.14	B	0.46	0.14
Basic	EB US 30 @ Laver Road	B	0.41	-	B	0.39	-
Merge	EB US 30 Laver Road On Ramp	B	0.43	0.02	B	0.40	0.02
Basic	EB US 30 MM 16.0	B	0.41	-	B	0.39	-



Table 9: HCS Freeway Capacity Analysis Facility Summary Design Year 2052 'No-Build' vs. 'Build' Conditions US 30 Corridor (Cont.)							
Analysis Type	Location	'No-Build' Condition'			'Build' Condition'		
		LOS	D/C		LOS	D/C	
			Free-way	Ramp		Free-way	Ramp
WB US 30							
AM Peak Hour							
Basic	WB US 30 MM 16.0	B	0.29	-	B	0.33	-
Diverge	WB US 30 Laver Road Off Ramp	B	0.30	0.01	B	0.33	0.01
Basic	WB US 30 @ Laver Road	B	0.29	-	B	0.32	-
Merge	WB US 30 Laver Road On Ramp	B	0.33	0.09	B	0.36	0.09
Basic	WB US 30 MM 15.0	B	0.35	-	B	0.39	-
Diverge	WB US 30 EB US 42 Off Ramp	B	0.36	0.03	B	0.39	0.11
Diverge	WB US 30 WB US 42 Off Ramp	B	0.34	0.06			
Basic	WB US 30 MM 14.0	B	0.30	-	B	0.33	-
Merge	WB US 30 US 42 On Ramp	B	0.46	0.34	B	0.49	0.37
Basic	WB US 30 MM 13.5	C	0.48	-	C	0.53	-
Diverge	WB US 30 5th Avenue Off Ramp	B	0.49	0.05	C	0.53	0.05
Basic	WB US 30 @ 5th Avenue	B	0.46	-	C	0.51	-
Merge	WB US 30 5th Avenue On Ramp	B	0.51	0.08	C	0.55	0.08
Basic	WB US 30 MM 12.5	C	0.48	-	C	0.53	-
PM Peak Hour							
Basic	WB US 30 MM 16.0	B	0.29	-	B	0.34	-
Diverge	WB US 30 Laver Road Off Ramp	B	0.30	0.03	B	0.34	0.03
Basic	WB US 30 @ Laver Road	A	0.28	-	B	0.32	-
Merge	WB US 30 Laver Road On Ramp	B	0.32	0.08	B	0.36	0.08
Basic	WB US 30 MM 15.0	B	0.33	-	B	0.38	-
Diverge	WB US 30 EB US 42 Off Ramp	B	0.34	0.03	B	0.38	0.13
Diverge	WB US 30 WB US 42 Off Ramp	B	0.33	0.09			
Basic	WB US 30 MM 14.0	A	0.27	-	B	0.32	-
Merge	WB US 30 US 42 On Ramp	B	0.41	0.30	B	0.45	0.32
Basic	WB US 30 MM 13.5	B	0.43	-	C	0.49	-
Diverge	WB US 30 5th Avenue Off Ramp	B	0.44	0.03	B	0.49	0.04
Basic	WB US 30 @ 5th Avenue	B	0.42	-	B	0.47	-
Merge	WB US 30 5th Avenue On Ramp	B	0.47	0.10	C	0.52	0.11
Basic	WB US 30 MM 12.5	B	0.45	-	C	0.51	-

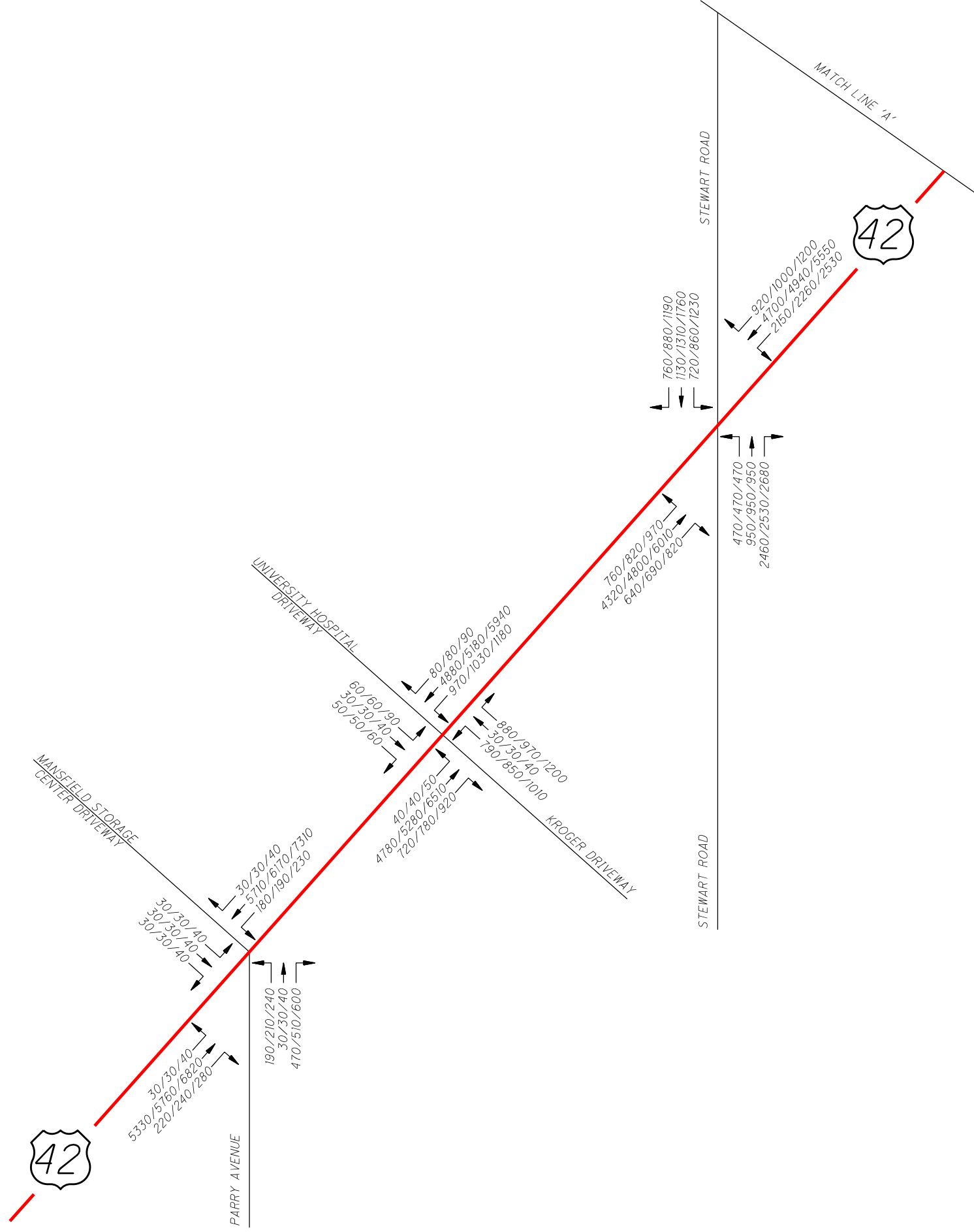


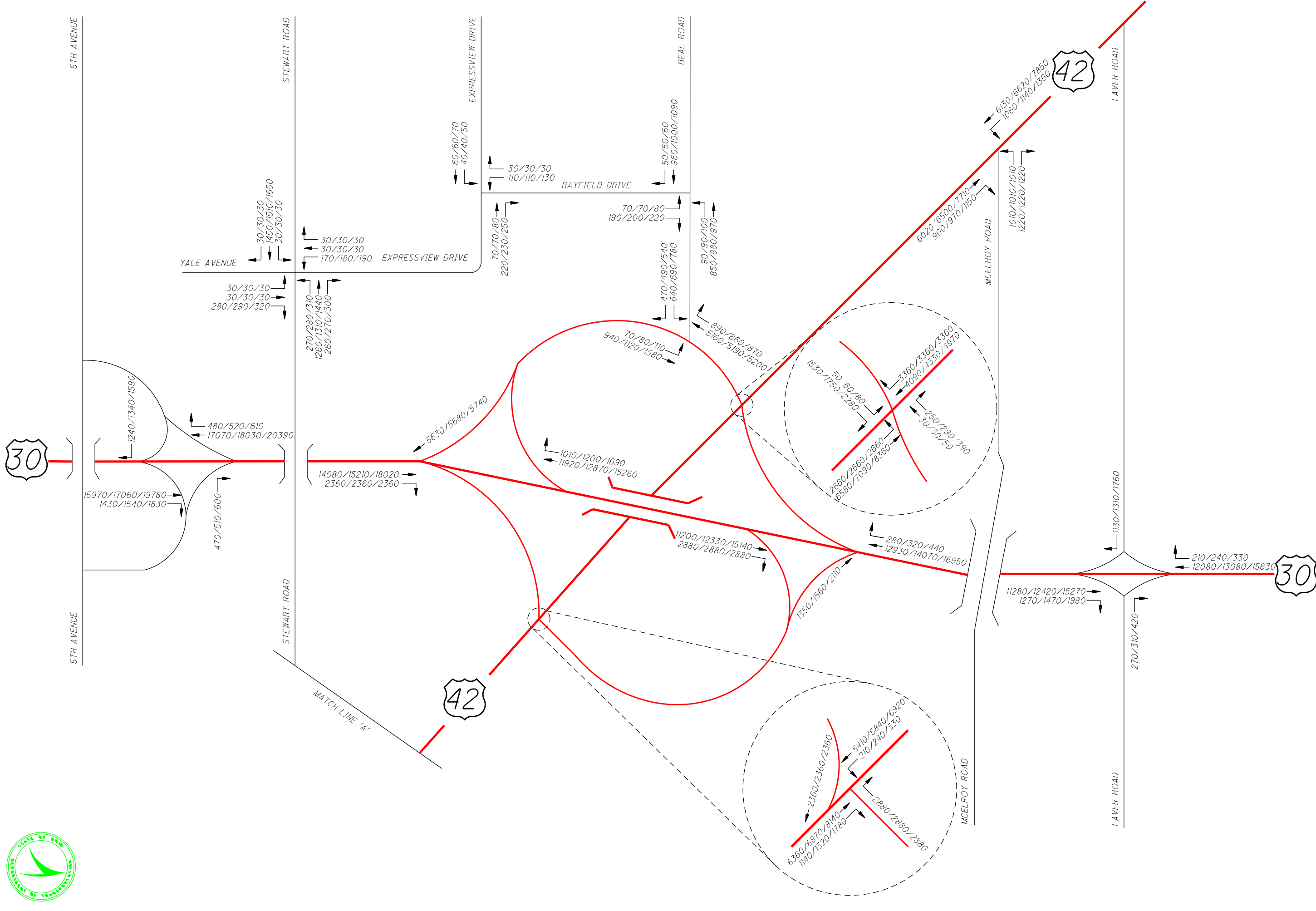
Table 10: HCS Freeway Capacity Analysis Facility Summary				
Design Year 2052 'No-Build' vs. 'Build' Conditions				
US 30 Corridor Overall				
Facility Overall Results	'No-Build' Condition		'Build' Condition	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
EB US 30				
Facility Length (miles)	3.57	3.57	3.57	3.57
Space Mean Speed (mph)	54.7	54.5	55.9	55.6
Density (pc/mi/ln)	12.5	22.0	12.5	20.4
Density (veh/mi/ln)	9.8	17.2	9.8	16.0
Travel Time (min)	3.9	3.9	3.8	3.9
LOS	B	C	B	B
WB US 30				
Facility Length (miles)	3.74	3.74	3.74	3.74
Space Mean Speed (mph)	55.7	55.7	56.6	56.6
Density (pc/mi/ln)	15.7	14.7	17.0	16.3
Density (veh/mi/ln)	12.3	11.5	13.4	12.8
Travel Time (min)	4.0	4.0	4.0	4.0
LOS	B	B	B	B

As shown in **Tables 7-10**, US 30 and the associated ramps are anticipated to operate with acceptable Levels-of-Service and sufficient capacity under the Opening Year 2032 and Design Year 2052 'No-Build' and 'Build' conditions during both peak hours.



**ATTACHMENT A
TRAFFIC PLATES**

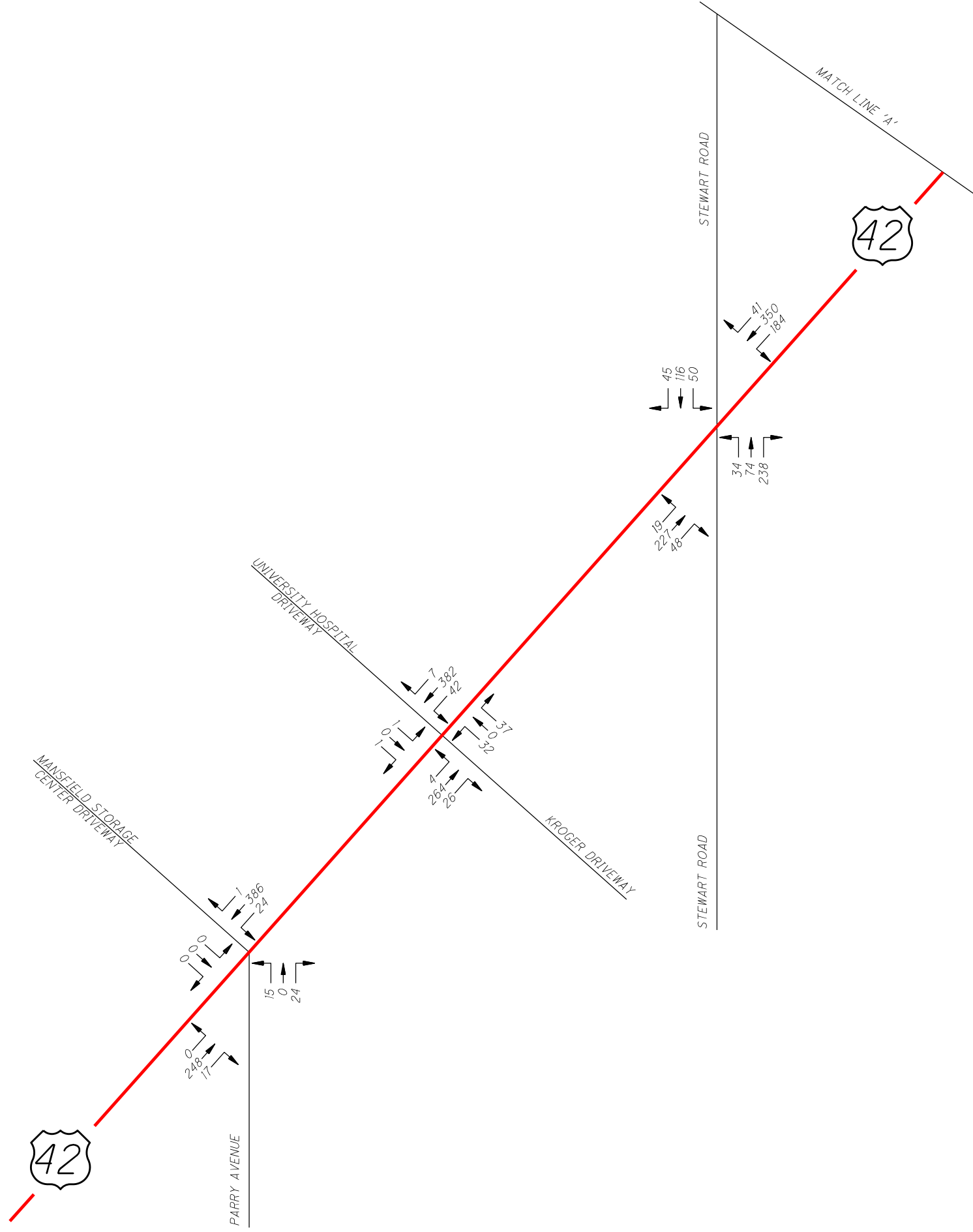


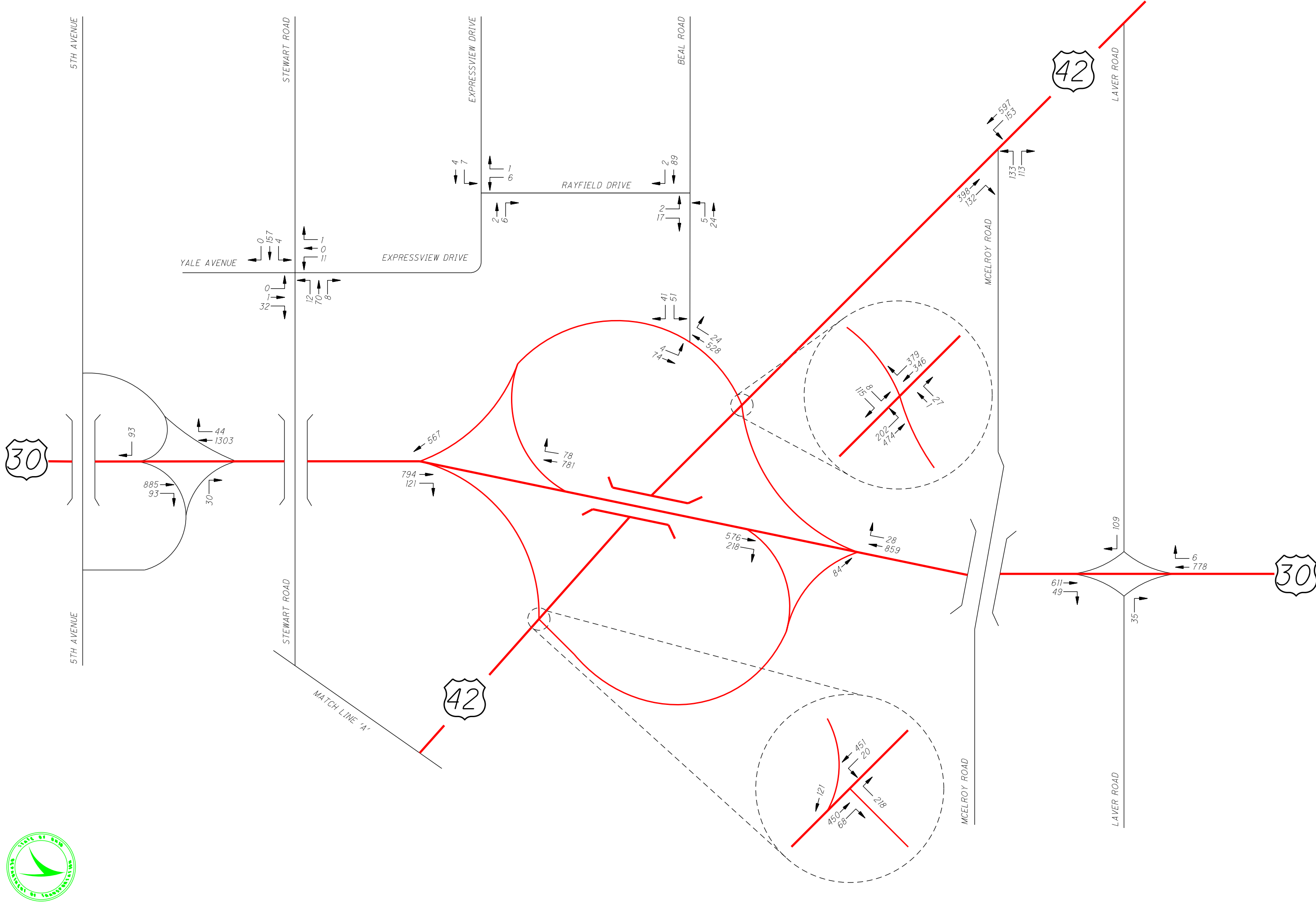


DATE: 07/02/24
JMB
SCALE: NOT TO SCALE

RIC - US-30 + US-42 2024/2032/2052 NO-BUILD ADT
PLATE 2

PID 119315





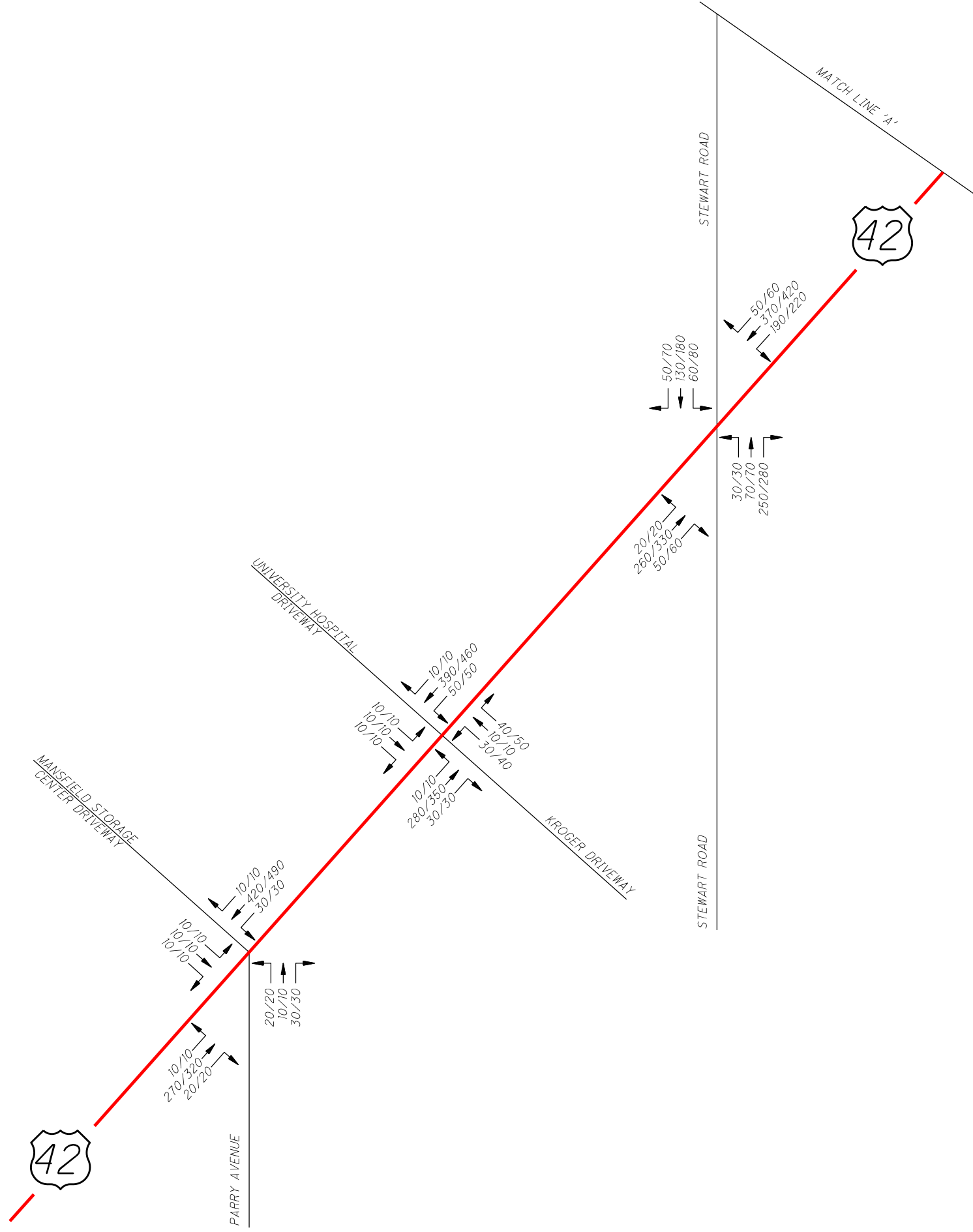
DATE: 07/16/24
JMB
ANALYST

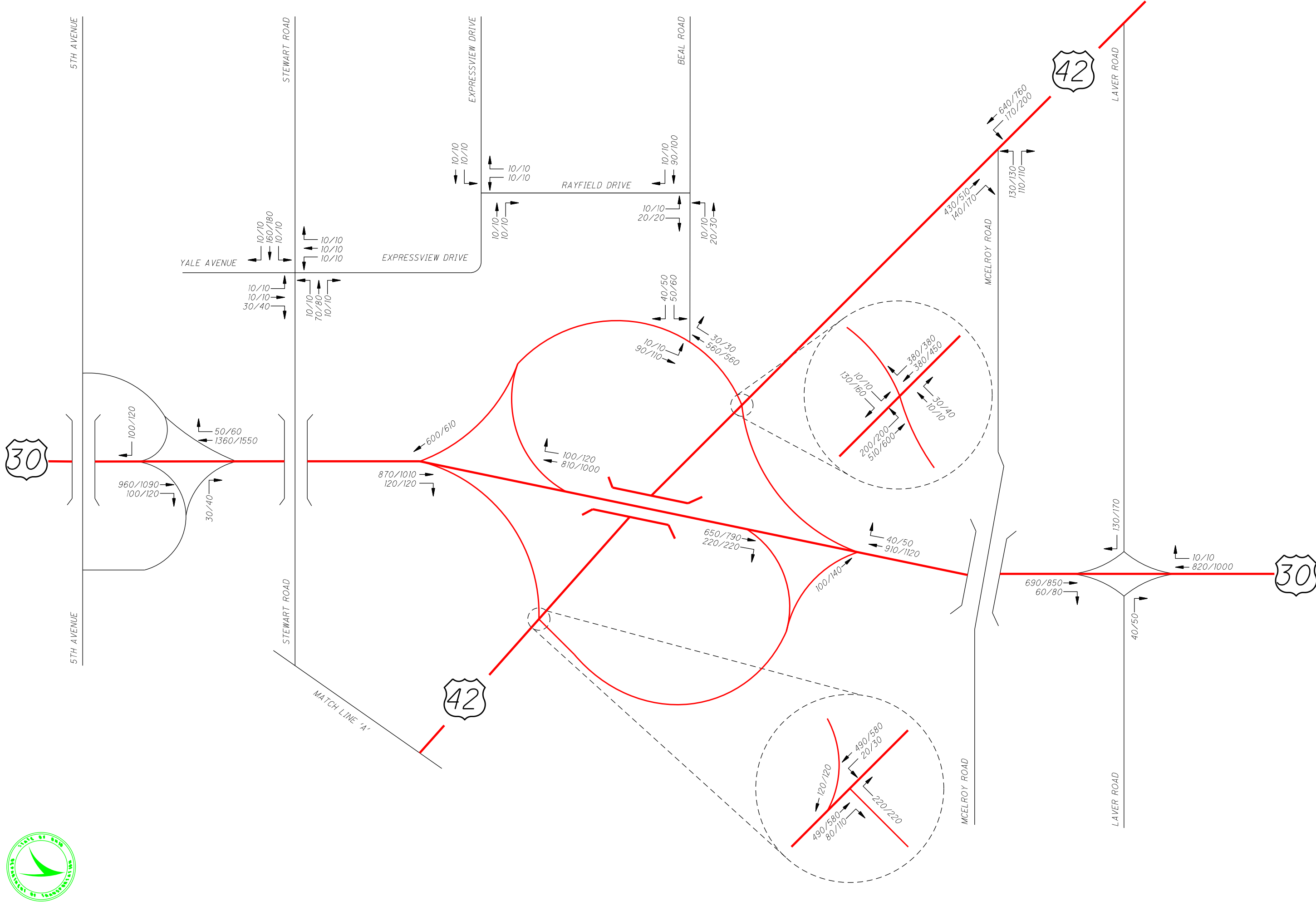
RIC - US-30 + US-42 2024 NO-BUILD AM VOLUMES
PLATE 4

PID 119315

4
18



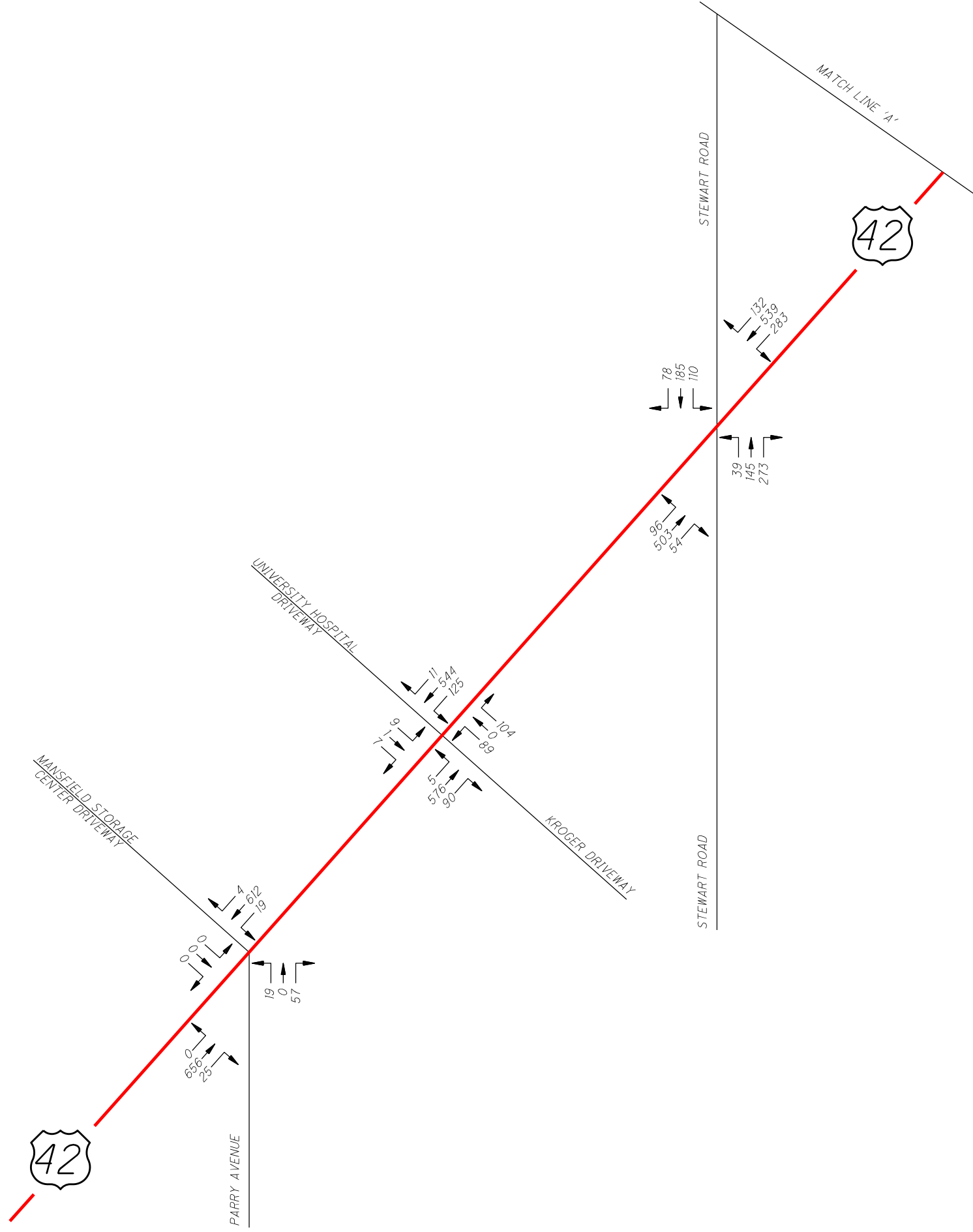


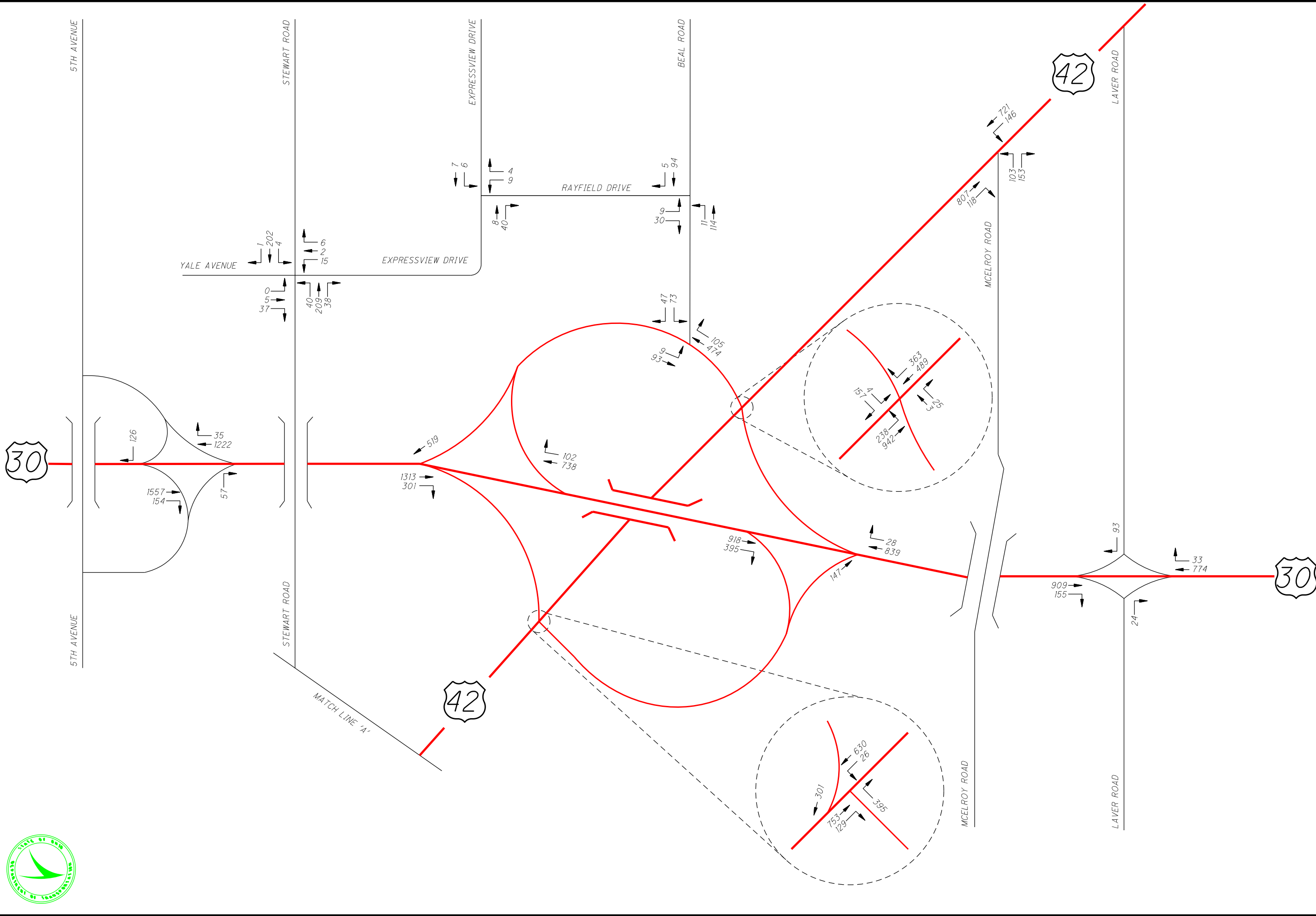


DATE: 07/16/24
JMB

PID 119315
RIC - US-30 + US-42 2032/2052 NO-BUILD AM VOLUMES
PLATE 6

PID 119315

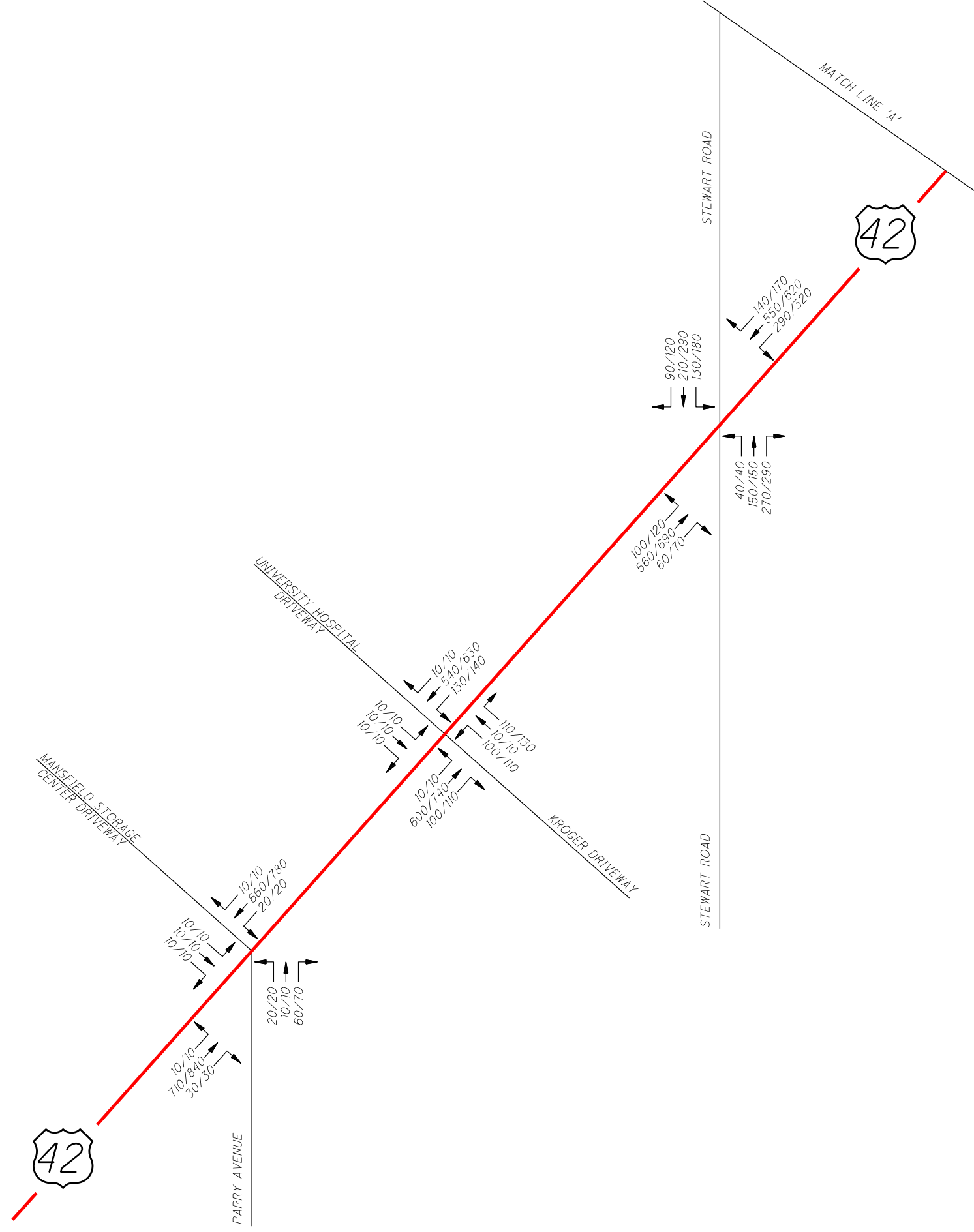


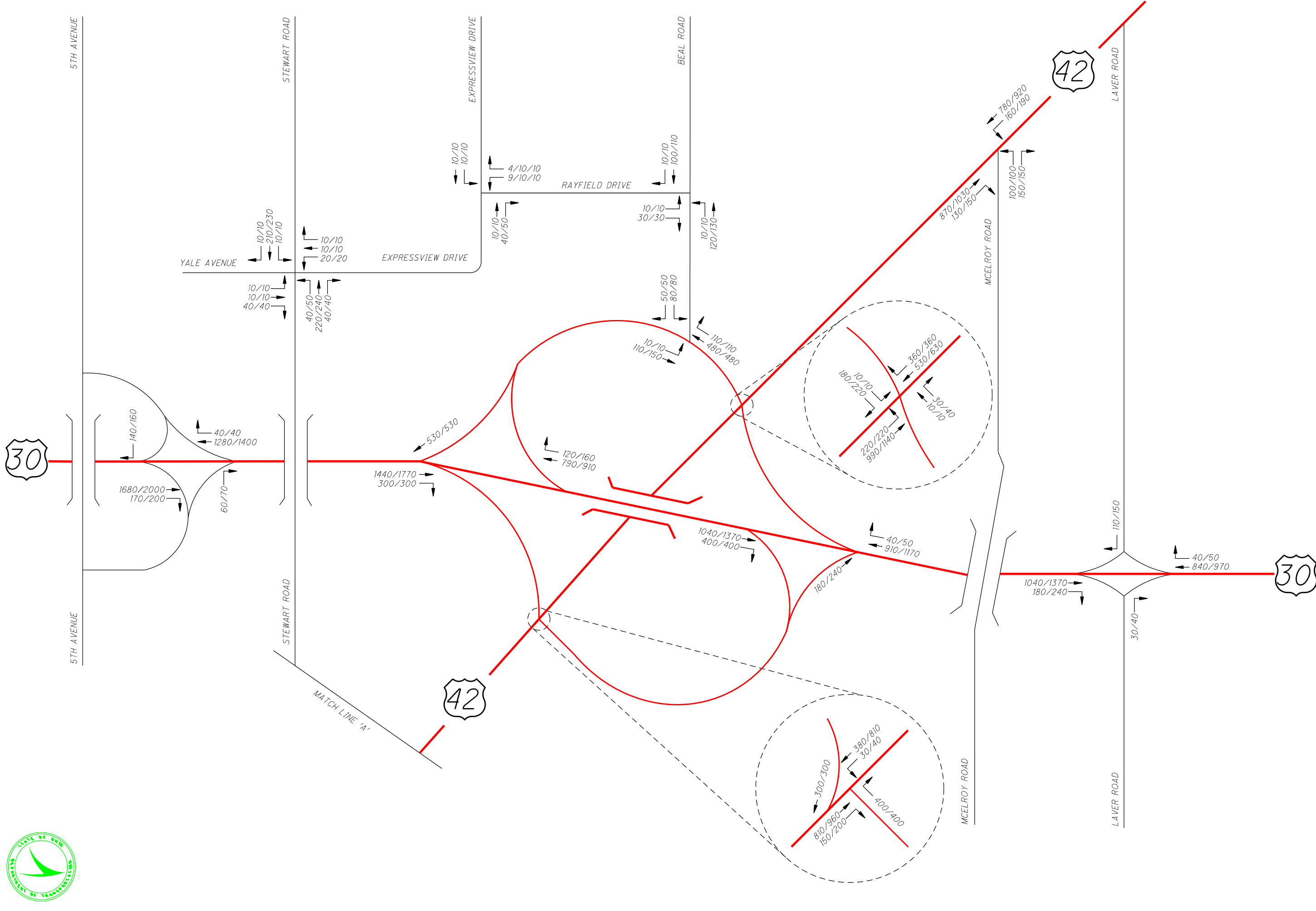


ANALYST: JMB
DATE: 07/16/24
NOT TO SCALE

RIC - US-30 +US-42 2024 NO-BUILD PM VOLUMES
PLATE 8

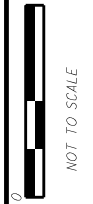
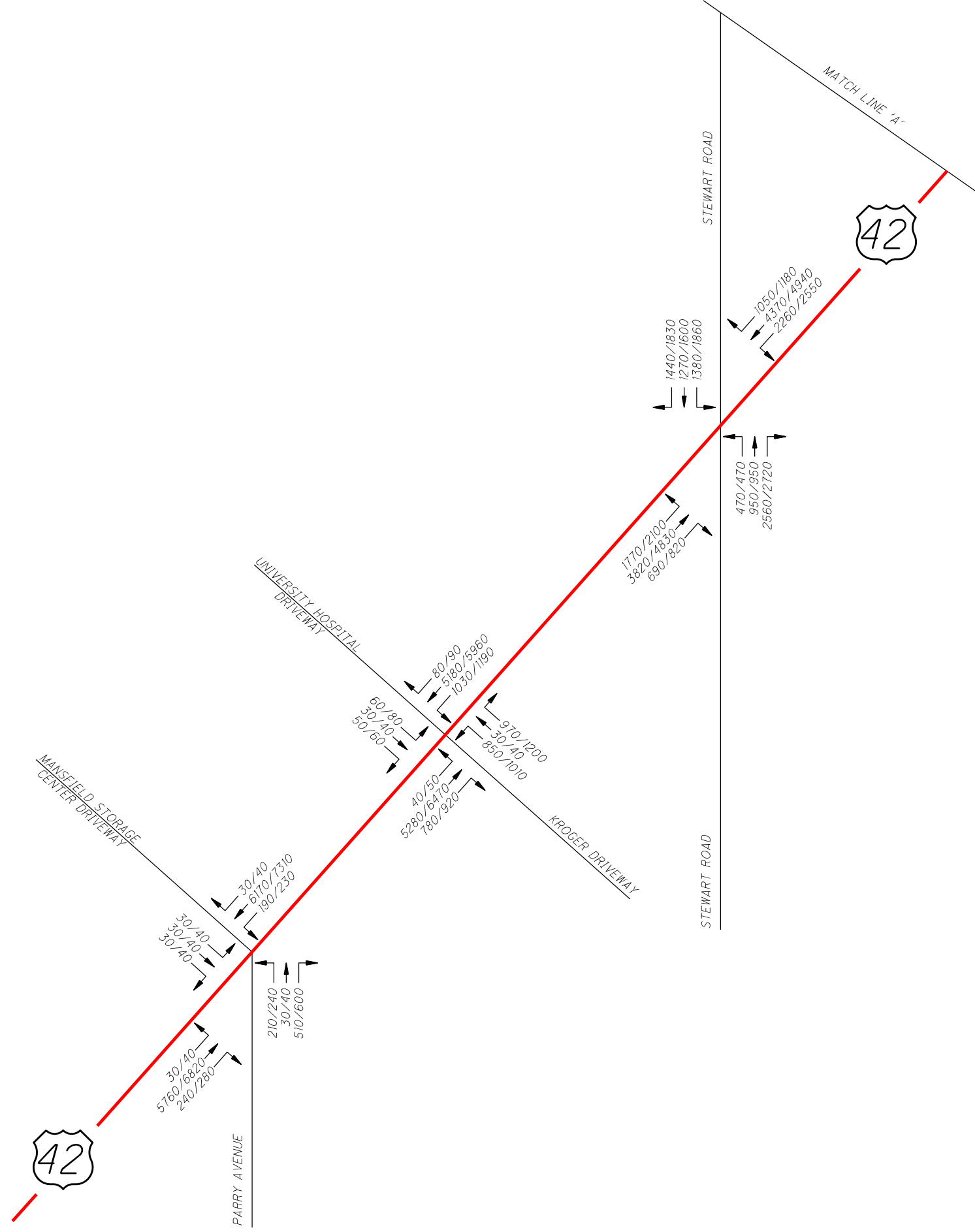
PID 119315





DATE: 07/16/24
JMB
SCALE: NOT TO SCALE

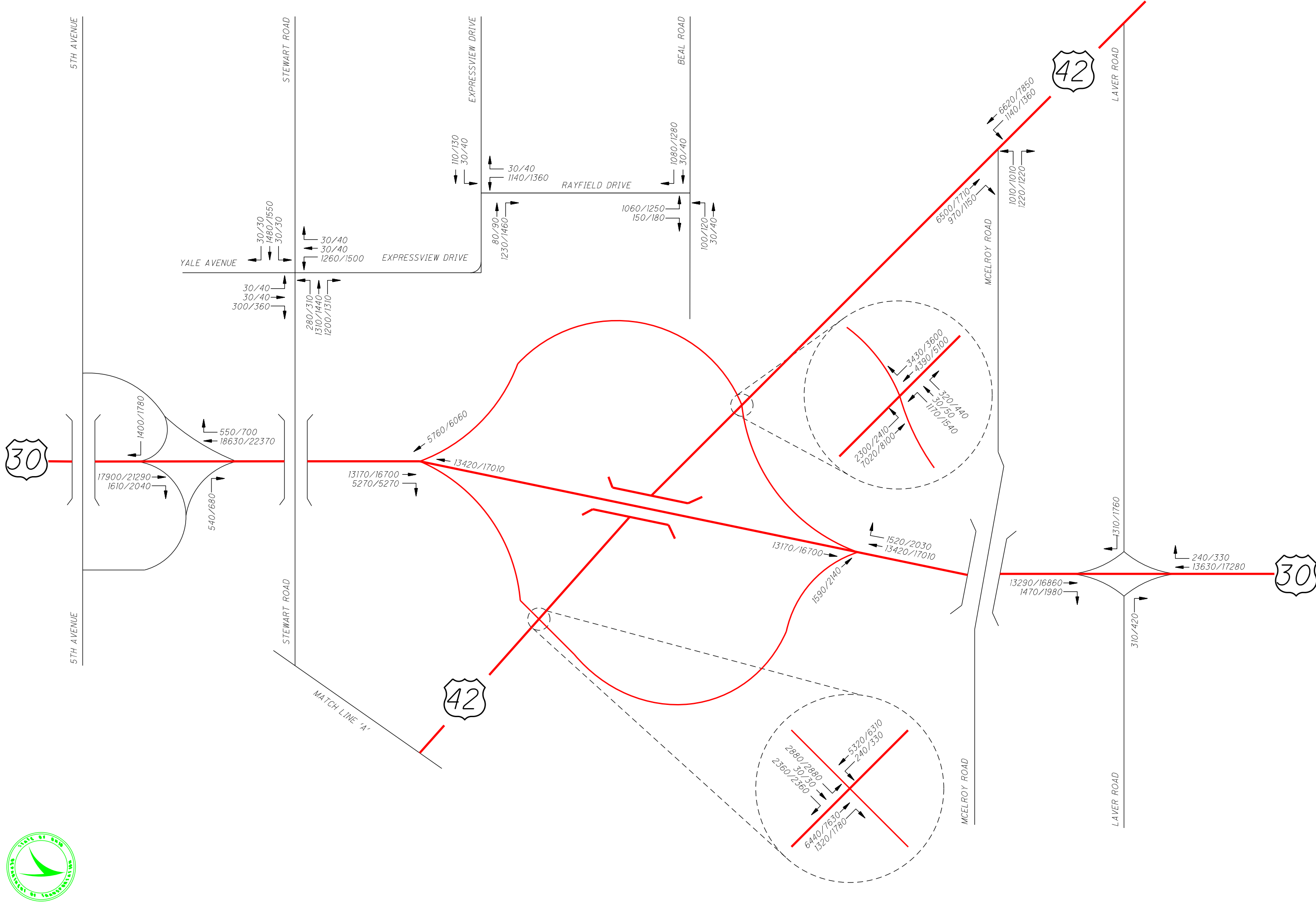
PID 119315
RIC - US-30 + US-42 2032/2052 NO-BUILD PM VOLUMES
PLATE 10



DATE
07/02/24

RIC- US-30 + US-42 2032/2052 BUILD ADT VOLUMES
PLATE 11

PID 119315



5TH AVENUE

5TH AVENUE

STEWART ROAD

STEWART ROAD

EXPRESSVIEW DRIVE

EXPRESSVIEW DRIVE

RAYFIELD DRIVE

BEAL ROAD

YALE AVENUE

MCELROY ROAD

MCELROY ROAD

LAVER ROAD

LAVER ROAD



MATCH LINE 'A'

30/30
1480/1550
30/30

30/40
30/40
300/360

280/310
1310/1440
1200/1310

1400/1780
17900/21290
1610/2040

550/700
18630/22370

540/680

13170/16700
5270/5270

13420/17010

5760/6060

110/130
30/40

30/40
1140/1360

80/90
1230/1460

1060/1250
150/180

1080/1280
30/40

100/120
30/40

6500/7710
970/1150

6620/7850
1140/1560

1010/1010
1220/1220

3430/3600
4390/5100
320/440
30/50
1170/1540
2300/2410
7020/8100

1520/2030
13420/17010

13170/16700

1590/2140

13290/16860
1470/1980

1310/1760

240/330
13630/17280

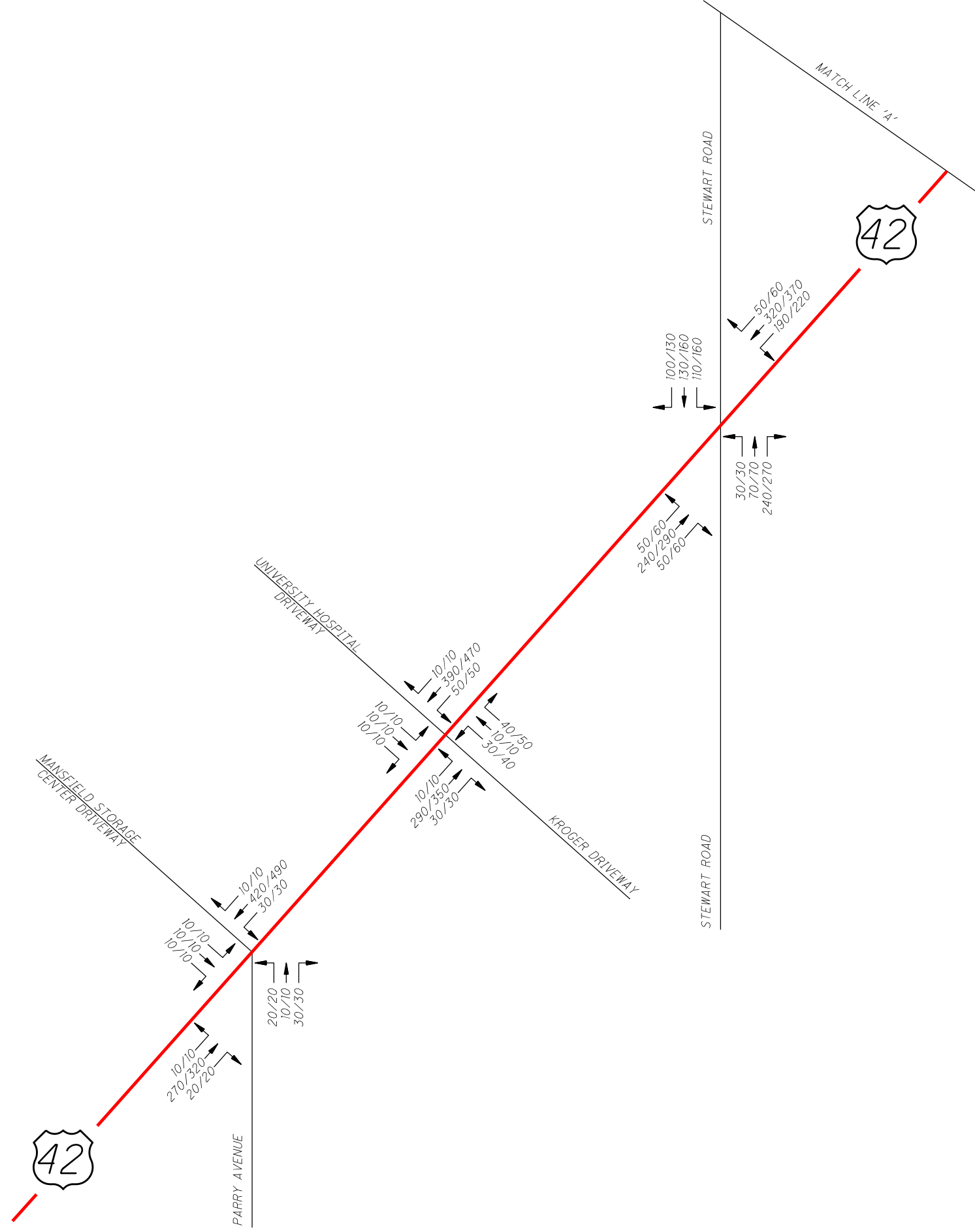
310/420

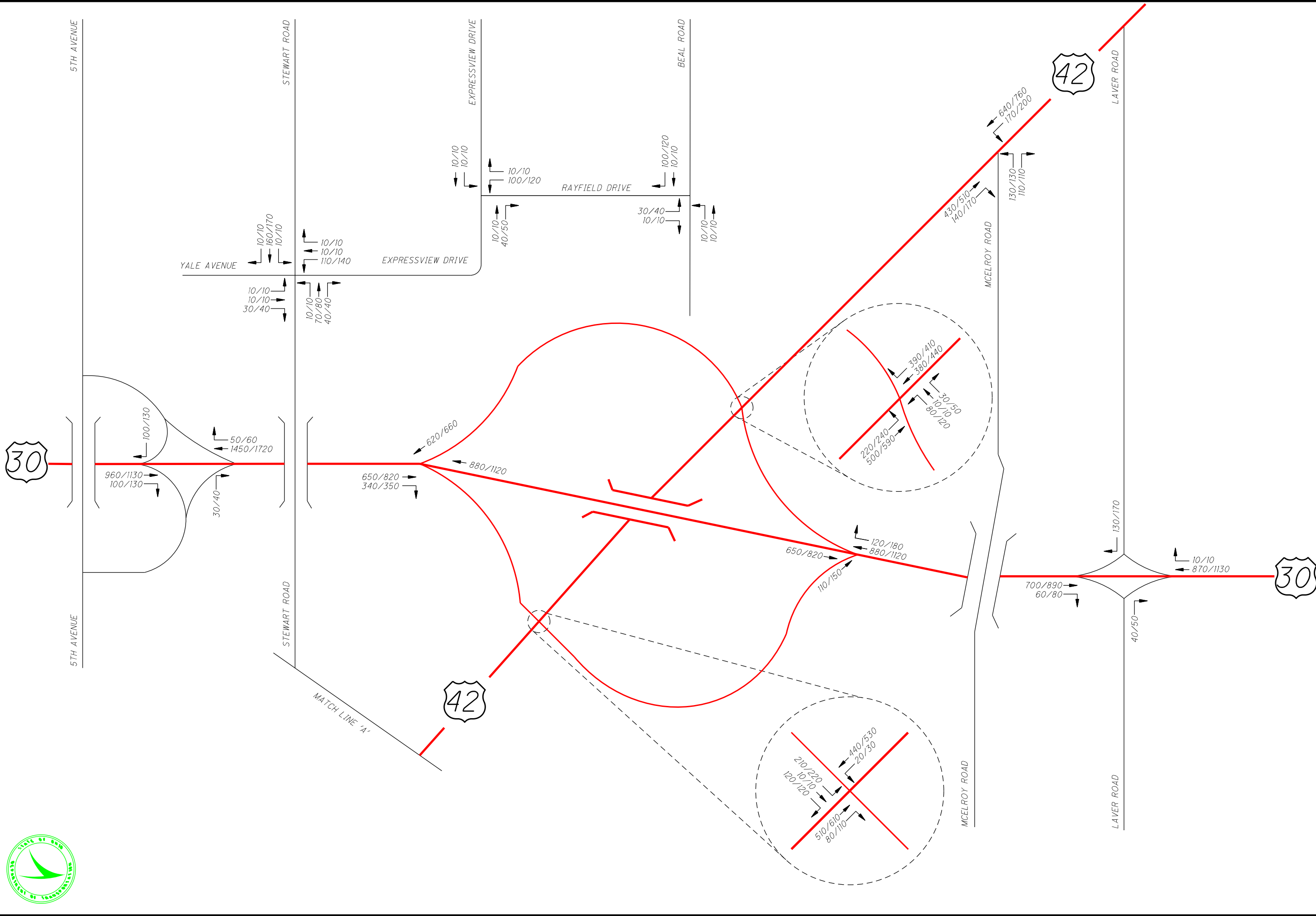
2880/2880
2360/2360
6440/7630
1320/1180
5320/6310
240/330

0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100
NOT TO SCALE

RIC- US-30 + US-42 2032/2052 BUILD ADT VOLUMES
PLATE 12

PID 119315

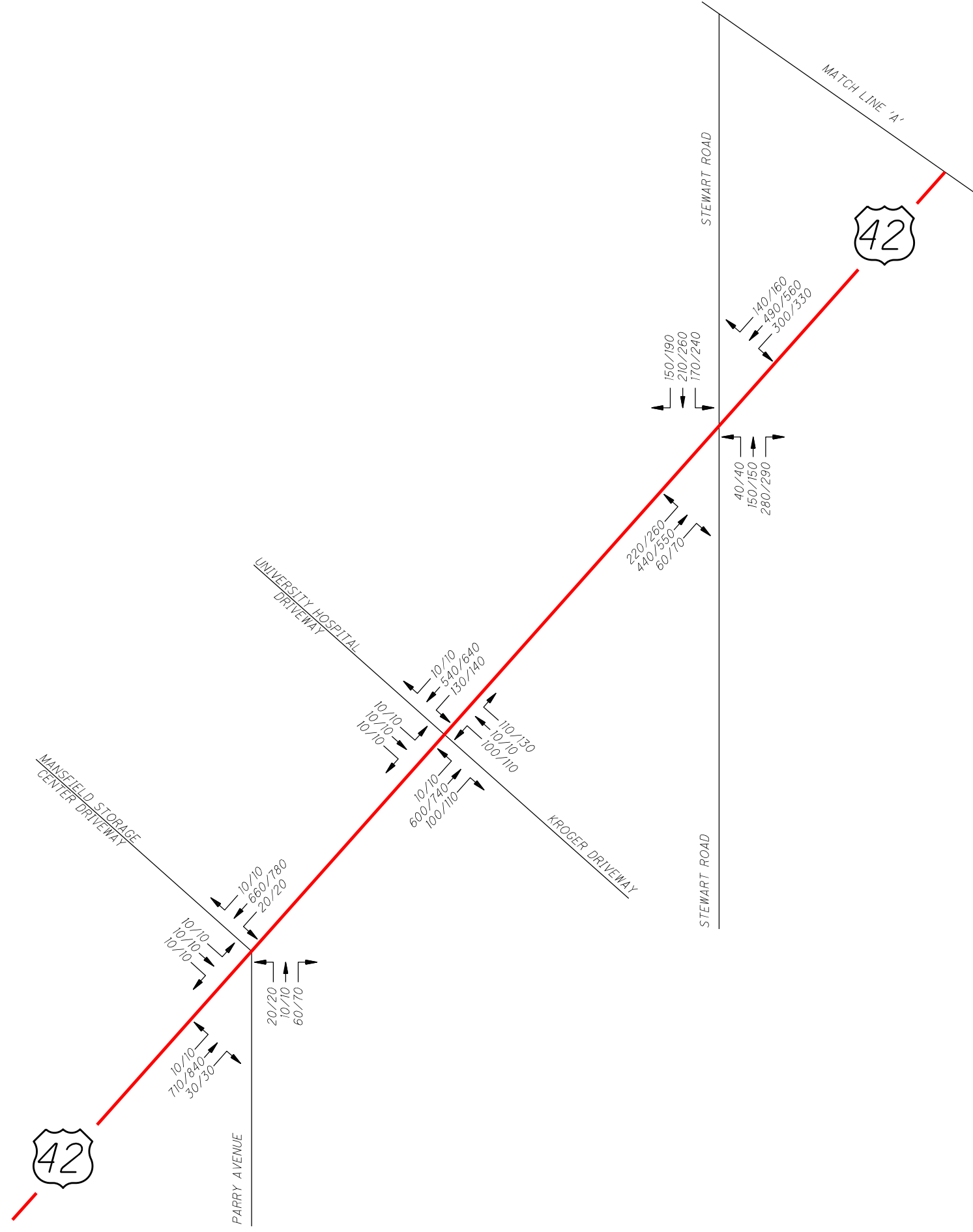




DATE: 07/02/24
JMB
SCALE: NOT TO SCALE

RIC - US-30 + US-42 2032/2052 BUILD AM VOLUMES
PLATE 14

PID 119315
14
18

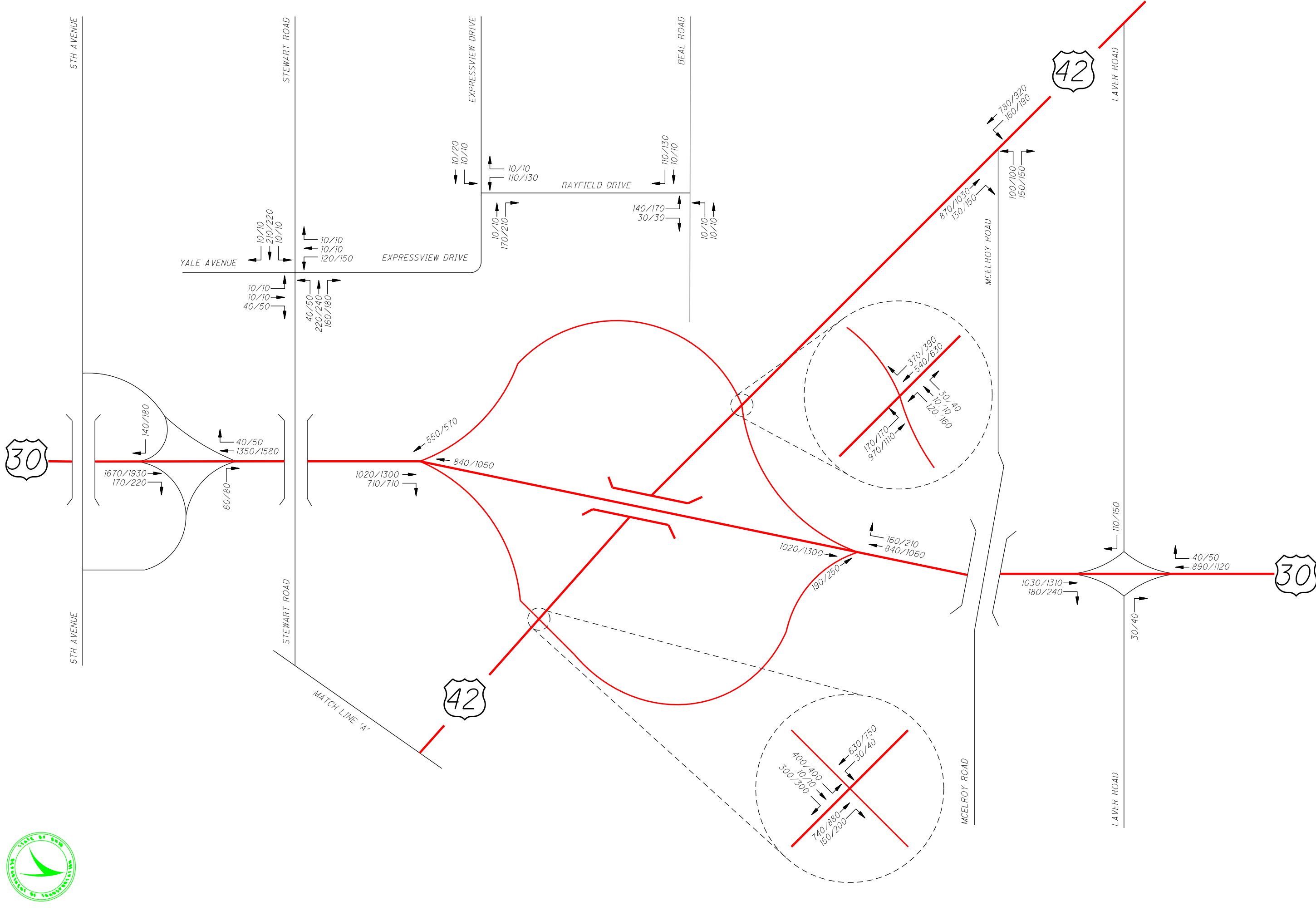


DATE	07/02/24
BY	JMB
APP'D	

NOT TO SCALE

RIC - US-30 + US-42 2032/2052 BUILD PM VOLUMES
PLATE 15

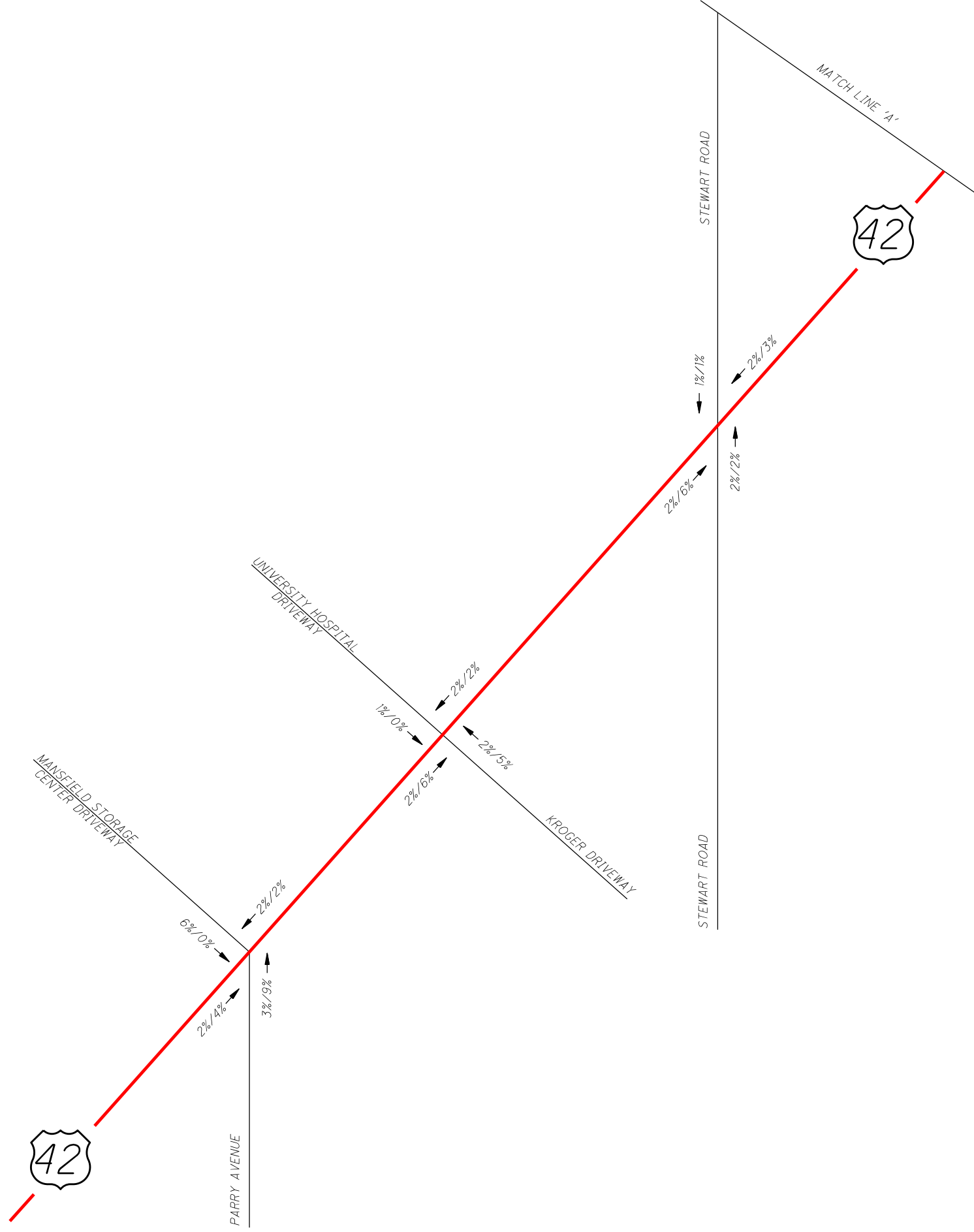
PID 119315

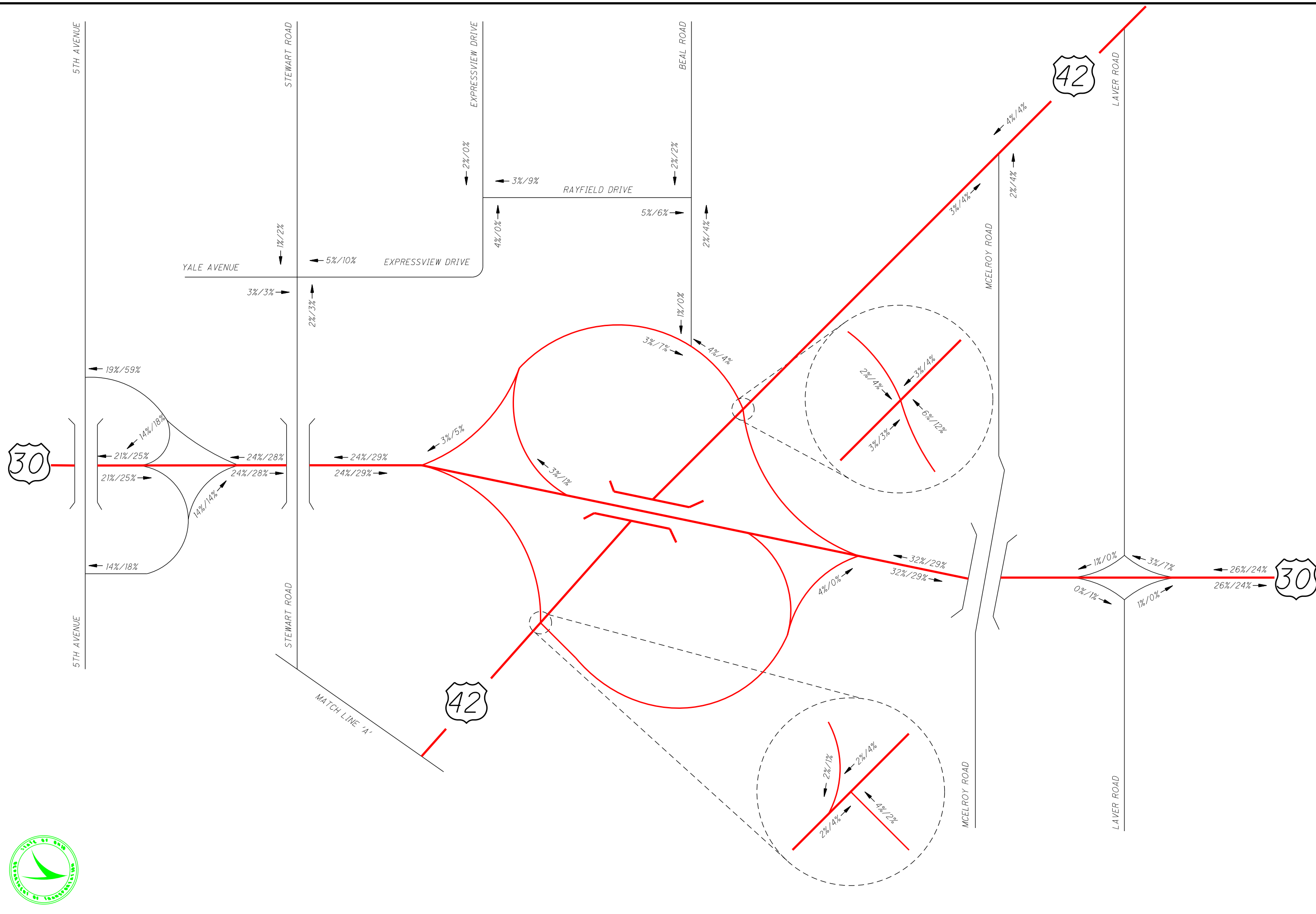


DATE: 07/02/24
JMB
ANALYST

NOT TO SCALE

PID 119315
RIC - US-30 + US-42 2032/2052 BUILD PM VOLUMES
PLATE 16





PROJECT: JMB
DATE: 07/02/24

NOT TO SCALE

RIC - US-30 + US-42 2024 T24/TD TRUCK PERCENTAGES
PLATE 18

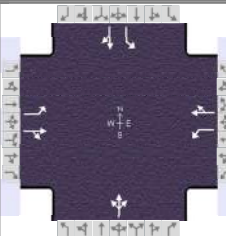
PID 119315

ATTACHMENT B
INTERSECTION CAPACITY ANALYSIS

OPENING YEAR 2032 'NO-BUILD' CONDITIONS

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

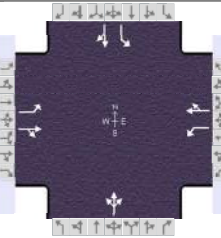
Signal Information																		
Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	4	4		2	2			9		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

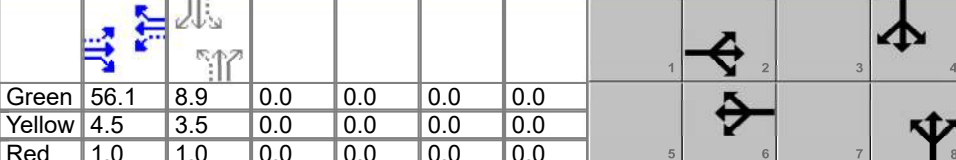
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		21.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	56.1	8.9	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		61.6		61.6		13.4		13.4
Change Period, ($Y+R_c$), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.3		4.3
Queue Clearance Time (g_s), s						5.0		5.6
Green Extension Time (g_e), s		0.0		0.0		0.2		0.2
Phase Call Probability						0.89		0.89
Max Out Probability						0.00		0.00

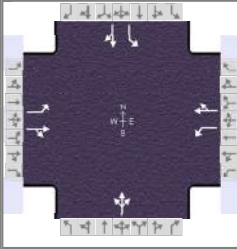
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	12	341		35	506		71			12	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	879	1818		1039	1863		1520			1380	1743	
Queue Service Time (g_s), s	0.4	4.4		0.8	7.0		0.0			0.6	0.9	
Cycle Queue Clearance Time (g_c), s	7.4	4.4		5.2	7.0		3.0			3.6	0.9	
Green Ratio (g/C)	0.75	0.75		0.75	0.75		0.12			0.12	0.12	
Capacity (c), veh/h	671	1360		813	1393		244			204	207	
Volume-to-Capacity Ratio (X)	0.018	0.251		0.043	0.363		0.289			0.058	0.114	
Back of Queue (Q), ft/ln (95 th percentile)	3	49		7	80		58			9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	1.9		0.3	3.2		2.2			0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.20		0.11	0.17		0.06			0.18	0.35	
Uniform Delay (d_1), s/veh	4.6	2.9		3.7	3.3		30.5			32.1	29.5	
Incremental Delay (d_2), s/veh	0.0	0.4		0.1	0.7		0.6			0.1	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	4.6	3.4		3.8	4.0		31.1			32.2	29.8	
Level of Service (LOS)	A	A		A	A		C			C	C	
Approach Delay, s/veh / LOS	3.4		A	4.0		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

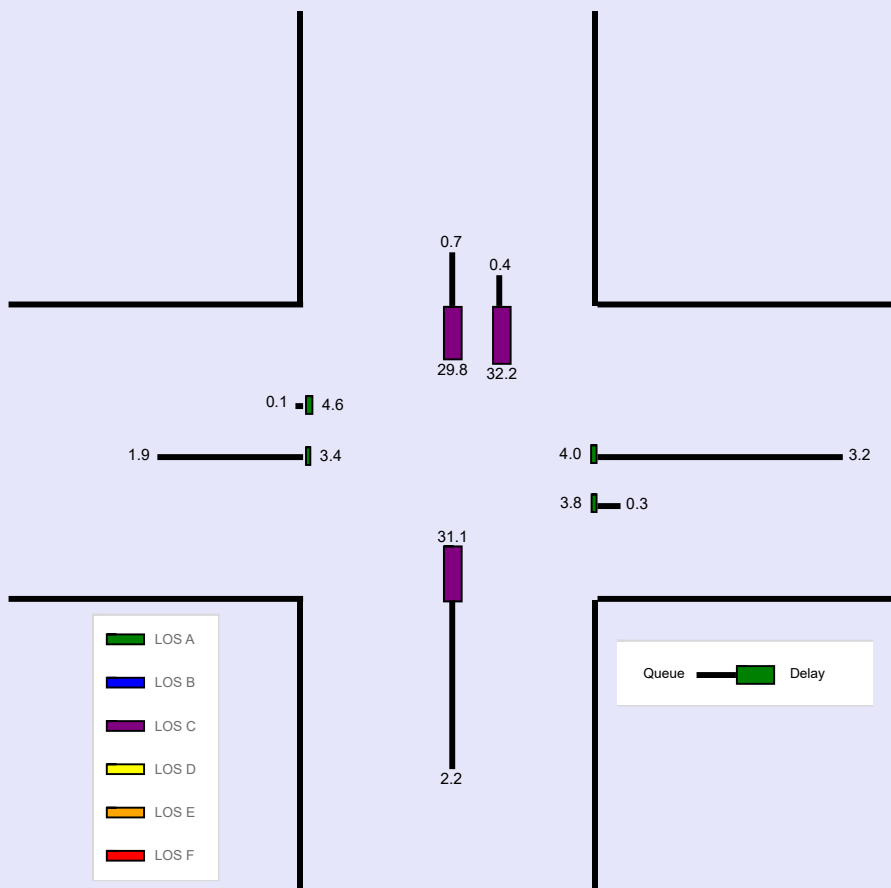
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2	[Signal Diagrams]				[Signal Diagrams]				
Offset, s	0	Reference Point	End	Green	56.1	8.9	0.0	0.0	0.0	0.0	[Signal Diagrams]	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	[Signal Diagrams]	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	[Signal Diagrams]	

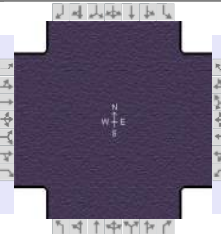
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	49		7	80			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	1.9		0.3	3.2			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.20		0.11	0.17			0.06		0.18	0.35	
Control Delay (d), s/veh	4.6	3.4		3.8	4.0			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.4 A			4.0 A			31.1 C			30.6 C		
Intersection Delay, s/veh / LOS	6.6						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

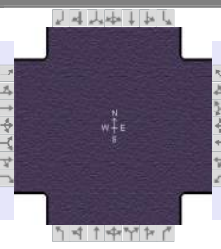
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		2	2			2		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		69.0		69.0		26.0		26.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	95.0	Reference Phase	2	Green	75.3	9.7	0.0	0.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

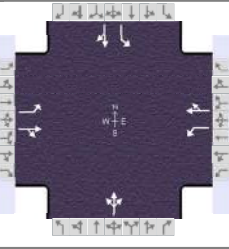
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		80.8		80.8		14.2		14.2
Change Period, (Y+R _c), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		4.4
Queue Clearance Time (g _s), s						7.3		8.0
Green Extension Time (g _e), s		0.0		0.0		0.3		0.3
Phase Call Probability						0.97		0.97
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	787		21	713			96		11	21	
Adjusted Saturation Flow Rate (s), veh/h/ln	743	1872		688	1865			1600		1346	1743	
Queue Service Time (g _s), s	0.5	14.3		1.1	12.2			2.0		0.7	1.1	
Cycle Queue Clearance Time (g _c), s	12.6	14.3		15.4	12.2			5.3		6.0	1.1	
Green Ratio (g/C)	0.79	0.79		0.79	0.79			0.10		0.10	0.10	
Capacity (c), veh/h	570	1484		518	1479			209		137	177	
Volume-to-Capacity Ratio (X)	0.019	0.530		0.041	0.482			0.458		0.078	0.120	
Back of Queue (Q), ft/ln (95 th percentile)	3	170		7	145			102		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.8		0.3	5.7			4.0		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.68		0.12	0.32			0.10		0.23	0.42	
Uniform Delay (d ₁), s/veh	5.4	3.5		6.3	3.3			40.7		43.6	38.8	
Incremental Delay (d ₂), s/veh	0.1	1.4		0.1	1.1			1.6		0.2	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	5.5	4.9		6.4	4.4			42.3		43.8	39.1	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	4.9		A	4.5		A	42.3		D	40.7		D
Intersection Delay, s/veh / LOS	7.5						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

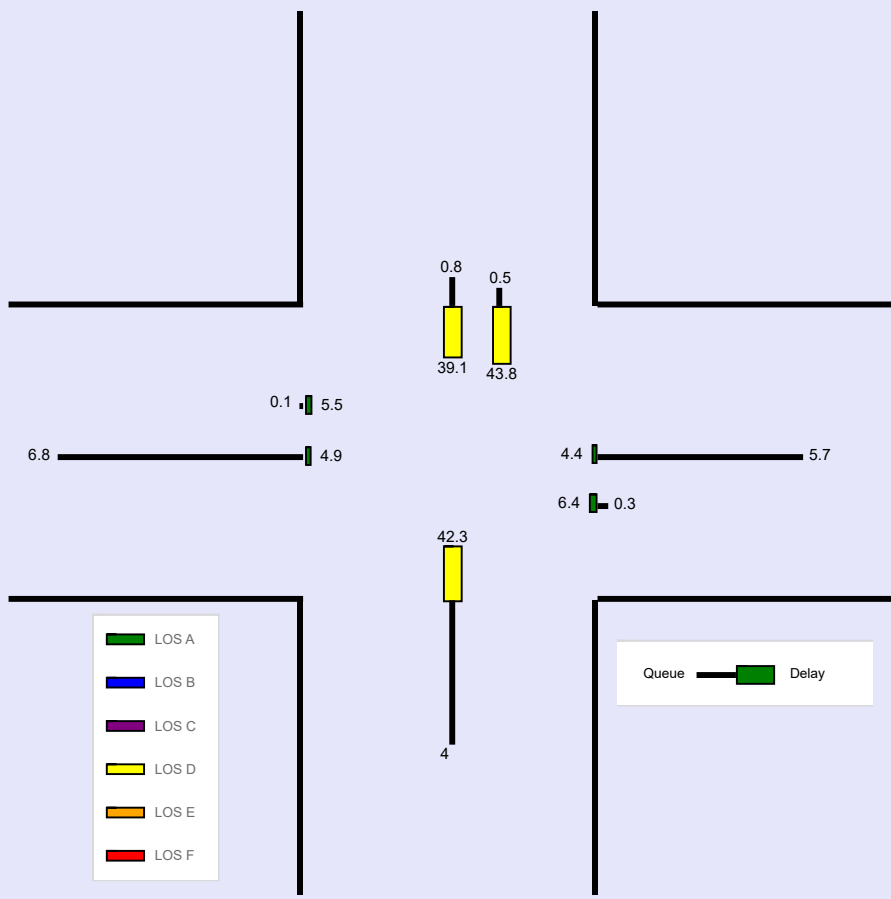
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



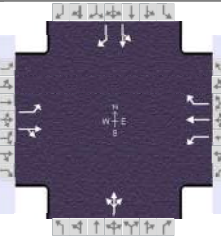
Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

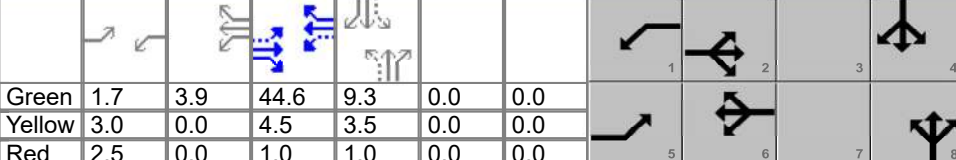
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	3	170		7	145			102		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.8		0.3	5.7			4.0		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.68		0.12	0.32			0.10		0.23	0.42	
Control Delay (d), s/veh	5.5	4.9		6.4	4.4			42.3		43.8	39.1	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	4.9		A	4.5		A	42.3		D	40.7		D
Intersection Delay, s/veh / LOS	7.5						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	03 2032 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	280	30	50	390	10	30	10	40	10	10	10

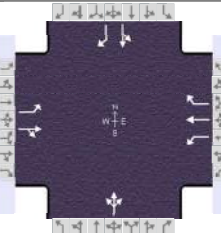
Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	1.7	3.9	44.6	9.3	0.0	0.0	Yellow	3.0	0.0	4.5	3.5	0.0	0.0	Red	2.5	0.0	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	280	30	50	390	10	30	10	40	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		2	2	2		5			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		95	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

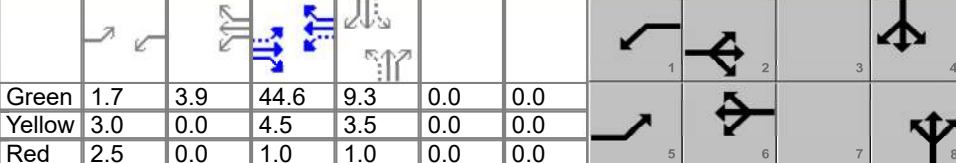
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	16.0	42.0		18.0		18.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R _c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	03 2032 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	280	30	50	390	10	30	10	40	10	10	10

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	1.7	3.9	44.6	9.3	0.0	0.0	Yellow	3.0	0.0	4.5	3.5	0.0	0.0	Red	2.5	0.0	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	7.2	50.1	11.1	54.0		13.8		13.8
Change Period, (Y+R _c), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g _s), s	2.2		2.8			6.0		2.8
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.21		0.70			0.93		0.93
Max Out Probability	0.00		0.00			0.07		0.01

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	356		57	448	11		92			23	11
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1780		1781	1870	1585		1551			1654	1610
Queue Service Time (g _s), s	0.2	7.6		0.8	8.3	0.2		1.3			0.0	0.5
Cycle Queue Clearance Time (g _c), s	0.2	7.6		0.8	8.3	0.2		4.0			0.8	0.5
Green Ratio (g/C)	0.62	0.60		0.67	0.65	0.65		0.12			0.12	0.12
Capacity (c), veh/h	599	1059		735	1210	1025		258			277	199
Volume-to-Capacity Ratio (X)	0.019	0.336		0.078	0.371	0.011		0.356			0.083	0.058
Back of Queue (Q), ft/ln (95 th percentile)	3	124		10	128	2		74			17	8
Back of Queue (Q), veh/ln (95 th percentile)	0.1	4.7		0.4	5.0	0.1		2.8			0.7	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.24		0.11	0.39	0.01		0.82			0.17	0.08
Uniform Delay (d ₁), s/veh	5.8	7.7		4.6	6.2	4.7		30.5			29.1	29.0
Incremental Delay (d ₂), s/veh	0.0	0.9		0.0	0.9	0.0		0.8			0.1	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	5.8	8.5		4.6	7.0	4.7		31.3			29.3	29.1
Level of Service (LOS)	A	A		A	A	A		C			C	C
Approach Delay, s/veh / LOS	8.5		A	6.7		A	31.3		C	29.2		C
Intersection Delay, s/veh / LOS	10.3						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

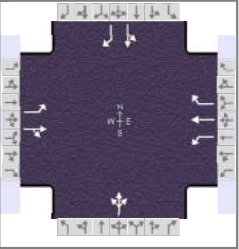
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group		
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024
Jurisdiction	Madison Township	Time Period	AM Peak Hour
Urban Street	US Route 42	Analysis Year	2032 'No-Build'
Intersection	Kroger & University Hos...	File Name	03 2032 AM No-Build Capacity Analysis US42 &...
Project Description	US 30 & US 42 Planning Study		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.87
Analysis Period	1 > 7:00



Demand Information

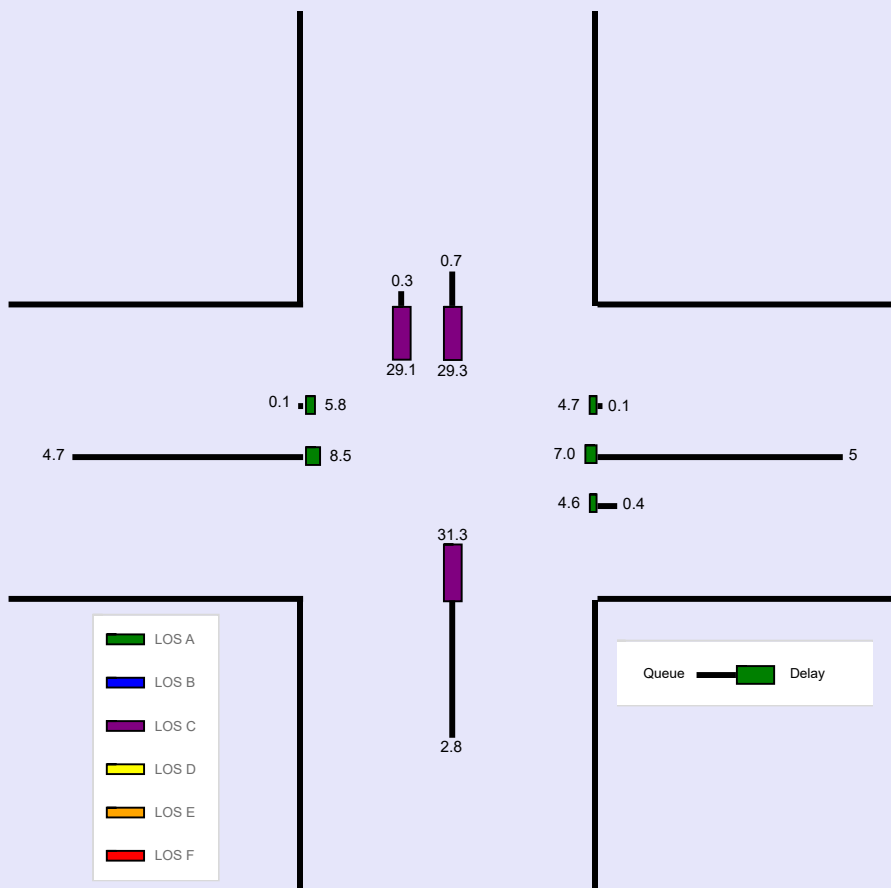
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	280	30	50	390	10	30	10	40	10	10	10

Signal Information

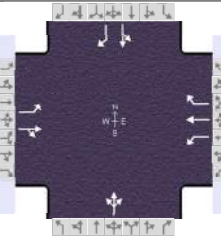
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		1.7	3.9	44.6	9.3	0.0	0.0				
		Yellow		3.0	0.0	4.5	3.5	0.0	0.0				
		Red		2.5	0.0	1.0	1.0	0.0	0.0				

Movement Group Results

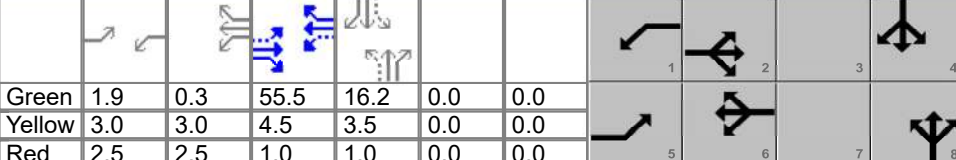
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	124		10	128	2		74			17	8
Back of Queue (Q), veh/ln (95 th percentile)	0.1	4.7		0.4	5.0	0.1		2.8			0.7	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.24		0.11	0.39	0.01		0.82			0.17	0.08
Control Delay (d), s/veh	5.8	8.5		4.6	7.0	4.7		31.3			29.3	29.1
Level of Service (LOS)	A	A		A	A	A		C			C	C
Approach Delay, s/veh / LOS	8.5 / A			6.7 / A			31.3 / C				29.2 / C	
Intersection Delay, s/veh / LOS	10.3						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2032 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

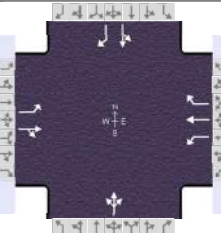
Signal Information																		
Cycle, s	95.0	Reference Phase	2	Green	1.9	0.3	55.5	16.2	0.0	0.0	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	
Offset, s	0	Reference Point	End	Red	2.5	2.5	1.0	1.0	0.0	0.0	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	1	1		1	1	1		1			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		95	325	325		90			100	100
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

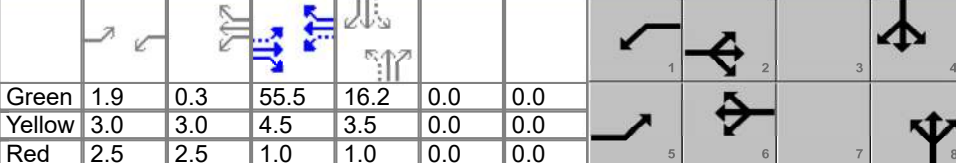
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.0	58.0	14.0	58.0		23.0		23.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R_c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G_{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2032 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	1.9	0.3	55.5	16.2	0.0	0.0	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	Red	2.5	2.5	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	7.4	61.0	13.3	66.8		20.7		20.7
Change Period, ($Y+R_c$), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		4.5			16.0		2.9
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.2		0.9
Phase Call Probability	0.24		0.97			1.00		1.00
Max Out Probability	0.00		0.16			1.00		0.00

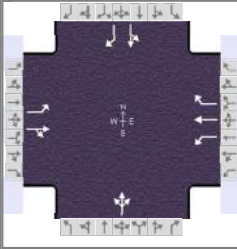
Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	11	737		137	568	11		232			21	11	
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1838		1795	1885	1598		1534			1411	1610	
Queue Service Time (g_s), s	0.2	26.4		2.5	14.5	0.2		12.8			0.0	0.5	
Cycle Queue Clearance Time (g_c), s	0.2	26.4		2.5	14.5	0.2		14.0			0.9	0.5	
Green Ratio (g/C)	0.60	0.58		0.69	0.65	0.65		0.17			0.17	0.17	
Capacity (c), veh/h	513	1074		445	1217	1032		317			298	275	
Volume-to-Capacity Ratio (X)	0.021	0.686		0.307	0.467	0.010		0.731			0.071	0.038	
Back of Queue (Q), ft/ln (95 th percentile)	4	406		39	236	3		247			19	9	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	16.1		1.5	9.4	0.1		9.8			0.8	0.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.77		0.41	0.73	0.01		2.74			0.19	0.09	
Uniform Delay (d_1), s/veh	8.1	13.7		10.3	8.5	6.0		38.4			33.0	32.9	
Incremental Delay (d_2), s/veh	0.0	3.6		0.4	1.3	0.0		6.7			0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	8.1	17.3		10.7	9.8	6.0		45.1			33.1	32.9	
Level of Service (LOS)	A	B		B	A	A		D			C	C	
Approach Delay, s/veh / LOS	17.2		B	9.9		A		45.1		D	33.1		C
Intersection Delay, s/veh / LOS	18.2						B						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

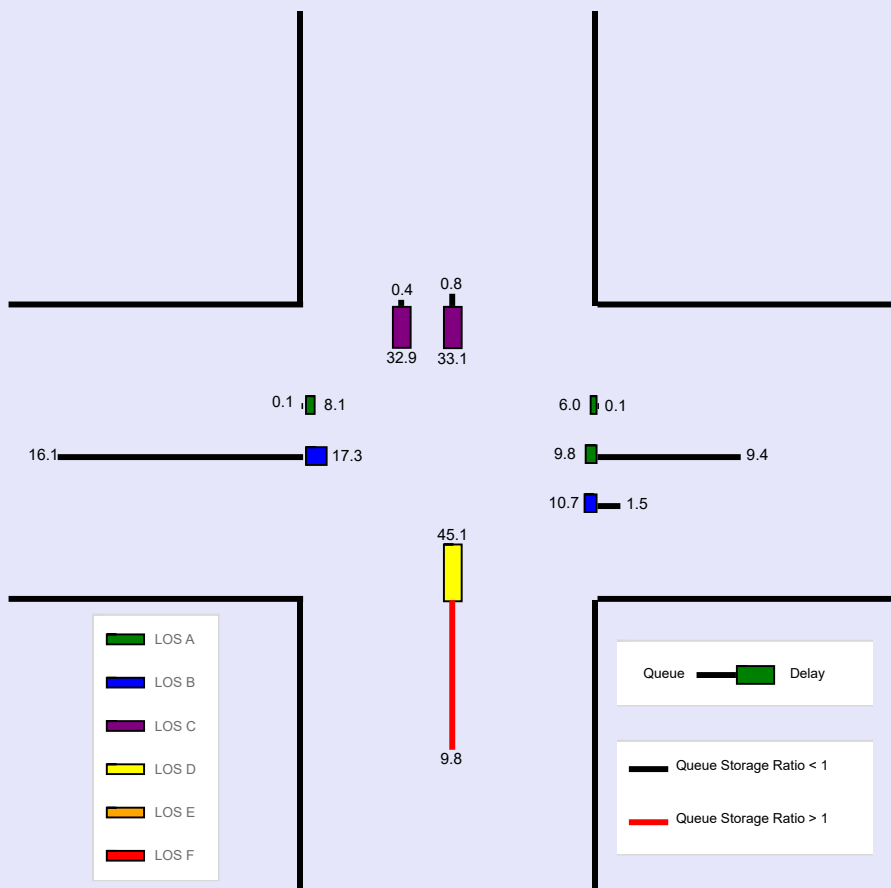
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

Signal Information

Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	1.9	0.3	55.5	16.2	0.0	0.0	1 2 3 4		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	5 6 7 8		
				Red	2.5	2.5	1.0	1.0	0.0	0.0			

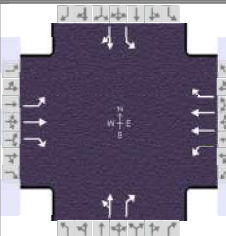
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	4	406		39	236	3		247			19	9
Back of Queue (Q), veh/ln (95 th percentile)	0.1	16.1		1.5	9.4	0.1		9.8			0.8	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.77		0.41	0.73	0.01		2.74			0.19	0.09
Control Delay (d), s/veh	8.1	17.3		10.7	9.8	6.0		45.1			33.1	32.9
Level of Service (LOS)	A	B		B	A	A		D			C	C
Approach Delay, s/veh / LOS	17.2	B		9.9	A			45.1	D		33.1	C
Intersection Delay, s/veh / LOS	18.2						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	20	260	50	190	370	50	30	70	250	60	130	50

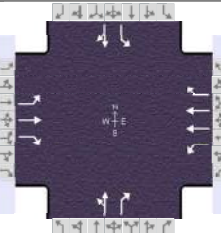
Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	75.0	Reference Phase	2	Green	3.0	1.4	30.6	15.5	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	3.5	3.5	1.0	1.5	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	20	260	50	190	370	50	30	70	250	60	130	50
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h	None			None			None			None		
Heavy Vehicles (<i>P_{HV}</i>), %	6	6	6	3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</i>)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (<i>W</i>), ft	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	90	325	100	440	550	160		1075	110	70	375	
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

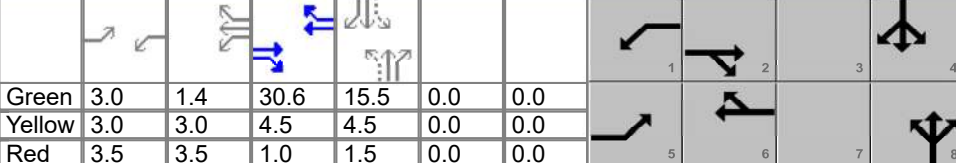
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	15.0	30.0	21.0	36.0		24.0		24.0
Yellow Change Interval (<i>Y</i>), s	3.0	4.5	3.0	4.5		4.5		4.5
Red Clearance Interval (<i>R_c</i>), s	3.5	1.0	3.5	1.0		1.5		1.5
Minimum Green (<i>G_{min}</i>), s	8	20	8	20		10		10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2032 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	260	50	190	370	50	30	70	250	60	130	50

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	3.0	1.4	30.6	15.5	0.0	0.0	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	Red	3.5	3.5	1.0	1.5	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

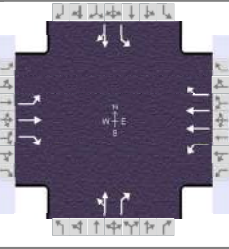
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	9.5	36.1	17.4	44.1		21.5		21.5
Change Period, (Y+R _c), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g _s), s	2.9		10.7			14.5		13.2
Green Extension Time (g _e), s	0.0	0.0	0.4	0.0		1.0		1.2
Phase Call Probability	0.37		0.99			1.00		1.00
Max Out Probability	0.00		0.22			1.00		0.86

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	22	289	56	211	411	56		111	278	67	200		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1535	1767	1766	1572		1364	1598	1332	1795		
Queue Service Time (g _s), s	0.9	8.4	1.7	8.7	4.8	1.3		0.2	12.5	3.5	7.5		
Cycle Queue Clearance Time (g _c), s	0.9	8.4	1.7	8.7	4.8	1.3		7.7	12.5	11.2	7.5		
Green Ratio (g/C)	0.04	0.41	0.41	0.15	0.51	0.51		0.21	0.21	0.21	0.21		
Capacity (c), veh/h	68	739	626	257	1816	808		344	330	235	371		
Volume-to-Capacity Ratio (X)	0.326	0.391	0.089	0.821	0.226	0.069		0.323	0.842	0.284	0.540		
Back of Queue (Q), ft/ln (95 th percentile)	20	164	27	187	79	20		74	245	51	143		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	6.3	1.0	7.3	3.1	0.8		2.9	9.7	2.0	5.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.23	0.51	0.27	0.43	0.14	0.13		0.07	2.23	0.73	0.38		
Uniform Delay (d ₁), s/veh	35.0	15.6	13.6	31.1	10.0	9.2		25.2	28.6	31.7	26.6		
Incremental Delay (d ₂), s/veh	2.7	1.6	0.3	7.6	0.3	0.2		0.5	13.8	0.7	1.2		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	37.8	17.2	13.9	38.7	10.3	9.3		25.7	42.4	32.3	27.8		
Level of Service (LOS)	D	B	B	D	B	A		C	D	C	C		
Approach Delay, s/veh / LOS	17.9		B	19.1		B		37.6		D	28.9		C
Intersection Delay, s/veh / LOS	24.6						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	260	50	190	370	50	30	70	250	60	130	50

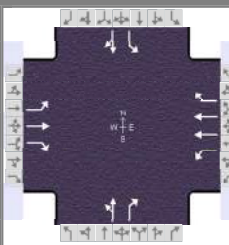
Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	75.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	3.0	1.4	30.6	15.5	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	4.5	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.5	3.5	1.0	1.5	0.0	0.0					

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	20	164	27	187	79	20		74	245	51	143		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	6.3	1.0	7.3	3.1	0.8		2.9	9.7	2.0	5.7		
Queue Storage Ratio (RQ) (95 th percentile)	0.23	0.51	0.27	0.43	0.14	0.13		0.07	2.23	0.73	0.38		
Control Delay (d), s/veh	37.8	17.2	13.9	38.7	10.3	9.3		25.7	42.4	32.3	27.8		
Level of Service (LOS)	D	B	B	D	B	A		C	D	C	C		
Approach Delay, s/veh / LOS	17.9		B	19.1		B		37.6		D	28.9		C
Intersection Delay, s/veh / LOS	24.6						C						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	290	550	140	40	150	270	130	210	90

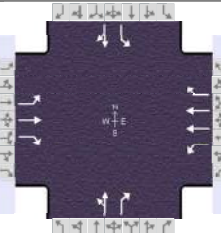
Signal Information														
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	7.5	3.6	36.4	23.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	3.0	4.5	4.5	0.0	0.0				
				Red	3.5	3.5	1.0	1.5	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	290	550	140	40	150	270	130	210	90
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1	1	1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	90	325	100	440	550	160		1075	110	70	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

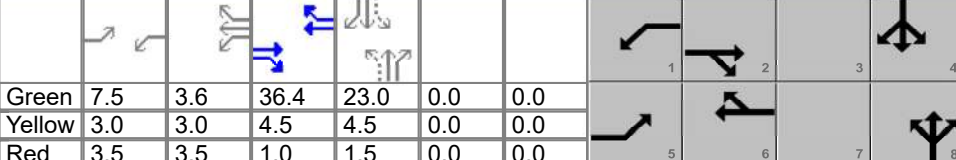
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	25.0	51.0		29.0		29.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		4.5		4.5
Red Clearance Interval (R _c), s	3.5	1.0	3.5	1.0		1.5		1.5
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2032 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	290	550	140	40	150	270	130	210	90

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	7.5	3.6	36.4	23.0	0.0	0.0	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	Red	3.5	3.5	1.0	1.5	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

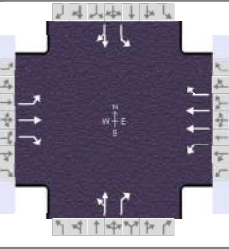
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	14.0	41.9	24.1	52.0		29.0		29.0
Change Period, (Y+R _c), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g _s), s	7.3		17.5			19.8		25.0
Green Extension Time (g _e), s	0.0	0.0	0.1	0.0		1.3		0.0
Phase Call Probability	0.93		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	103	577	62	299	567	144		196	278	134	309		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1598	1795	1795	1598		1128	1585	1242	1789		
Queue Service Time (g _s), s	5.3	25.9	2.4	15.5	9.1	4.8		2.8	15.3	5.2	15.1		
Cycle Queue Clearance Time (g _c), s	5.3	25.9	2.4	15.5	9.1	4.8		17.8	15.3	23.0	15.1		
Green Ratio (g/C)	0.08	0.38	0.38	0.19	0.49	0.49		0.24	0.24	0.24	0.24		
Capacity (c), veh/h	141	723	612	332	1758	782		319	384	143	433		
Volume-to-Capacity Ratio (X)	0.730	0.799	0.101	0.900	0.323	0.184		0.614	0.725	0.935	0.714		
Back of Queue (Q), ft/ln (95 th percentile)	129	469	41	346	163	80		203	268	230	285		
Back of Queue (Q), veh/ln (95 th percentile)	5.1	18.6	1.6	13.7	6.5	3.2		8.0	10.6	9.1	11.3		
Queue Storage Ratio (RQ) (95 th percentile)	1.44	1.44	0.41	0.79	0.30	0.50		0.19	2.44	3.29	0.76		
Uniform Delay (d ₁), s/veh	42.8	26.0	18.8	37.8	14.7	13.6		32.0	33.1	46.2	33.0		
Incremental Delay (d ₂), s/veh	13.6	9.0	0.3	24.4	0.5	0.5		3.5	6.7	55.9	5.5		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	56.4	35.0	19.1	62.2	15.2	14.1		35.5	39.8	102.1	38.5		
Level of Service (LOS)	E	D	B	E	B	B		D	D	F	D		
Approach Delay, s/veh / LOS	36.7		D	28.9		C		38.0		D	57.7		E
Intersection Delay, s/veh / LOS	37.5						D						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

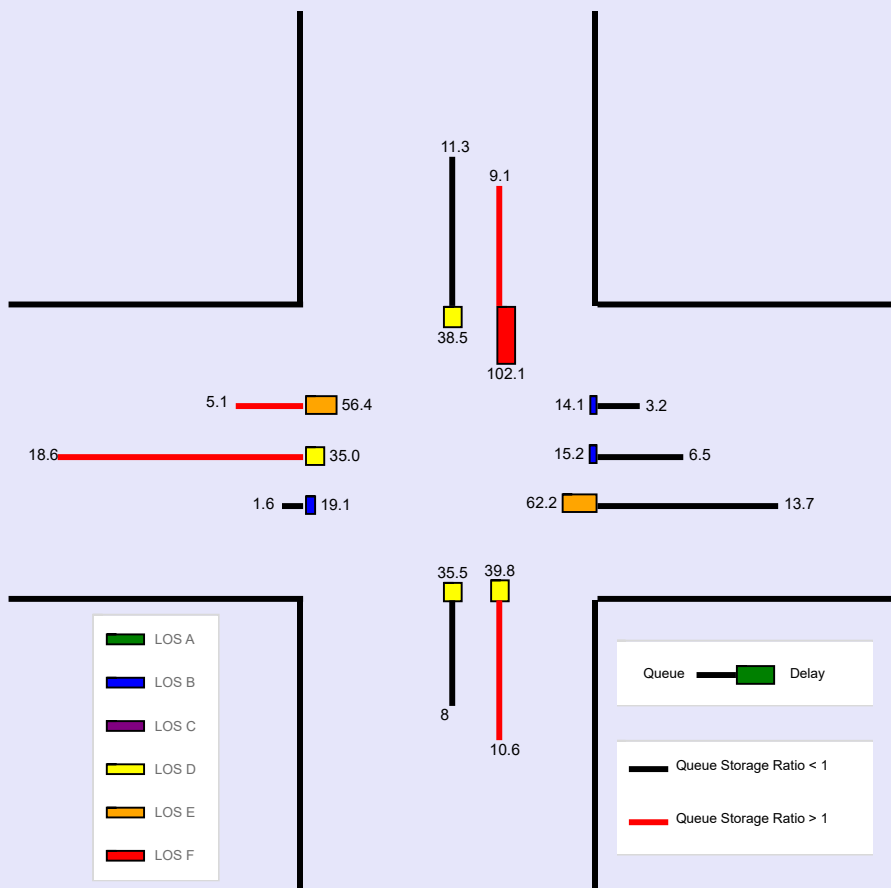
General Information					Intersection Information		
Agency	GPD Group				Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.97	
Urban Street	US Route 42	Analysis Year	2032 'No-Build'		Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2032 PM No-Build Capacity Analysis US42 &...				
Project Description	US 30 & US 42 Planning Study						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	100	560	60	290	550	140	40	150	270	130	210	90

Signal Information				Phase Diagram									
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		7.5	3.6	36.4	23.0	0.0	0.0				
		Yellow		3.0	3.0	4.5	4.5	0.0	0.0				
		Red		3.5	3.5	1.0	1.5	0.0	0.0				

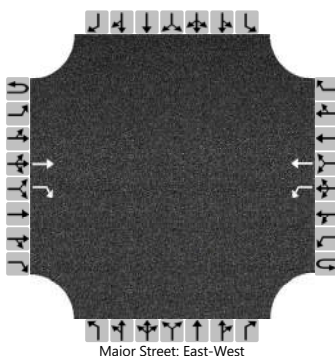
Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	129	469	41	346	163	80		203	268	230	285		
Back of Queue (Q), veh/ln (95 th percentile)	5.1	18.6	1.6	13.7	6.5	3.2		8.0	10.6	9.1	11.3		
Queue Storage Ratio (RQ) (95 th percentile)	1.44	1.44	0.41	0.79	0.30	0.50		0.19	2.44	3.29	0.76		
Control Delay (d), s/veh	56.4	35.0	19.1	62.2	15.2	14.1		35.5	39.8	102.1	38.5		
Level of Service (LOS)	E	D	B	E	B	B		D	D	F	D		
Approach Delay, s/veh / LOS	36.7		D	28.9		C		38.0		D	57.7		E
Intersection Delay, s/veh / LOS	37.5						D						



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2032	North/South Street	US Route 30 EB Ramps
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	0	0		0	0	0
Configuration			T	R		L	T									
Volume (veh/h)			490	80		20	490									
Percent Heavy Vehicles (%)						4										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized	Yes															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1										
Critical Headway (sec)						4.14										
Base Follow-Up Headway (sec)						2.2										
Follow-Up Headway (sec)						2.24										

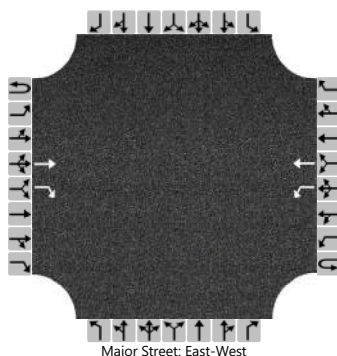
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						22										
Capacity, c (veh/h)						1025										
v/c Ratio						0.02										
95% Queue Length, Q ₉₅ (veh)						0.1										
95% Queue Length, Q ₉₅ (ft)						2.6										
Control Delay (s/veh)						8.6										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.3											
Approach LOS					A											

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2032	North/South Street	US Route 30 EB Ramps
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	0	0		0	0	0
Configuration			T	R		L	T									
Volume (veh/h)			810	150		30	680									
Percent Heavy Vehicles (%)						1										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized		Yes														
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1										
Critical Headway (sec)						4.11										
Base Follow-Up Headway (sec)						2.2										
Follow-Up Headway (sec)						2.21										

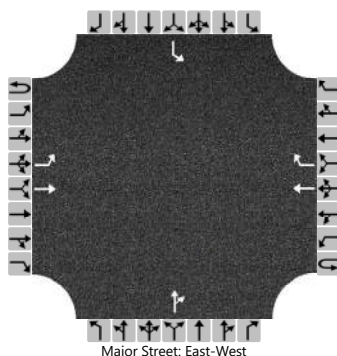
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						32										
Capacity, c (veh/h)						785										
v/c Ratio						0.04										
95% Queue Length, Q ₉₅ (veh)						0.1										
95% Queue Length, Q ₉₅ (ft)						2.5										
Control Delay (s/veh)						9.8										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.4											
Approach LOS					A											

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 WB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2032	North/South Street	US Route 30 WB Ramps
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound				
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12	
Priority																	
Number of Lanes	0	1	1	0	0	0	1	1		0	1	0		1	0	0	
Configuration		L	T				T	R				TR		L			
Volume (veh/h)		200	510				380	380			10	30		10			
Percent Heavy Vehicles (%)		3									12	12		4			
Proportion Time Blocked																	
Percent Grade (%)										0				0			
Right Turn Channelized							Yes										
Median Type Storage		Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1								6.5	6.2		7.1		
Critical Headway (sec)		4.13								6.62	6.32		7.14		
Base Follow-Up Headway (sec)		2.2								4.0	3.3		3.5		
Follow-Up Headway (sec)		2.23								4.11	3.41		3.54		

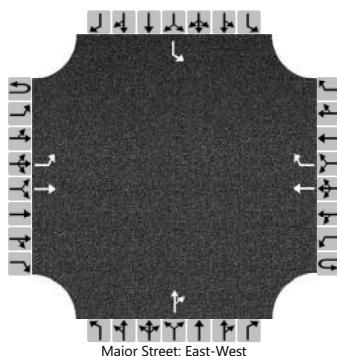
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		238								48	12						
Capacity, c (veh/h)		1103								224	58						
v/c Ratio		0.22								0.21	0.20						
95% Queue Length, Q ₉₅ (veh)		0.8								0.8	0.7						
95% Queue Length, Q ₉₅ (ft)		20.5								21.9	18.1						
Control Delay (s/veh)		9.2								25.3	82.1						
Level of Service (LOS)		A								D	F						
Approach Delay (s/veh)		2.6								25.3				82.1			
Approach LOS		A								D				F			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 WB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2032	North/South Street	US Route 30 WB Ramps
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	1		0	1	0		1	0	0
Configuration		L	T				T	R				TR		L		
Volume (veh/h)		220	990				530	360			10	30		10		
Percent Heavy Vehicles (%)		2									8	8		3		
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

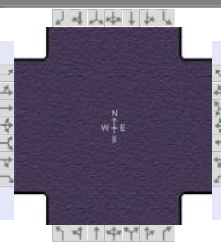
Base Critical Headway (sec)		4.1									6.5	6.2		7.1		
Critical Headway (sec)		4.12									6.58	6.28		7.13		
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5		
Follow-Up Headway (sec)		2.22									4.07	3.37		3.53		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		227									41	10				
Capacity, c (veh/h)		1023									119	23				
v/c Ratio		0.22									0.35	0.45				
95% Queue Length, Q ₉₅ (veh)		0.8									1.4	1.3				
95% Queue Length, Q ₉₅ (ft)		20.3									37.2	33.3				
Control Delay (s/veh)		9.5									50.6	252.6				
Level of Service (LOS)		A									F	F				
Approach Delay (s/veh)	1.7								50.6				252.6			
Approach LOS	A								F				F			

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.6	9.4	0.0	0.0	0.0	0.0				
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

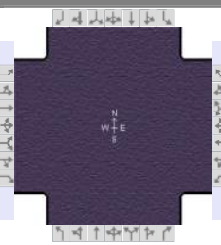
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		4		4	4		4		4			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information				Phase Diagram								
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.6	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

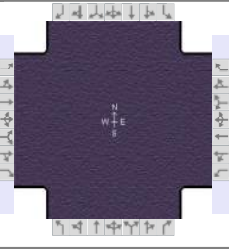
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		61.1		61.1		13.9		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.7		
Phase Call Probability						1.00		
Max Out Probability						0.15		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		713		213	800		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1763		726	1841		1753		1560			
Queue Service Time (g _s), s		13.1		13.5	14.9		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		13.1		26.6	14.9		6.7		6.3			
Green Ratio (g/C)		0.74		0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1308		507	1366		219		195			
Volume-to-Capacity Ratio (X)		0.545		0.419	0.586		0.743		0.707			
Back of Queue (Q), ft/ln (95 th percentile)		154		99	182		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		5.9		3.8	7.1		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.11		1.32	0.12		2.79		0.13			
Uniform Delay (d ₁), s/veh		4.2		10.0	4.4		31.7		31.5			
Incremental Delay (d ₂), s/veh		1.6		2.5	1.8		4.9		4.7			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		5.8		12.5	6.3		36.6		36.2			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.8	A		7.6	A		36.4	D		0.0		
Intersection Delay, s/veh / LOS				11.2						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

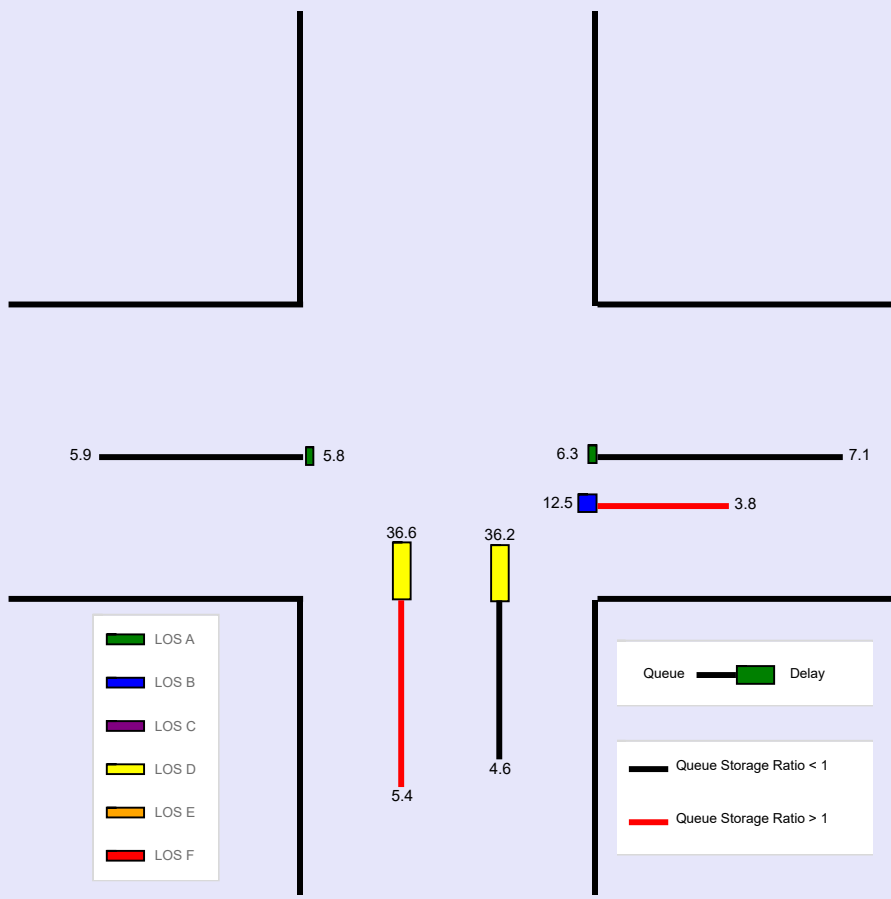
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

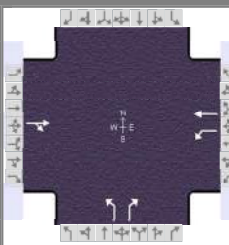
Signal Information											
Cycle, s	75.0	Reference Phase	2	↔	↔	↔	↔	1	2	3	4
Offset, s	0	Reference Point	End	↔	↔	↔	↔	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Green	55.6	9.4	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0
				Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		154		99	182		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		5.9		3.8	7.1		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.11		1.32	0.12		2.79		0.13			
Control Delay (d), s/veh		5.8		12.5	6.3		36.6		36.2			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.8		A	7.6		A	36.4		D			0.0
Intersection Delay, s/veh / LOS				11.2								B



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

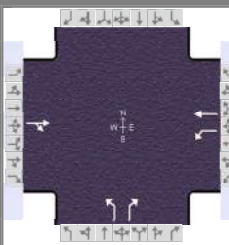
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2		3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (lt), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	73.4	11.6	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		78.9		78.9		16.1		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.7		
Green Extension Time (g _e), s		0.0		0.0		0.9		
Phase Call Probability						1.00		
Max Out Probability						0.00		

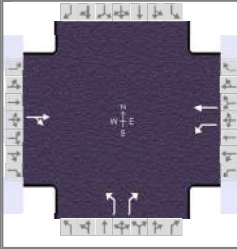
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		1010		162	788		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1828		554	1856		1795		1598			
Queue Service Time (g _s), s		26.7		19.9	15.9		5.0		8.7			
Cycle Queue Clearance Time (g _c), s		26.7		46.6	15.9		5.0		8.7			
Green Ratio (g/C)		0.77		0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1412		348	1434		219		195			
Volume-to-Capacity Ratio (X)		0.715		0.464	0.549		0.461		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		312		128	206		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.3		5.0	8.0		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.22		1.70	0.13		2.03		0.19			
Uniform Delay (d ₁), s/veh		5.5		17.3	4.3		38.8		40.5			
Incremental Delay (d ₂), s/veh		3.1		4.4	1.5		1.5		6.6			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		8.6		21.7	5.8		40.3		47.0			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	8.6	A		8.5	A		44.3	D		0.0		
Intersection Delay, s/veh / LOS				12.6						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2032 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2032 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

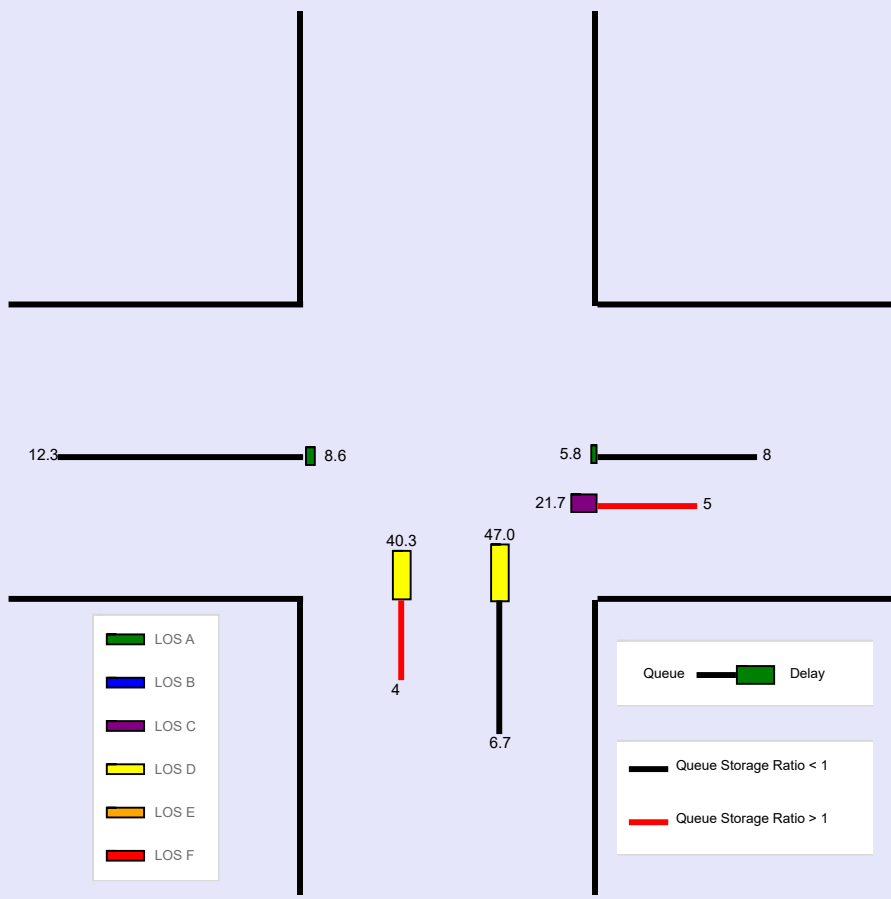
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	73.4	11.6	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Movement Group Results

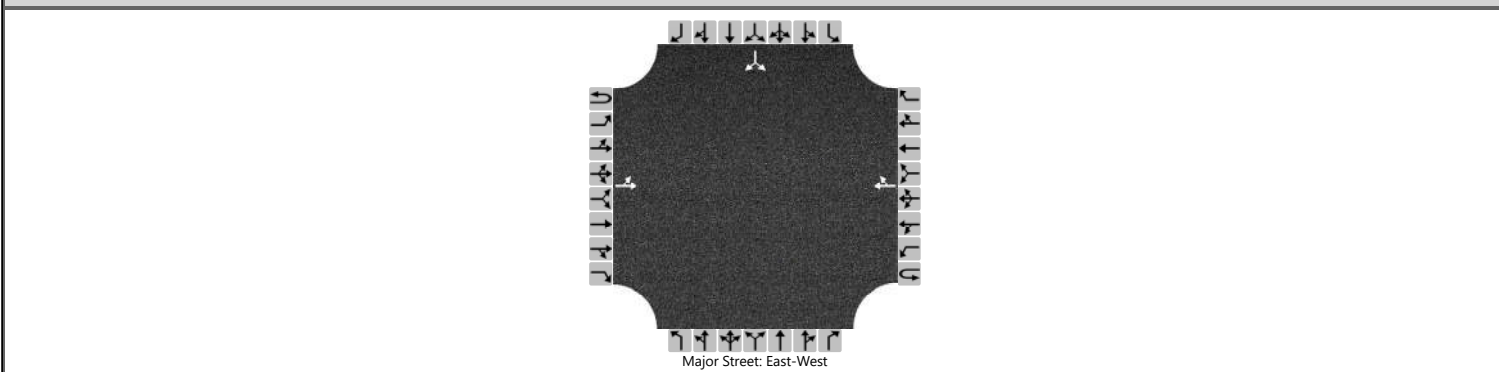
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		312		128	206		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.3		5.0	8.0		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.22		1.70	0.13		2.03		0.19			
Control Delay (d), s/veh		8.6		21.7	5.8		40.3		47.0			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	8.6		A	8.5		A	44.3		D	0.0		
Intersection Delay, s/veh / LOS	12.6						B					



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 30 WB Ramps / Beal Road
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 30 WB Ramps
Analysis Year	2032	North/South Street	Beal Road
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		10	90				560	30						50		40
Percent Heavy Vehicles (%)		7												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.50		3.30

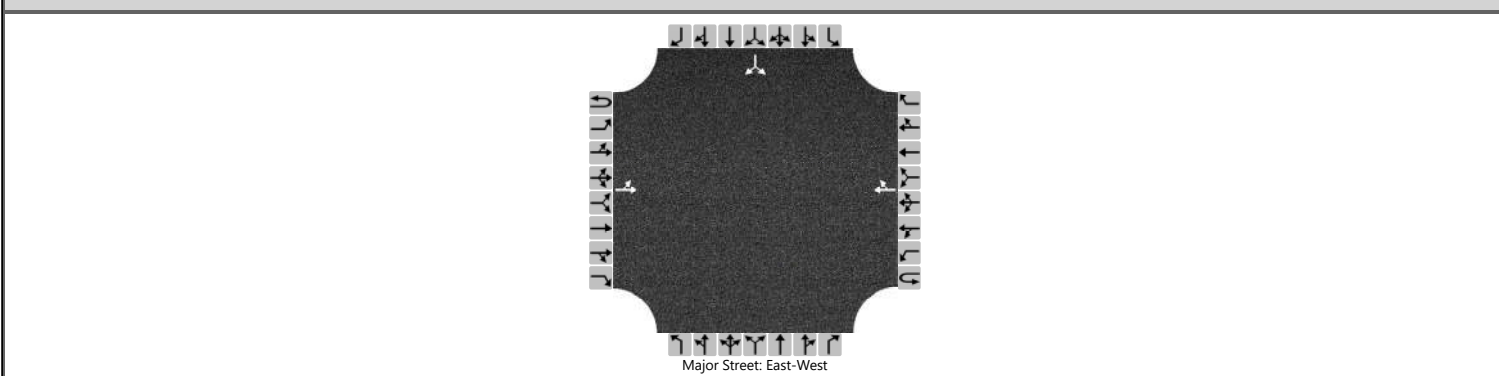
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11														102	
Capacity, c (veh/h)		897														404	
v/c Ratio		0.01														0.25	
95% Queue Length, Q ₉₅ (veh)		0.0														1.0	
95% Queue Length, Q ₉₅ (ft)		0.0														25.0	
Control Delay (s/veh)		9.1	0.1													16.9	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		1.0												16.9			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 30 WB Ramps / Beal Road		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	US Route 30 WB Ramps		
Analysis Year	2032			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.91		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		10	110				480	110						80		50
Percent Heavy Vehicles (%)		3												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.50		3.30

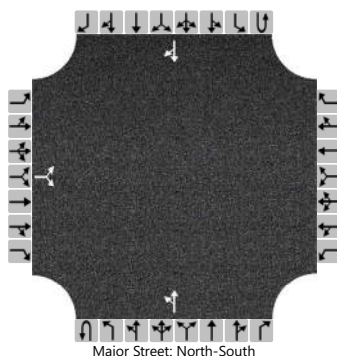
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11														143	
Capacity, c (veh/h)		933														427	
v/c Ratio		0.01														0.33	
95% Queue Length, Q ₉₅ (veh)		0.0														1.4	
95% Queue Length, Q ₉₅ (ft)		0.0														35.0	
Control Delay (s/veh)		8.9	0.1													17.6	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.8												17.6			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2032			North/South Street	Beal Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		20						10	20				90	10
Percent Heavy Vehicles (%)		6		6						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.26						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.35						2.24						

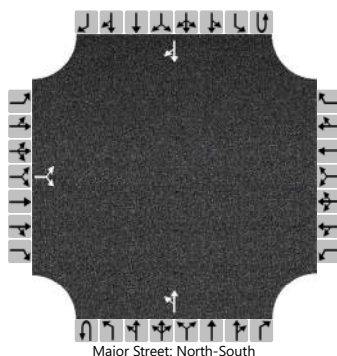
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			38							13						
Capacity, c (veh/h)			880							1449						
v/c Ratio			0.04							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.6							0.0						
Control Delay (s/veh)			9.3							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.3								2.5							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2032			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		30						10	120				100	10
Percent Heavy Vehicles (%)		0		0						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.24						

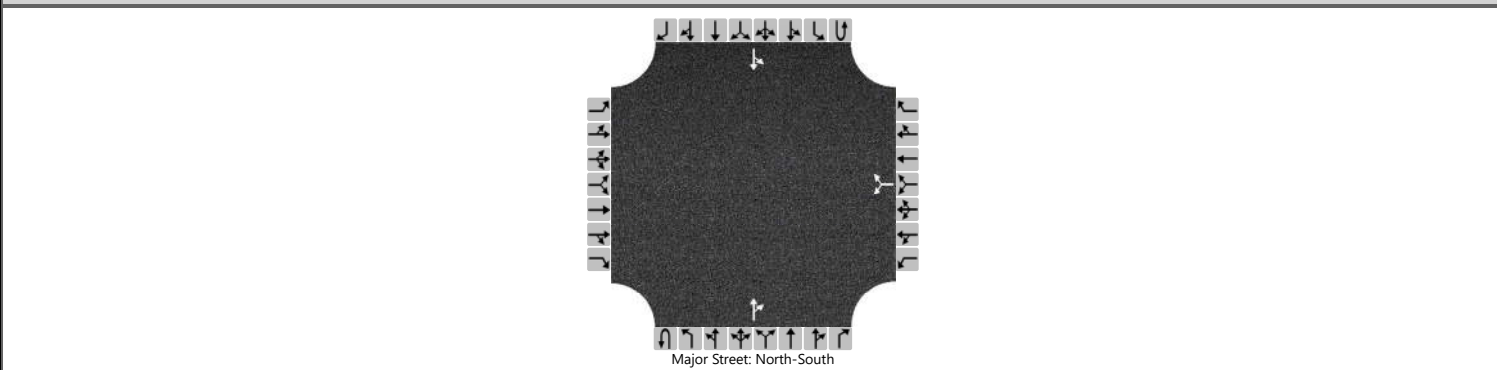
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			43							11						
Capacity, c (veh/h)			878							1458						
v/c Ratio			0.05							0.01						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
95% Queue Length, Q ₉₅ (ft)			5.0							0.0						
Control Delay (s/veh)			9.3							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.3								0.6							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive				
Agency/Co.	GPD Group	Jurisdiction	Madison Township				
Date Performed	11/8/2024	East/West Street	Rayfield Drive				
Analysis Year	2032	North/South Street	Expressview Drive				
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.80				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		10			10	10		10	10	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.40		6.20						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.50		3.30						2.20		

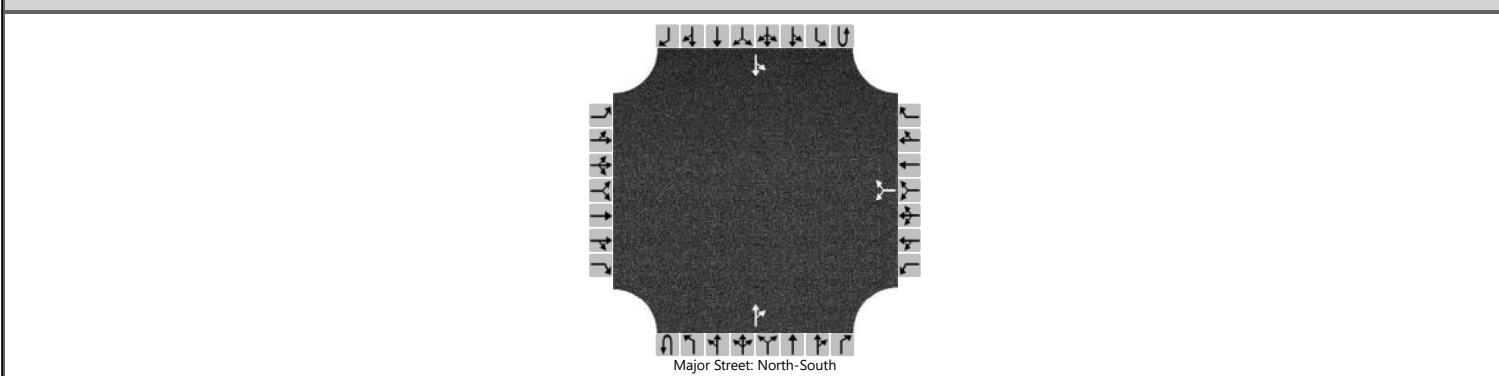
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						25								13		
Capacity, c (veh/h)						1004								1603		
v/c Ratio						0.02								0.01		
95% Queue Length, Q ₉₅ (veh)						0.1								0.0		
95% Queue Length, Q ₉₅ (ft)						2.5								0.0		
Control Delay (s/veh)						8.7								7.3	0.1	
Level of Service (LOS)						A								A	A	
Approach Delay (s/veh)					8.7								3.7			
Approach LOS					A								A			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	Rayfield Drive
Analysis Year	2032	North/South Street	Expressview Drive
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.83
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		10			10	40		10	10	
Percent Heavy Vehicles (%)						9		9						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.49		6.29							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.58		3.38							2.20		

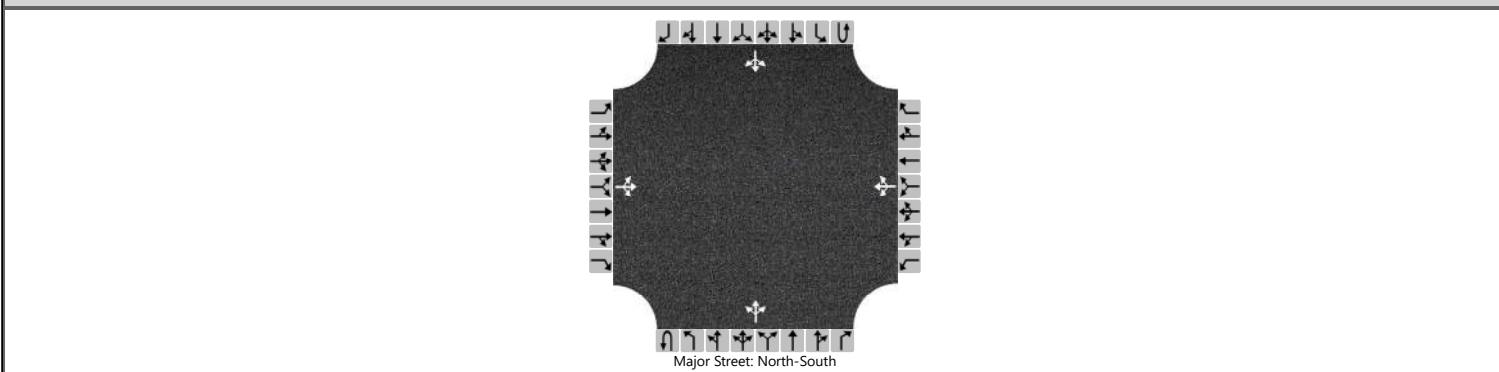
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						24									12		
Capacity, c (veh/h)						959									1556		
v/c Ratio						0.03									0.01		
95% Queue Length, Q ₉₅ (veh)						0.1									0.0		
95% Queue Length, Q ₉₅ (ft)						2.7									0.0		
Control Delay (s/veh)						8.9									7.3	0.1	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					8.9								3.7				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2032			North/South Street	Stewart Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.84		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	30		10	10	10		10	70	10		10	160	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.21		

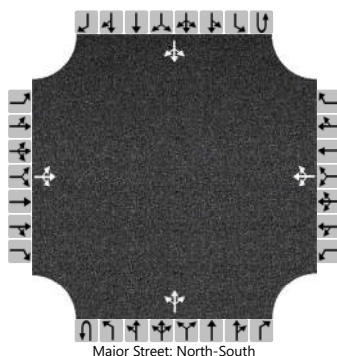
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			60				36			12				12		
Capacity, c (veh/h)			716				657			1363				1505		
v/c Ratio			0.08				0.05			0.01				0.01		
95% Queue Length, Q ₉₅ (veh)			0.3				0.2			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			7.5				5.0									
Control Delay (s/veh)			10.5				10.8			7.7	0.1	0.1		7.4	0.1	0.1
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	10.5				10.8				0.9				0.5			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2032			North/South Street	Stewart Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.94		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	40		20	10	10		40	220	40		10	210	10
Percent Heavy Vehicles (%)		3	3	3		10	10	10		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.20	6.60	6.30		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.59	4.09	3.39		2.22				2.22		

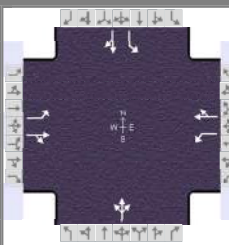
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			64				43			43				11		
Capacity, c (veh/h)			589				412			1333				1286		
v/c Ratio			0.11				0.10			0.03				0.01		
95% Queue Length, Q ₉₅ (veh)			0.4				0.3			0.1				0.0		
95% Queue Length, Q ₉₅ (ft)			10.2				8.1									
Control Delay (s/veh)			11.9				14.7			7.8	0.3	0.3		7.8	0.1	0.1
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)		11.9				14.7				1.3				0.4		
Approach LOS		B				B				A				A		

OPENING YEAR 2032 'BUILD' CONDITIONS

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

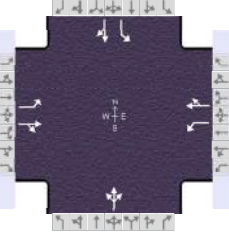
Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0		
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	4	4		2	2			9		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

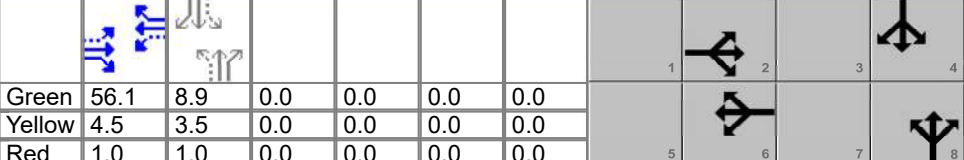
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		21.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM Build Capacity Analysis US42 & Parr...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	56.1	8.9	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

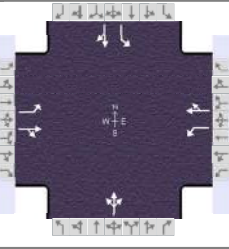
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		61.6		61.6		13.4		13.4
Change Period, ($Y+R_c$), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.3		4.3
Queue Clearance Time (g_s), s						5.0		5.6
Green Extension Time (g_e), s		0.0		0.0		0.2		0.2
Phase Call Probability						0.89		0.89
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	12	341		35	506		71			12	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	879	1818		1039	1863		1520			1380	1743	
Queue Service Time (g_s), s	0.4	4.4		0.8	7.0		0.0			0.6	0.9	
Cycle Queue Clearance Time (g_c), s	7.4	4.4		5.2	7.0		3.0			3.6	0.9	
Green Ratio (g/C)	0.75	0.75		0.75	0.75		0.12			0.12	0.12	
Capacity (c), veh/h	671	1360		813	1393		244			204	207	
Volume-to-Capacity Ratio (X)	0.018	0.251		0.043	0.363		0.289			0.058	0.114	
Back of Queue (Q), ft/ln (95 th percentile)	3	49		7	80		58			9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	1.9		0.3	3.2		2.2			0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.20		0.11	0.17		0.06			0.18	0.35	
Uniform Delay (d_1), s/veh	4.6	2.9		3.7	3.3		30.5			32.1	29.5	
Incremental Delay (d_2), s/veh	0.0	0.4		0.1	0.7		0.6			0.1	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	4.6	3.4		3.8	4.0		31.1			32.2	29.8	
Level of Service (LOS)	A	A		A	A		C			C	C	
Approach Delay, s/veh / LOS	3.4		A	4.0		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

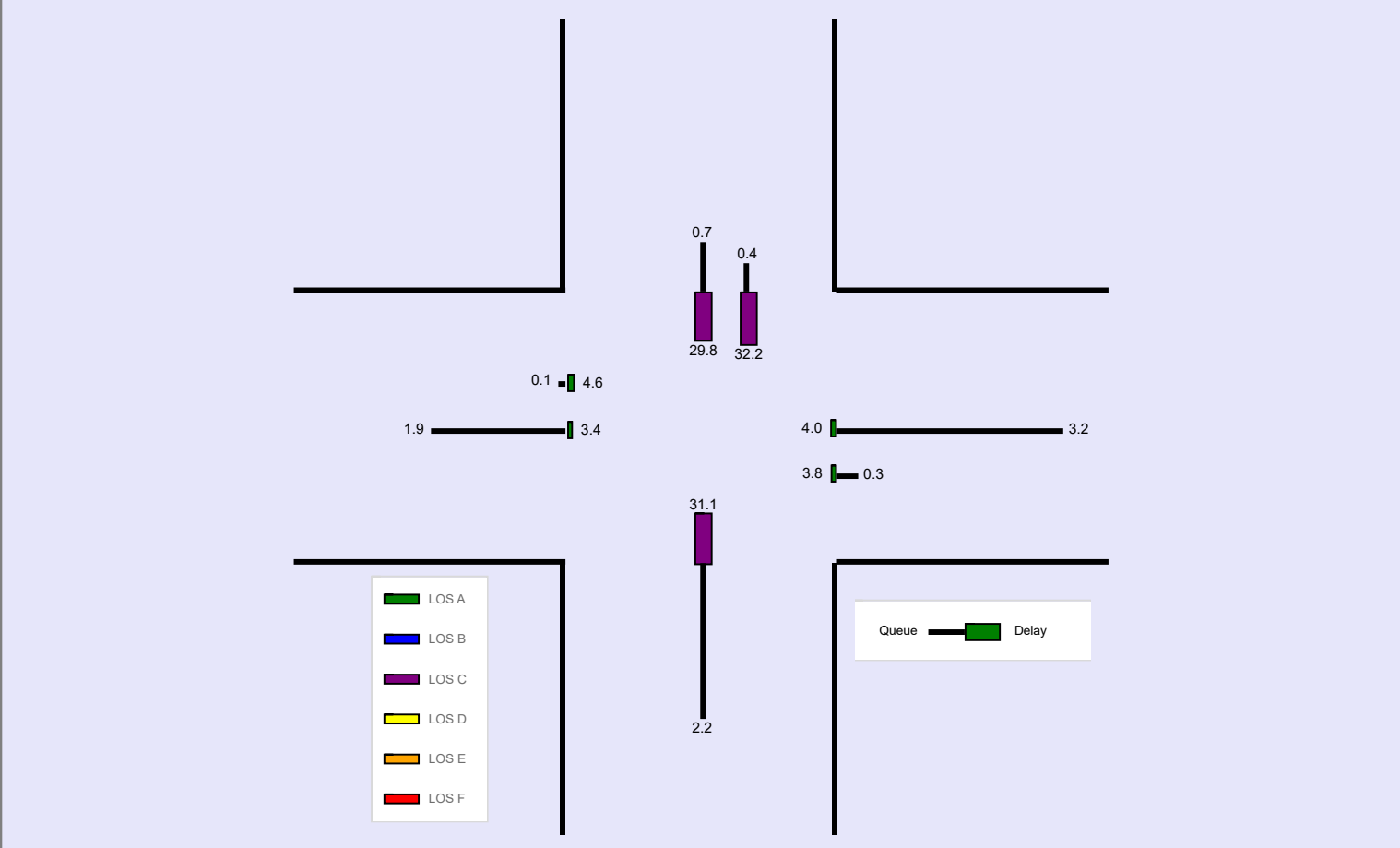
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2032 AM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



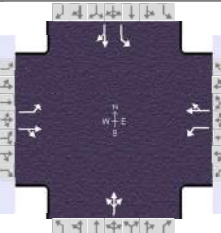
Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	270	20	30	420	10	20	10	30	10	10	10

Signal Information											
Cycle, s	75.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0
				Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0


Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	3	49		7	80			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	1.9		0.3	3.2			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.20		0.11	0.17			0.06		0.18	0.35	
Control Delay (d), s/veh	4.6	3.4		3.8	4.0			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.4		A	4.0		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM Build Capacity Analysis US42 & Parr...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

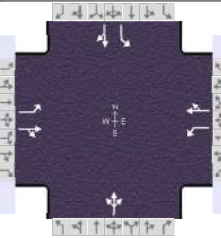
Signal Information															
Cycle, s	95.0	Reference Phase	2	Green	75.3	9.7	0.0	0.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	1	1		2	2			2		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

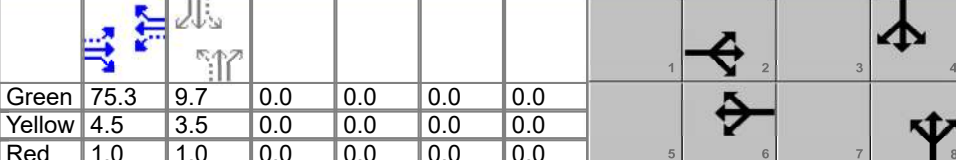
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		69.0		69.0		26.0		26.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM Build Capacity Analysis US42 & Parr...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

Signal Information													
Cycle, s	95.0	Reference Phase	2	Green	75.3	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On										

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		80.8		80.8		14.2		14.2
Change Period, (Y+R _c), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		4.4
Queue Clearance Time (g _s), s						7.3		8.0
Green Extension Time (g _e), s		0.0		0.0		0.3		0.3
Phase Call Probability						0.97		0.97
Max Out Probability						0.00		0.00

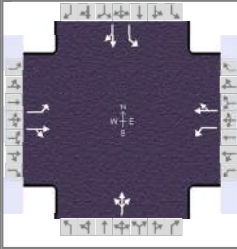
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	787		21	713		96			11	21	
Adjusted Saturation Flow Rate (s), veh/h/ln	743	1872		688	1865		1600			1346	1743	
Queue Service Time (g _s), s	0.5	14.3		1.1	12.2		2.0			0.7	1.1	
Cycle Queue Clearance Time (g _c), s	12.6	14.3		15.4	12.2		5.3			6.0	1.1	
Green Ratio (g/C)	0.79	0.79		0.79	0.79		0.10			0.10	0.10	
Capacity (c), veh/h	570	1484		518	1479		209			137	177	
Volume-to-Capacity Ratio (X)	0.019	0.530		0.041	0.482		0.458			0.078	0.120	
Back of Queue (Q), ft/ln (95 th percentile)	3	170		7	145		102			11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.8		0.3	5.7		4.0			0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.68		0.12	0.32		0.10			0.23	0.42	
Uniform Delay (d ₁), s/veh	5.4	3.5		6.3	3.3		40.7			43.6	38.8	
Incremental Delay (d ₂), s/veh	0.1	1.4		0.1	1.1		1.6			0.2	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	5.5	4.9		6.4	4.4		42.3			43.8	39.1	
Level of Service (LOS)	A	A		A	A		D			D	D	
Approach Delay, s/veh / LOS	4.9	A		4.5	A		42.3	D		40.7	D	
Intersection Delay, s/veh / LOS	7.5						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2032 PM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

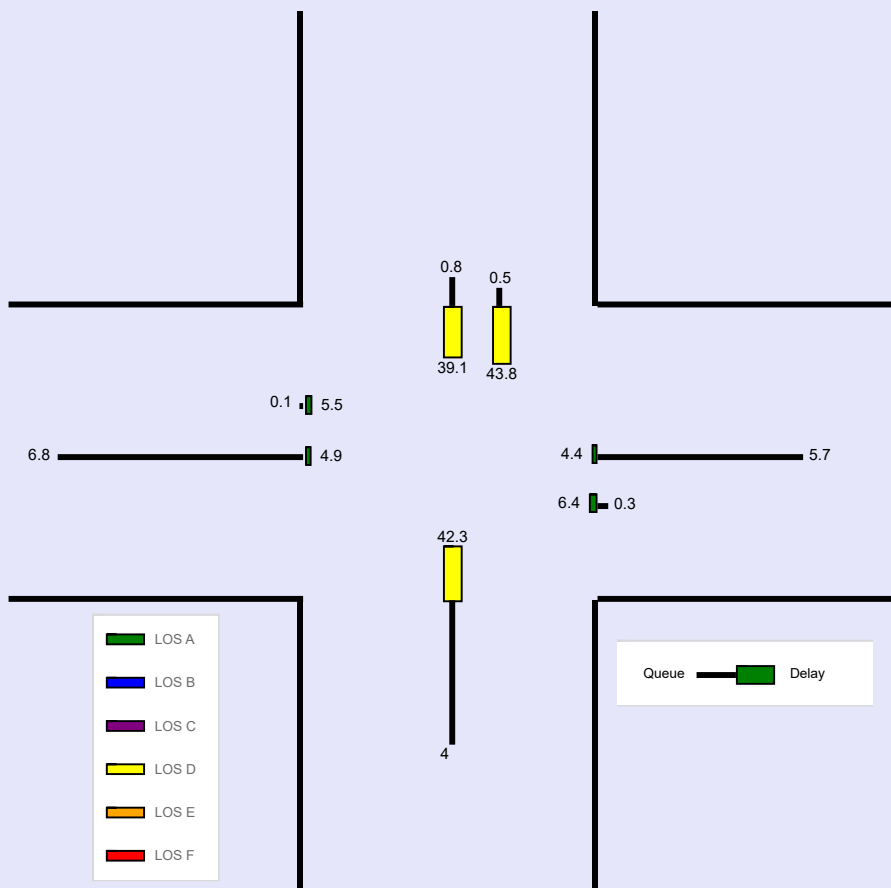
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	710	30	20	660	10	20	10	60	10	10	10

Signal Information

Cycle, s	95.0	Reference Phase	2	[Signal Diagrams]				[Signal Diagrams]				
Offset, s	0	Reference Point	End	Green	75.3	9.7	0.0	0.0	0.0	0.0	[Signal Diagrams]	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	[Signal Diagrams]	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	[Signal Diagrams]	

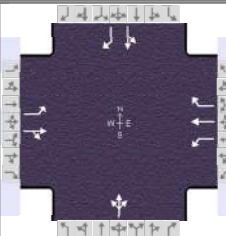
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	170		7	145			102		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.8		0.3	5.7			4.0		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.68		0.12	0.32			0.10		0.23	0.42	
Control Delay (d), s/veh	5.5	4.9		6.4	4.4			42.3		43.8	39.1	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	4.9	A		4.5	A		42.3	D		40.7	D	
Intersection Delay, s/veh / LOS	7.5						A					



HCS Signalized Intersection Input Data

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	AM Peak Hour		PHF	0.87		
Urban Street	US Route 42	Analysis Year	2032 'Build'		Analysis Period	1 > 7:00		
Intersection	Kroger & University Hos...	File Name	03 2032 AM Build Capacity Analysis US42 & Krog...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	290	30	50	390	10	30	10	40	10	10	10

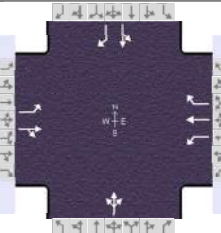
Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
				Green	1.7	3.9	45.6	9.3	0.0	0.0			
				Yellow	3.2	0.0	4.1	3.5	0.0	0.0			
				Red	1.7	0.0	1.0	1.0	0.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	290	30	50	390	10	30	10	40	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		2	2	2		5			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		165	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

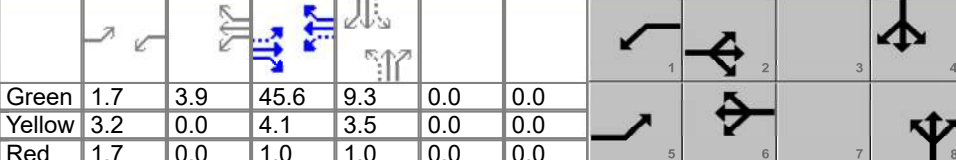
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	16.0	42.0		18.0		18.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		3.5		3.5
Red Clearance Interval (R _c), s	1.7	1.0	1.7	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	03 2032 AM Build Capacity Analysis US42 & Krog...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	290	30	50	390	10	30	10	40	10	10	10

Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	1.7	3.9	45.6	9.3	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.2	0.0	4.1	3.5	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Red	1.7	0.0	1.0	1.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.6	50.7	10.5	54.6		13.8		13.8
Change Period, ($Y+R_c$), s	4.9	5.1	4.9	5.1		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		2.8			6.0		2.8
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.21		0.70			0.93		0.93
Max Out Probability	0.00		0.00			0.07		0.01

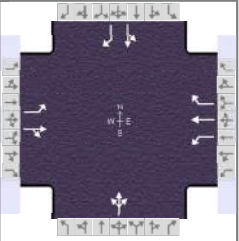
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	11	368		57	448	11		92			23	11	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1781		1781	1870	1585		1551			1654	1610	
Queue Service Time (g_s), s	0.2	7.6		0.8	8.0	0.2		1.3			0.0	0.5	
Cycle Queue Clearance Time (g_c), s	0.2	7.6		0.8	8.0	0.2		4.0			0.8	0.5	
Green Ratio (g/C)	0.63	0.61		0.70	0.66	0.66		0.12			0.12	0.12	
Capacity (c), veh/h	615	1084		742	1235	1046		258			277	199	
Volume-to-Capacity Ratio (X)	0.019	0.339		0.077	0.363	0.011		0.356			0.083	0.058	
Back of Queue (Q), ft/ln (95 th percentile)	3	122		9	120	2		74			17	8	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	4.7		0.4	4.7	0.1		2.8			0.7	0.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.23		0.05	0.37	0.01		0.82			0.17	0.08	
Uniform Delay (d_1), s/veh	5.4	7.2		4.1	5.7	4.4		30.5			29.1	29.0	
Incremental Delay (d_2), s/veh	0.0	0.9		0.0	0.8	0.0		0.8			0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	5.4	8.1		4.2	6.5	4.4		31.3			29.3	29.1	
Level of Service (LOS)	A	A		A	A	A		C			C	C	
Approach Delay, s/veh / LOS	8.0		A	6.2		A		31.3		C	29.2		C
Intersection Delay, s/veh / LOS	9.9						A						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2032 AM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

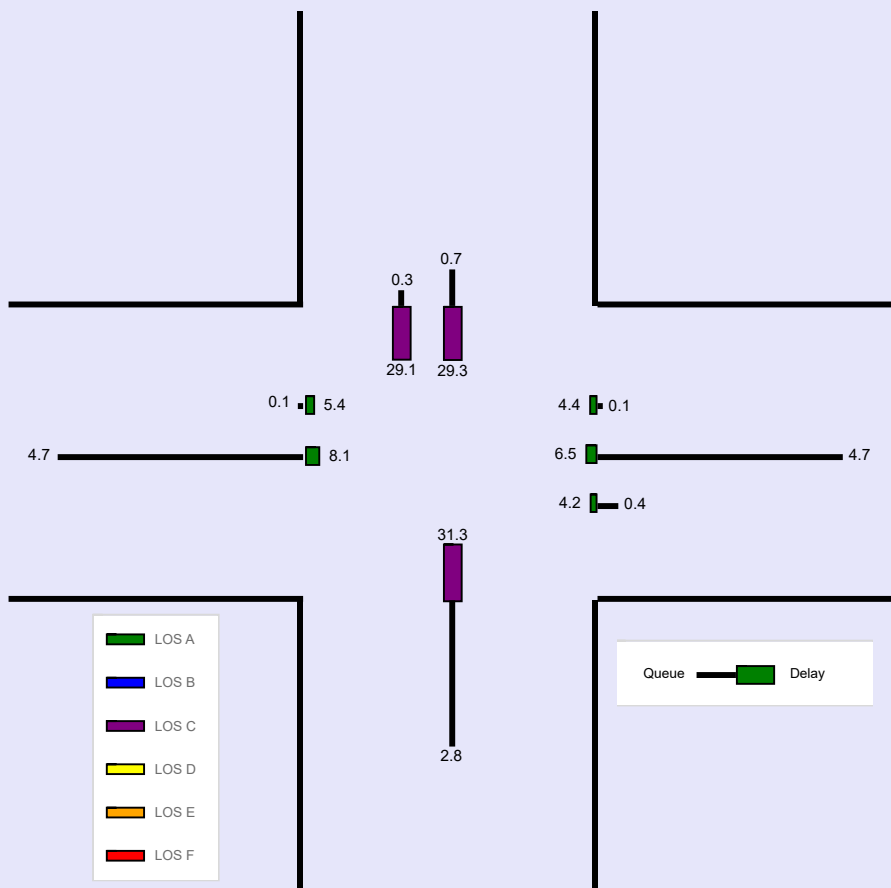
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	290	30	50	390	10	30	10	40	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	1.7	3.9	45.6	9.3	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	0.0	4.1	3.5	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	0.0	1.0	1.0	0.0	0.0				

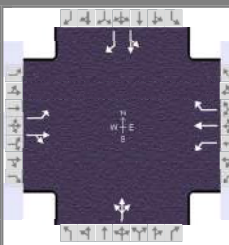
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	122		9	120	2		74			17	8
Back of Queue (Q), veh/ln (95 th percentile)	0.1	4.7		0.4	4.7	0.1		2.8			0.7	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.23		0.05	0.37	0.01		0.82			0.17	0.08
Control Delay (d), s/veh	5.4	8.1		4.2	6.5	4.4		31.3			29.3	29.1
Level of Service (LOS)	A	A		A	A	A		C			C	C
Approach Delay, s/veh / LOS	8.0 / A			6.2 / A			31.3 / C			29.2 / C		
Intersection Delay, s/veh / LOS	9.9						A					



HCS Signalized Intersection Input Data

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.95		
Urban Street	US Route 42	Analysis Year	2032 'Build'		Analysis Period	1 > 7:00		
Intersection	Kroger & University Hos...	File Name	04 2032 PM Build Capacity Analysis US42 & Krog...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

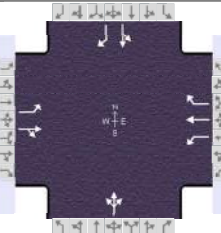
Signal Information				Signal Phases									
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	1.9	0.9	56.5	16.2	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	3.2	4.1	3.5	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.7	1.0	1.0	0.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	10	600	100	130	540	10	100	10	110	10	10	10
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h		None			None			None			None	
Heavy Vehicles (<i>P_{HV}</i>), %	1	1		1	1	1		1			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</i>)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (<i>W</i>), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		165	325	325		90			100	100
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

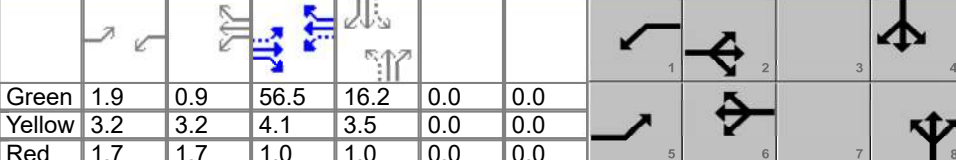
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	14.0	58.0	14.0	58.0		23.0		23.0
Yellow Change Interval (<i>Y</i>), s	3.2	4.1	3.2	4.1		3.5		3.5
Red Clearance Interval (<i>R_c</i>), s	1.7	1.0	1.7	1.0		1.0		1.0
Minimum Green (<i>G_{min}</i>), s	8	20	8	20		10		10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2032 PM Build Capacity Analysis US42 & Krog...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

Signal Information																		
Cycle, s	95.0	Reference Phase	2	Green	1.9	0.9	56.5	16.2	0.0	0.0	Yellow	3.2	3.2	4.1	3.5	0.0	0.0	
Offset, s	0	Reference Point	End	Red	1.7	1.7	1.0	1.0	0.0	0.0	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.8	61.6	12.7	67.4		20.7		20.7
Change Period, ($Y+R_c$), s	4.9	5.1	4.9	5.1		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		4.4			16.0		2.9
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.2		0.9
Phase Call Probability	0.24		0.97			1.00		1.00
Max Out Probability	0.00		0.09			1.00		0.00

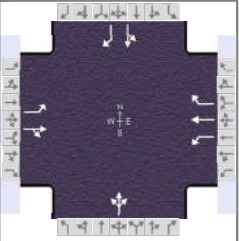
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	11	737		137	568	11		232			21	11	
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1838		1795	1885	1598		1534			1411	1610	
Queue Service Time (g_s), s	0.2	25.8		2.4	14.1	0.2		12.8			0.0	0.5	
Cycle Queue Clearance Time (g_c), s	0.2	25.8		2.4	14.1	0.2		14.0			0.9	0.5	
Green Ratio (g/C)	0.62	0.59		0.70	0.66	0.66		0.17			0.17	0.17	
Capacity (c), veh/h	526	1093		458	1237	1048		317			298	275	
Volume-to-Capacity Ratio (X)	0.020	0.674		0.299	0.459	0.010		0.731			0.071	0.038	
Back of Queue (Q), ft/ln (95 th percentile)	4	393		37	228	3		247			19	9	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	15.6		1.5	9.0	0.1		9.8			0.8	0.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.75		0.23	0.70	0.01		2.74			0.19	0.09	
Uniform Delay (d_1), s/veh	7.6	13.0		9.7	8.0	5.6		38.4			33.0	32.9	
Incremental Delay (d_2), s/veh	0.0	3.3		0.4	1.2	0.0		6.7			0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	7.7	16.4		10.1	9.3	5.7		45.1			33.1	32.9	
Level of Service (LOS)	A	B		B	A	A		D			C	C	
Approach Delay, s/veh / LOS	16.2		B	9.4		A		45.1		D	33.1		C
Intersection Delay, s/veh / LOS	17.6						B						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2032 PM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

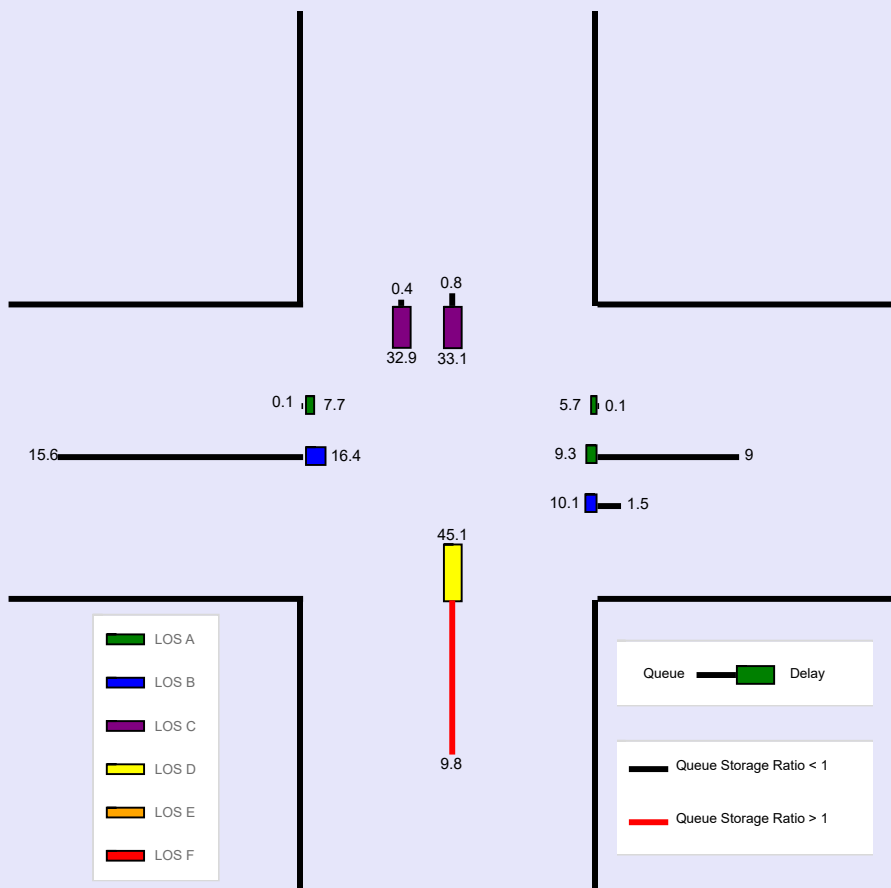
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	600	100	130	540	10	100	10	110	10	10	10

Signal Information

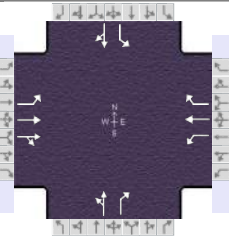
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	1.9	0.9	56.5	16.2	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.2	3.2	4.1	3.5	0.0	0.0		
				Red	1.7	1.7	1.0	1.0	0.0	0.0		

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	4	393		37	228	3		247			19	9
Back of Queue (Q), veh/ln (95 th percentile)	0.1	15.6		1.5	9.0	0.1		9.8			0.8	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.75		0.23	0.70	0.01		2.74			0.19	0.09
Control Delay (d), s/veh	7.7	16.4		10.1	9.3	5.7		45.1			33.1	32.9
Level of Service (LOS)	A	B		B	A	A		D			C	C
Approach Delay, s/veh / LOS	16.2	B		9.4	A			45.1	D		33.1	C
Intersection Delay, s/veh / LOS	17.6						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2032 AM Build Capacity Analysis US42 & Ste...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	50	240	50	190	320	50	30	70	240	110	130	100

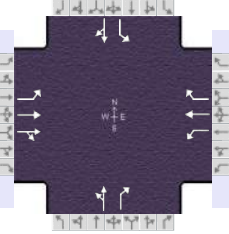
Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	5.5	5.4	22.8	7.4	12.6	0.0	Green	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	Red	5	6	7
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	0.0	1.0	1.4	1.0	0.0	Green	8		
Force Mode	Fixed	Simult. Gap N/S	On											

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	50	240	50	190	320	50	30	70	240	110	130	100
Initial Queue (Q_0), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_0), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	6	6		3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

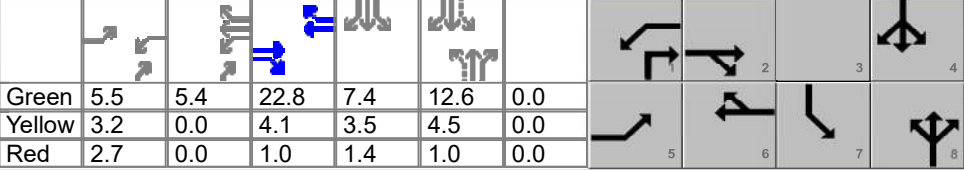
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	23.0	21.0	29.0		16.0	15.0	31.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (R_c), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (G_{min}), s	8	15	8	20		10	8	10
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0	2.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2032 AM Build Capacity Analysis US42 & Ste...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	50	240	50	190	320	50	30	70	240	110	130	100

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	5.5	5.4	22.8	7.4	12.6	0.0	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	Red	2.7	0.0	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	11.4	27.9	16.8	33.2		18.1	12.3	30.4
Change Period, (Y+R _c), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3	3.1	4.3
Queue Clearance Time (g _s), s	4.3		10.7			12.3	5.9	10.6
Green Extension Time (g _e), s	0.0	0.0	0.3	0.0		0.2	0.1	2.2
Phase Call Probability	0.69		0.99			1.00	0.92	1.00
Max Out Probability	0.22		0.54			1.00	0.26	0.04

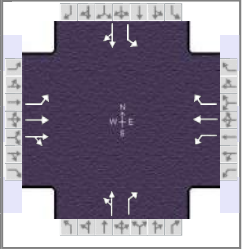
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	56	164	158	211	356	56		111	267	122	256		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1704	1767	1856	1572		1676	1598	1795	1748		
Queue Service Time (g _s), s	2.3	5.2	5.4	8.7	11.1	1.7		0.0	10.3	3.9	8.6		
Cycle Queue Clearance Time (g _c), s	2.3	5.2	5.4	8.7	11.1	1.7		3.9	10.3	3.9	8.6		
Green Ratio (g/C)	0.07	0.30	0.30	0.14	0.38	0.38		0.17	0.31	0.29	0.33		
Capacity (c), veh/h	126	549	517	256	696	590		344	500	427	580		
Volume-to-Capacity Ratio (X)	0.440	0.298	0.306	0.825	0.511	0.094		0.323	0.533	0.286	0.441		
Back of Queue (Q), ft/ln (95 th percentile)	48	107	104	194	217	29		78	169	70	151		
Back of Queue (Q), veh/ln (95 th percentile)	1.8	4.1	4.0	7.6	8.5	1.1		3.1	6.7	2.8	6.0		
Queue Storage Ratio (RQ) (95 th percentile)	0.17	0.33	0.32	0.43	0.24	0.14		0.07	1.13	0.25	0.40		
Uniform Delay (d ₁), s/veh	33.3	20.0	20.1	31.1	18.1	15.2		27.6	21.2	20.4	19.6		
Incremental Delay (d ₂), s/veh	2.4	1.4	1.5	9.6	2.7	0.3		0.5	1.0	0.1	0.5		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	35.7	21.4	21.6	40.7	20.8	15.5		28.1	22.3	20.5	20.1		
Level of Service (LOS)	D	C	C	D	C	B		C	C	C	C		
Approach Delay, s/veh / LOS	23.6		C	27.1		C		24.0		C	20.3		C
Intersection Delay, s/veh / LOS	24.2						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2032 AM Build Capacity Analysis US42 & Ste...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

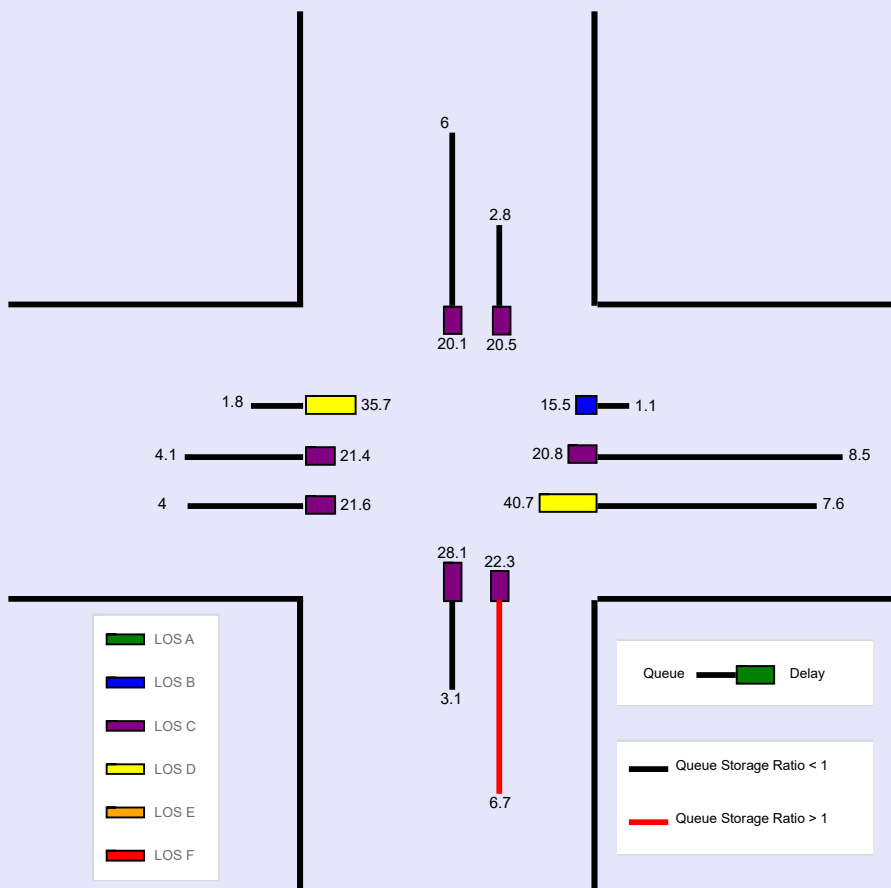
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	50	240	50	190	320	50	30	70	240	110	130	100

Signal Information

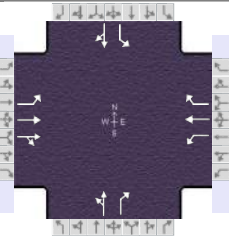
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	5.5	5.4	22.8	7.4	12.6	0.0	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	5	6	7
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	0.0	1.0	1.4	1.0	0.0	8		

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	48	107	104	194	217	29		78	169	70	151	
Back of Queue (Q), veh/ln (95 th percentile)	1.8	4.1	4.0	7.6	8.5	1.1		3.1	6.7	2.8	6.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.17	0.33	0.32	0.43	0.24	0.14		0.07	1.13	0.25	0.40	
Control Delay (d), s/veh	35.7	21.4	21.6	40.7	20.8	15.5		28.1	22.3	20.5	20.1	
Level of Service (LOS)	D	C	C	D	C	B		C	C	C	C	
Approach Delay, s/veh / LOS	23.6		C	27.1		C		24.0	C	20.3		C
Intersection Delay, s/veh / LOS	24.2						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2032 AM Build US42 & Stewart.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	20	270	50	200	370	40	30	70	240	60	130	50

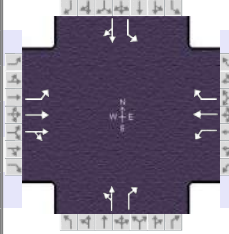
Signal Information															
Cycle, s	75.0	Reference Phase	2	Green	3.0	2.5	23.4	6.0	12.8	0.0	Green	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	2.7	1.0	1.4	1.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	20	270	50	200	370	40	30	70	240	60	130	50
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h	None			None			None			None		
Heavy Vehicles (<i>P_{HV}</i>), %	6	6		3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</i>)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (<i>W</i>), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

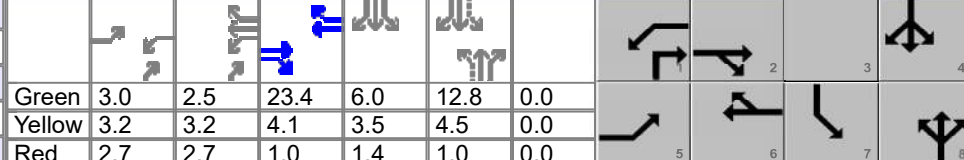
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	15.0	23.0	21.0	29.0		16.0	15.0	31.0
Yellow Change Interval (<i>Y</i>), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (<i>R_c</i>), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (<i>G_{min}</i>), s	8	15	8	20		10	8	10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	3.0	2.0	3.0	2.0		3.0	2.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2032 AM Build US42 & Stewart.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	270	50	200	370	40	30	70	240	60	130	50

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	3.0	2.5	23.4	6.0	12.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	8.9	28.5	17.3	36.9		18.3	10.9	29.2
Change Period, ($Y+R_c$), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2	3.1	4.2
Queue Clearance Time (g_s), s	2.9		11.1			12.2	4.1	8.4
Green Extension Time (g_e), s	0.0	0.0	0.4	0.0		0.6	0.0	2.1
Phase Call Probability	0.37		0.99			1.00	0.75	1.00
Max Out Probability	0.00		0.34			1.00	0.01	0.01

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	22	181	175	222	411	44		111	267	67	200		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1713	1767	1856	1572		1697	1598	1795	1795		
Queue Service Time (g_s), s	0.9	5.7	5.9	9.1	12.3	1.3		0.0	10.2	2.1	6.4		
Cycle Queue Clearance Time (g_c), s	0.9	5.7	5.9	9.1	12.3	1.3		3.9	10.2	2.1	6.4		
Green Ratio (g/C)	0.04	0.31	0.31	0.15	0.42	0.42		0.17	0.32	0.28	0.32		
Capacity (c), veh/h	68	565	535	268	788	667		352	515	398	567		
Volume-to-Capacity Ratio (X)	0.326	0.320	0.327	0.828	0.522	0.067		0.316	0.518	0.168	0.352		
Back of Queue (Q), ft/ln (95 th percentile)	20	117	114	200	230	20		78	165	38	116		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	4.5	4.4	7.8	9.0	0.8		3.1	6.5	1.5	4.6		
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.36	0.35	0.44	0.26	0.10		0.07	1.10	0.14	0.31		
Uniform Delay (d_1), s/veh	35.0	19.7	19.8	30.9	16.0	12.8		27.4	20.7	20.6	19.7		
Incremental Delay (d_2), s/veh	2.7	1.5	1.6	8.9	2.5	0.2		0.5	0.8	0.1	0.4		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	37.8	21.2	21.4	39.7	18.4	13.0		27.9	21.5	20.7	20.1		
Level of Service (LOS)	D	C	C	D	B	B		C	C	C	C		
Approach Delay, s/veh / LOS	22.3		C	25.1		C		23.4		C	20.2		C
Intersection Delay, s/veh / LOS	23.3						C						

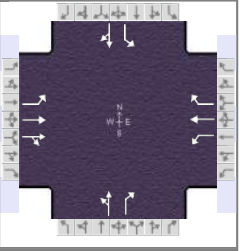
Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2032 AM Build US42 & Stewart.xus		
Project Description	US 30 & US 42 Planning Study				

Intersection Information



Demand Information

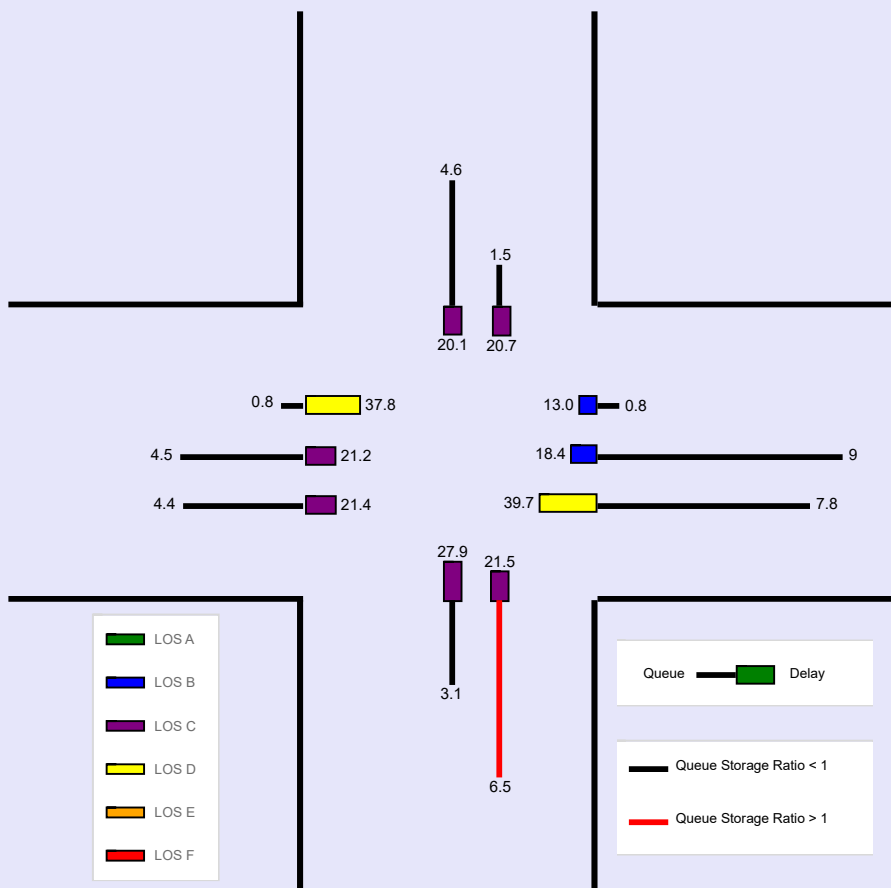
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	270	50	200	370	40	30	70	240	60	130	50

Signal Information

Cycle, s	75.0	Reference Phase	2																					
Offset, s	0	Reference Point	End	Green	3.0	2.5	23.4	6.0	12.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

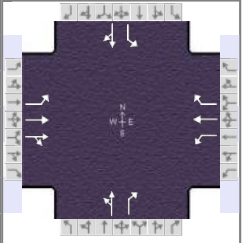
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	20	117	114	200	230	20		78	165	38	116	
Back of Queue (Q), veh/ln (95 th percentile)	0.8	4.5	4.4	7.8	9.0	0.8		3.1	6.5	1.5	4.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.36	0.35	0.44	0.26	0.10		0.07	1.10	0.14	0.31	
Control Delay (d), s/veh	37.8	21.2	21.4	39.7	18.4	13.0		27.9	21.5	20.7	20.1	
Level of Service (LOS)	D	C	C	D	B	B		C	C	C	C	
Approach Delay, s/veh / LOS	22.3		C	25.1		C		23.4	C	20.2		C
Intersection Delay, s/veh / LOS	23.3						C					



HCS Signalized Intersection Input Data

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.97		
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'		Analysis Period	1 > 7:00		
Intersection	Stewart Road	File Name	06 2032 PM Build Capacity Analysis US42 & Ste...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	220	440	60	300	490	140	40	150	280	170	210	150

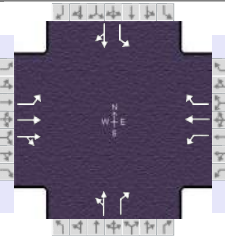
Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	14.0	4.1	30.2	9.4	15.9	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.2	0.0	4.1	3.5	4.5	0.0			
				Red	2.7	0.0	1.0	1.4	1.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (<i>v</i>), veh/h	220	440	60	300	490	140	40	150	280	170	210	150
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h	None			None			None			None		
Heavy Vehicles (<i>P_{HV}</i>), %	1	1		1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</i>)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (<i>W</i>), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

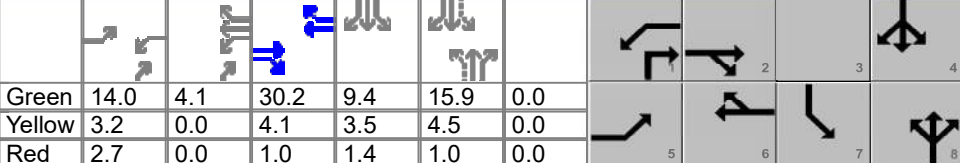
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	25.0	34.0	25.0	34.0		19.0	17.0	36.0
Yellow Change Interval (<i>Y</i>), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (<i>R_c</i>), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (<i>G_{min}</i>), s	8	20	8	20		10	8	10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2032 PM Build Capacity Analysis US42 & Ste...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	220	440	60	300	490	140	40	150	280	170	210	150

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	14.0	4.1	30.2	9.4	15.9	0.0	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	Red	2.7	0.0	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	19.9	35.3	24.1	39.4		21.4	14.3	35.6
Change Period, ($Y+R_c$), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3	4.1	4.3
Queue Clearance Time (g_s), s	13.7		18.0			15.6	9.3	19.4
Green Extension Time (g_e), s	0.4	0.0	0.2	0.0		0.2	0.1	2.8
Phase Call Probability	1.00		1.00			1.00	0.99	1.00
Max Out Probability	0.34		1.00			1.00	1.00	0.22

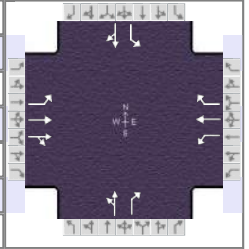
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	227	262	253	309	505	144		196	289	175	371		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1806	1795	1885	1598		1662	1585	1795	1754		
Queue Service Time (g_s), s	11.7	10.5	10.6	16.0	22.2	6.0		6.1	13.6	7.3	17.4		
Cycle Queue Clearance Time (g_c), s	11.7	10.5	10.6	16.0	22.2	6.0		10.3	13.6	7.3	17.4		
Green Ratio (g/C)	0.15	0.32	0.32	0.19	0.36	0.36		0.17	0.36	0.29	0.32		
Capacity (c), veh/h	265	599	574	343	681	577		323	568	326	556		
Volume-to-Capacity Ratio (X)	0.855	0.437	0.441	0.901	0.742	0.250		0.606	0.508	0.538	0.667		
Back of Queue (Q), ft/ln (95 th percentile)	253	216	211	352	409	106		201	220	144	302		
Back of Queue (Q), veh/ln (95 th percentile)	10.0	8.6	8.4	14.0	16.2	4.2		7.9	8.6	5.7	12.0		
Queue Storage Ratio (RQ) (95 th percentile)	0.87	0.66	0.65	0.78	0.45	0.53		0.19	1.46	0.52	0.80		
Uniform Delay (d_1), s/veh	39.5	25.7	25.7	37.5	26.5	21.3		37.1	23.9	27.7	28.1		
Incremental Delay (d_2), s/veh	13.3	2.3	2.5	23.4	7.1	1.0		3.1	0.7	1.4	3.0		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	52.7	28.0	28.2	61.0	33.6	22.3		40.1	24.6	29.1	31.0		
Level of Service (LOS)	D	C	C	E	C	C		D	C	C	C		
Approach Delay, s/veh / LOS	35.6		D	40.7		D		30.9		C	30.4		C
Intersection Delay, s/veh / LOS	35.5						D						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'BA 1,2A,4'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2032 PM Build Capacity Analysis US42 & Ste...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

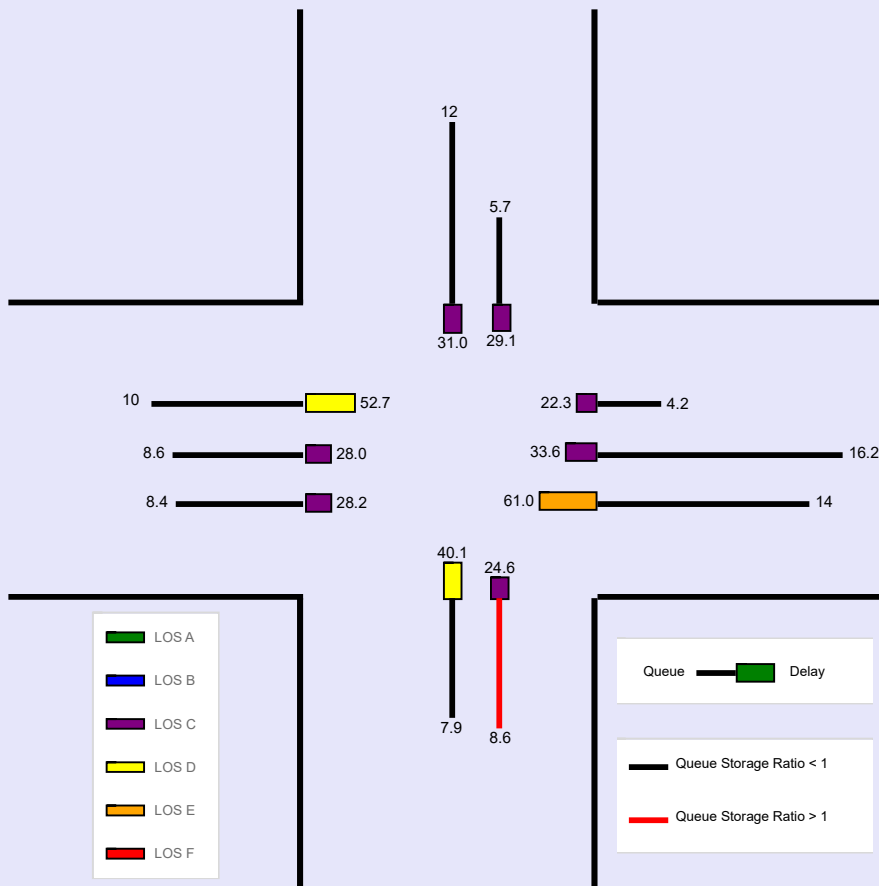
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	220	440	60	300	490	140	40	150	280	170	210	150

Signal Information

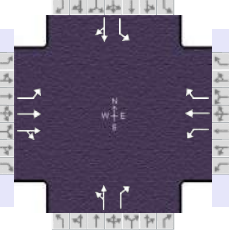
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	14.0	4.1	30.2	9.4	15.9	0.0	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	5	6	7
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	0.0	1.0	1.4	1.0	0.0	8		

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	253	216	211	352	409	106		201	220	144	302	
Back of Queue (Q), veh/ln (95 th percentile)	10.0	8.6	8.4	14.0	16.2	4.2		7.9	8.6	5.7	12.0	
Queue Storage Ratio (RQ) (95 th percentile)	0.87	0.66	0.65	0.78	0.45	0.53		0.19	1.46	0.52	0.80	
Control Delay (d), s/veh	52.7	28.0	28.2	61.0	33.6	22.3		40.1	24.6	29.1	31.0	
Level of Service (LOS)	D	C	C	E	C	C		D	C	C	C	
Approach Delay, s/veh / LOS	35.6 / D			40.7 / D			30.9 / C			30.4 / C		
Intersection Delay, s/veh / LOS	35.5						D					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2032 PM Build US42 & Stewart.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	300	550	130	40	150	280	120	210	90

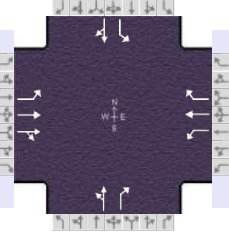
Signal Information													
Cycle, s	95.0	Reference Phase	2	Green	7.5	4.9	31.3	7.7	16.3	0.0	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	5	6	7
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	2.7	1.0	1.4	1.0	0.0	8		
Force Mode	Fixed	Simult. Gap N/S	On										

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	300	550	130	40	150	280	120	210	90
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	1	1		1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

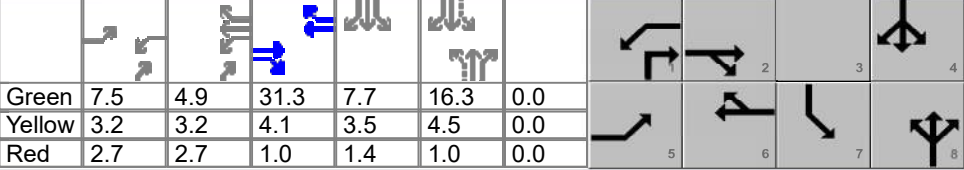
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	25.0	34.0	25.0	34.0		19.0	17.0	36.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (R_c), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (G_{min}), s	8	20	8	20		10	8	10
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2032 PM Build US42 & Stewart.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	300	550	130	40	150	280	120	210	90

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	7.5	4.9	31.3	7.7	16.3	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	13.4	36.4	24.2	47.2		21.8	12.6	34.4
Change Period, ($Y+R_c$), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2	4.1	4.2
Queue Clearance Time (g_s), s	7.3		18.0			15.4	7.1	15.8
Green Extension Time (g_e), s	0.2	0.0	0.3	0.0		0.9	0.1	2.8
Phase Call Probability	0.93		1.00			1.00	0.96	1.00
Max Out Probability	0.00		1.00			1.00	0.46	0.08

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	103	324	315	309	567	134		196	289	124	309		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1821	1795	1885	1598		1684	1585	1795	1789		
Queue Service Time (g_s), s	5.3	13.2	13.3	16.0	22.8	4.8		5.7	13.4	5.1	13.8		
Cycle Queue Clearance Time (g_c), s	5.3	13.2	13.3	16.0	22.8	4.8		10.1	13.4	5.1	13.8		
Green Ratio (g/C)	0.08	0.33	0.33	0.19	0.44	0.44		0.17	0.36	0.27	0.30		
Capacity (c), veh/h	141	621	600	345	835	708		336	577	303	545		
Volume-to-Capacity Ratio (X)	0.730	0.522	0.525	0.896	0.679	0.189		0.584	0.500	0.408	0.568		
Back of Queue (Q), ft/ln (95 th percentile)	118	261	255	344	396	82		196	218	100	248		
Back of Queue (Q), veh/ln (95 th percentile)	4.7	10.4	10.1	13.7	15.7	3.3		7.7	8.6	4.0	9.9		
Queue Storage Ratio (RQ) (95 th percentile)	0.41	0.80	0.79	0.77	0.44	0.41		0.18	1.45	0.36	0.66		
Uniform Delay (d_1), s/veh	42.8	25.8	25.8	37.4	21.1	16.1		36.6	23.5	27.7	27.8		
Incremental Delay (d_2), s/veh	7.0	3.1	3.3	20.9	4.4	0.6		2.1	0.7	0.9	1.2		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	49.8	28.9	29.1	58.3	25.5	16.7		38.6	24.1	28.6	29.0		
Level of Service (LOS)	D	C	C	E	C	B		D	C	C	C		
Approach Delay, s/veh / LOS	31.9		C	34.4		C		30.0		C	28.9		C
Intersection Delay, s/veh / LOS	32.0						C						

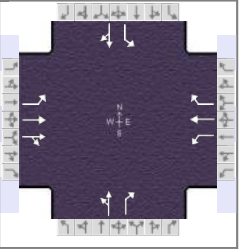
Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2032 PM Build US42 & Stewart.xus		
Project Description	US 30 & US 42 Planning Study				

Intersection Information



Demand Information

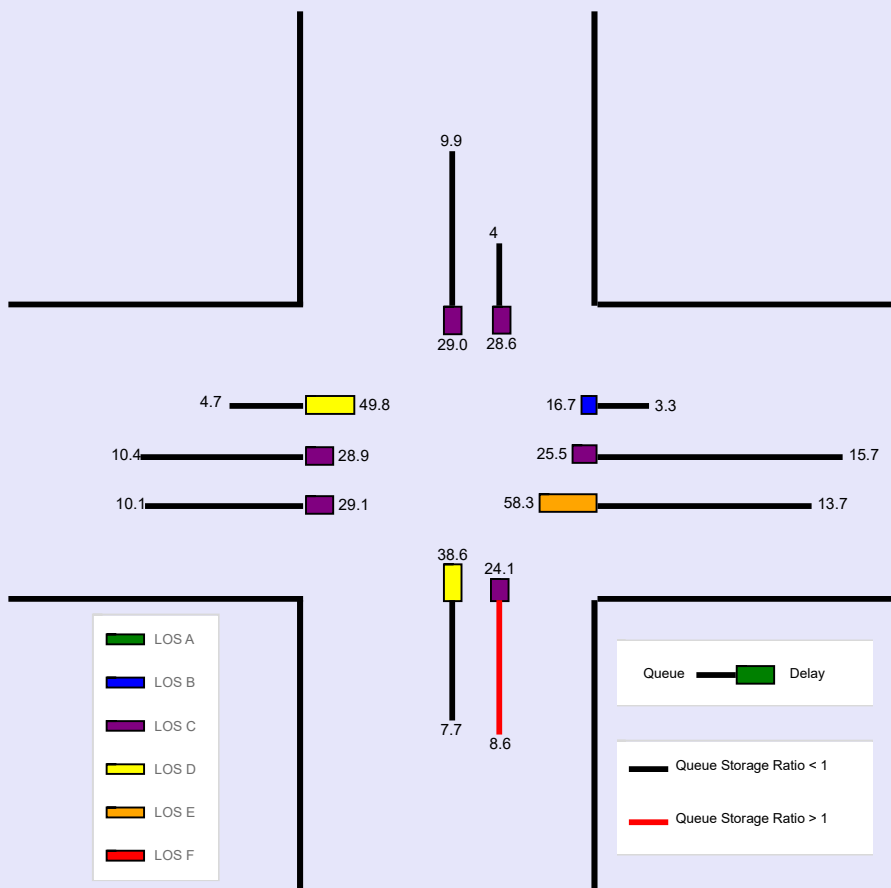
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	100	560	60	300	550	130	40	150	280	120	210	90

Signal Information

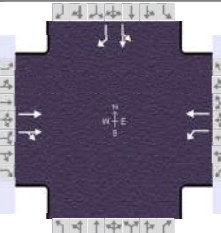
Cycle, s	95.0	Reference Phase	2																					
Offset, s	0	Reference Point	End	Green	7.5	4.9	31.3	7.7	16.3	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Movement Group Results





Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	118	261	255	344	396	82		196	218	100	248	
Back of Queue (Q), veh/ln (95 th percentile)	4.7	10.4	10.1	13.7	15.7	3.3		7.7	8.6	4.0	9.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.41	0.80	0.79	0.77	0.44	0.41		0.18	1.45	0.36	0.66	
Control Delay (d), s/veh	49.8	28.9	29.1	58.3	25.5	16.7		38.6	24.1	28.6	29.0	
Level of Service (LOS)	D	C	C	E	C	B		D	C	C	C	
Approach Delay, s/veh / LOS	31.9 C			34.4 C			30.0 C			28.9 C		
Intersection Delay, s/veh / LOS	32.0						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	US 30 EB Ramps	File Name	07 2032 AM Build Capacity Analysis US42 & US...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	80	20	440					210	10	120

Signal Information																			
Cycle, s	75.0	Reference Phase	2																
Offset, s	0	Reference Point	End	Green	52.8	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

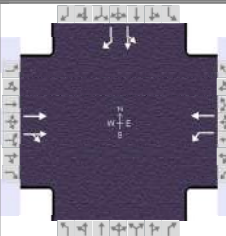
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	80	20	440					210	10	120
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %		4		4	4					2	2	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0				0	0	0
Arrival Type (AT)		3	3	3	3					3	3	3
Upstream Filtering (I)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		975		100	650					600	325	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		55.0		55.0				20.0
Yellow Change Interval (Y), s		4.0		4.0				4.0
Red Clearance Interval (R _c), s		1.0		1.0				1.0
Minimum Green (G _{min}), s		20		20				10
Start-Up Lost Time (l _t), s		2.0	2.0	2.0			2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0			2.0	2.0
Passage (P _T), s		2.0		2.0				3.0
Recall Mode		Min		Min				Off
Dual Entry		Yes		Yes				Yes
Walk (Walk), s				0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s				0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0		No	0.0	0	No		0		0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0				12.0	5.0	2.0
Pedestrian Signal / Occupied Parking			0.50		No	0.50		No			No	0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	07 2032 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		510	80	20	440					210	10	120

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	52.8	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		6.0				11.0
Phase Duration, s		57.8		57.8				17.2
Change Period, (Y+R _c), s		5.0		5.0				5.0
Max Allow Headway (MAH), s		0.0		0.0				4.2
Queue Clearance Time (g _s), s								11.7
Green Extension Time (g _e), s		0.0		0.0				0.5
Phase Call Probability								1.00
Max Out Probability								1.00

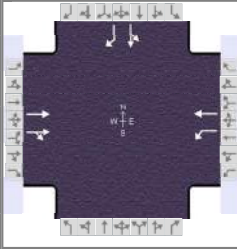
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement		2	12	1	6					7	4	14
Adjusted Flow Rate (v), veh/h		328	314	22	478						239	130
Adjusted Saturation Flow Rate (s), veh/h/ln		1841	1753	775	1841						1785	1585
Queue Service Time (g _s), s		5.4	4.8	0.8	7.8						9.7	5.6
Cycle Queue Clearance Time (g _c), s		5.4	4.8	6.2	7.8						9.7	5.6
Green Ratio (g/C)		0.70	0.70	0.70	0.70						0.16	0.16
Capacity (c), veh/h		1297	1235	586	1297						290	257
Volume-to-Capacity Ratio (X)		0.253	0.254	0.037	0.369						0.825	0.507
Back of Queue (Q), ft/ln (95 th percentile)		64	63	6	105						218	98
Back of Queue (Q), veh/ln (95 th percentile)		2.5	2.4	0.2	4.1						8.6	3.9
Queue Storage Ratio (RQ) (95 th percentile)		0.07	0.06	0.06	0.16						0.36	0.30
Uniform Delay (d ₁), s/veh		4.0	4.0	5.2	4.4						30.4	28.7
Incremental Delay (d ₂), s/veh		0.5	0.5	0.1	0.8						12.3	1.5
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		4.5	4.5	5.3	5.2						42.6	30.2
Level of Service (LOS)		A	A	A	A						D	C
Approach Delay, s/veh / LOS	4.5	A		5.2	A		0.0			38.3	D	
Intersection Delay, s/veh / LOS	13.0						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	07 2032 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

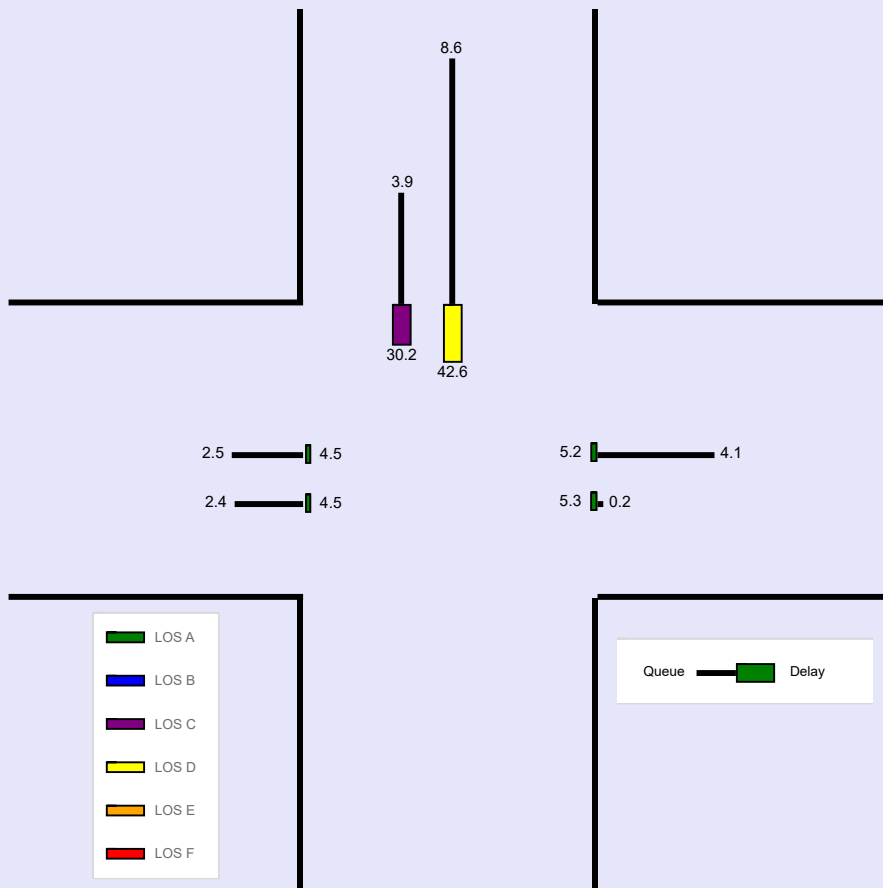
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	80	20	440					210	10	120

Signal Information

Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	52.8	12.2	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

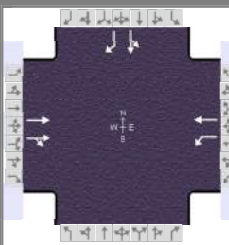
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		64	63	6	105						218	98
Back of Queue (Q), veh/ln (95 th percentile)		2.5	2.4	0.2	4.1						8.6	3.9
Queue Storage Ratio (RQ) (95 th percentile)		0.07	0.06	0.06	0.16						0.36	0.30
Control Delay (d), s/veh		4.5	4.5	5.3	5.2						42.6	30.2
Level of Service (LOS)		A	A	A	A						D	C
Approach Delay, s/veh / LOS	4.5	A		5.2	A		0.0			38.3	D	
Intersection Delay, s/veh / LOS	13.0						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	08 2032 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		740	150	30	630					400	10	300

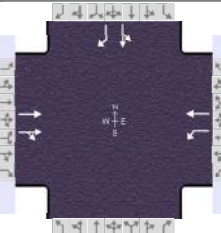
Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	59.2	25.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		740	150	30	630					400	10	300
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %		1		1	1					1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0				0	0	0
Arrival Type (AT)		3	3	3	3					3	3	3
Upstream Filtering (I)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		975		100	650					600	325	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35


Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0				35.0
Yellow Change Interval (Y), s		4.0		4.0				4.0
Red Clearance Interval (R _c), s		1.0		1.0				1.0
Minimum Green (G _{min}), s		20		20				10
Start-Up Lost Time (lt), s		2.0	2.0	2.0			2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0			2.0	2.0
Passage (PT), s		2.0		2.0				3.0
Recall Mode		Min		Min				Off
Dual Entry		Yes		Yes				Yes
Walk (Walk), s				0.0		0.0		0.0
Pedestrian Clearance Time (PC), s				0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0		No	0.0	0	No		0		0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0				12.0	5.0	2.0
Pedestrian Signal / Occupied Parking			0.50		No	0.50		No			No	0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00	
Intersection	US 30 EB Ramps	File Name	08 2032 PM Build Capacity Analysis US42 & US...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		740	150	30	630					400	10	300

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	59.2	25.8	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		6.0				11.0
Phase Duration, s		64.2		64.2				30.8
Change Period, ($Y+R_c$), s		5.0		5.0				5.0
Max Allow Headway (MAH), s		0.0		0.0				4.2
Queue Clearance Time (g_s), s								24.2
Green Extension Time (g_e), s		0.0		0.0				1.7
Phase Call Probability								1.00
Max Out Probability								0.66

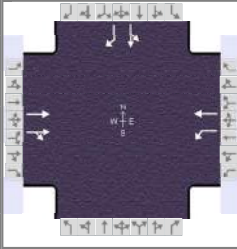
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7	4	14
Adjusted Flow Rate (v), veh/h		488	459	32	670						436	319
Adjusted Saturation Flow Rate (s), veh/h/ln		1885	1774	597	1885						1797	1598
Queue Service Time (g_s), s		13.8	12.5	2.8	19.8						22.2	17.3
Cycle Queue Clearance Time (g_c), s		13.8	12.5	16.6	19.8						22.2	17.3
Green Ratio (g/C)		0.62	0.62	0.62	0.62						0.27	0.27
Capacity (c), veh/h		1174	1105	361	1174						489	435
Volume-to-Capacity Ratio (X)		0.416	0.416	0.089	0.571						0.892	0.734
Back of Queue (Q), ft/ln (95 th percentile)		214	213	18	312						423	285
Back of Queue (Q), veh/ln (95 th percentile)		8.5	8.1	0.7	12.4						16.8	11.3
Queue Storage Ratio (RQ) (95 th percentile)		0.22	0.21	0.19	0.48						0.71	0.88
Uniform Delay (d_1), s/veh		9.1	9.1	13.7	10.5						33.2	31.5
Incremental Delay (d_2), s/veh		1.1	1.2	0.5	2.0						14.8	4.7
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		10.2	10.3	14.2	12.5						48.1	36.1
Level of Service (LOS)		B	B	B	B						D	D
Approach Delay, s/veh / LOS	10.2	B		12.6	B		0.0			43.0	D	
Intersection Delay, s/veh / LOS	21.2						C					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	08 2032 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

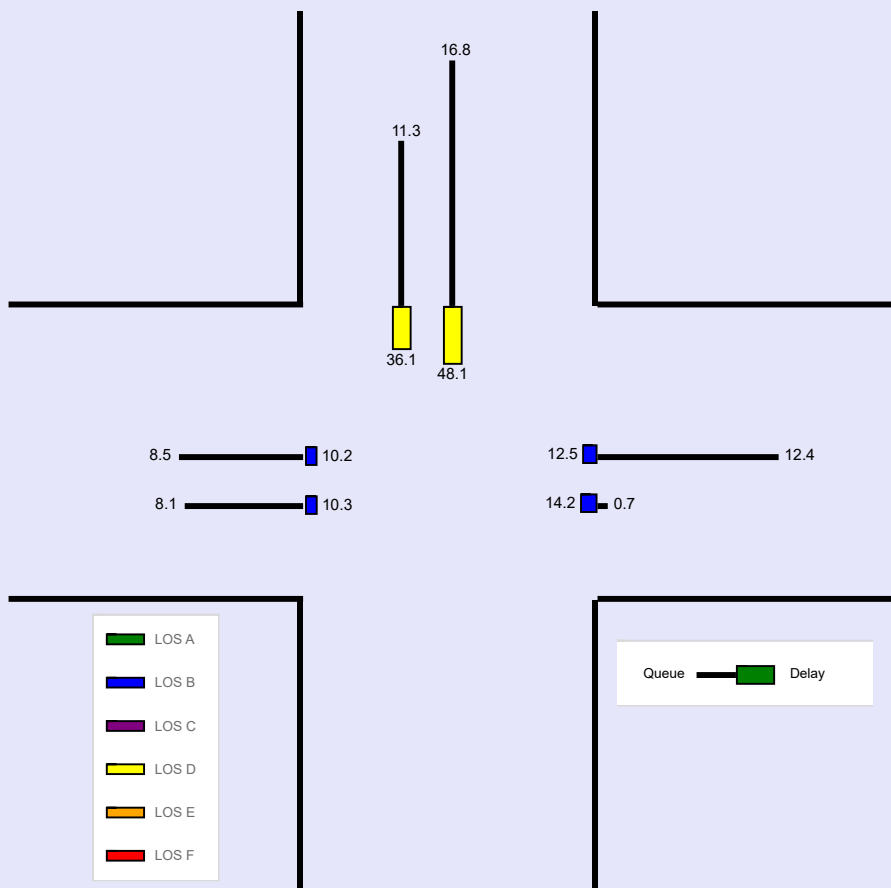
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		740	150	30	630					400	10	300

Signal Information

Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	59.2	25.8	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

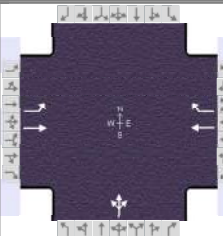
Movement Group Results

Approach Movement	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Back of Queue (Q), ft/ln (95 th percentile)		214	213	18	312						423	285	
Back of Queue (Q), veh/ln (95 th percentile)		8.5	8.1	0.7	12.4						16.8	11.3	
Queue Storage Ratio (RQ) (95 th percentile)		0.22	0.21	0.19	0.48						0.71	0.88	
Control Delay (d), s/veh		10.2	10.3	14.2	12.5						48.1	36.1	
Level of Service (LOS)		B	B	B	B						D	D	
Approach Delay, s/veh / LOS	10.2	B		12.6	B		0.0				43.0	D	
Intersection Delay, s/veh / LOS	21.2						C						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	09 2032 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	220	500			380	390	80	10	30			

Signal Information				Signal Phases										
Cycle, s	75.0	Reference Phase	2	↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	
Offset, s	0	Reference Point	End	Green	7.0	43.5	9.5	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

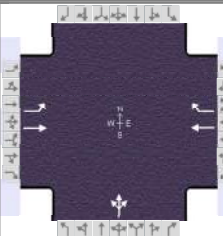
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	220	500			380	390	80	10	30			
Initial Queue (Q _b), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %	3	3			4	4		12				
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)	3	3			3	3	3	3	3			
Upstream Filtering (I)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Lane Width (W), ft	12.0	12.0			12.0	12.0		12.0				
Turn Bay Length, ft	200	650			999	400		600				
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	55.0		40.0		20.0		
Yellow Change Interval (Y), s	4.0	4.0		4.0		4.0		
Red Clearance Interval (R _c), s	1.0	1.0		1.0		1.0		
Minimum Green (G _{min}), s	7	20		20		10		
Start-Up Lost Time (l _t), s	2.0	2.0		2.0	2.0	2.0		
Extension of Effective Green (e), s	2.0	2.0		2.0	2.0	2.0		
Passage (P _T), s	3.0	2.0		2.0		3.0		
Recall Mode	Off	Min		Min		Off		
Dual Entry	No	Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	09 2032 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	220	500			380	390	80	10	30			

Signal Information				Signal Phases										
Cycle, s	75.0	Reference Phase	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Offset, s	0	Reference Point	End	Green	7.0	43.5	9.5	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		7.3		12.0		
Phase Duration, s	12.0	60.5		48.5		14.5		
Change Period, (Y+R _c), s	5.0	5.0		5.0		5.0		
Max Allow Headway (MAH), s	4.1	0.0		0.0		4.2		
Queue Clearance Time (g _s), s	5.9					8.4		
Green Extension Time (g _e), s	0.6	0.0		0.0		0.2		
Phase Call Probability	1.00					0.95		
Max Out Probability	0.04					0.14		

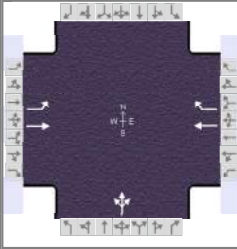
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	262	595			452	464		143				
Adjusted Saturation Flow Rate (s), veh/h/ln	1767	1856			1841	1560		1597				
Queue Service Time (g _s), s	3.9	9.2			10.3	13.3		6.4				
Cycle Queue Clearance Time (g _c), s	3.9	9.2			10.3	13.3		6.4				
Green Ratio (g/C)	0.70	0.74			0.58	0.58		0.13				
Capacity (c), veh/h	673	1373			1069	906		202				
Volume-to-Capacity Ratio (X)	0.389	0.433			0.423	0.513		0.707				
Back of Queue (Q), ft/ln (95 th percentile)	47	110			174	197		129				
Back of Queue (Q), veh/ln (95 th percentile)	1.8	4.3			6.7	7.6		4.7				
Queue Storage Ratio (RQ) (95 th percentile)	0.24	0.17			0.17	0.49		0.22				
Uniform Delay (d ₁), s/veh	5.4	3.7			8.7	9.4		31.4				
Incremental Delay (d ₂), s/veh	0.4	1.0			1.2	2.1		4.5				
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0		0.0				
Control Delay (d), s/veh	5.7	4.7			10.0	11.5		35.9				
Level of Service (LOS)	A	A			A	B		D				
Approach Delay, s/veh / LOS	5.0	A		10.7	B		35.9	D		0.0		
Intersection Delay, s/veh / LOS	10.1						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	09 2032 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

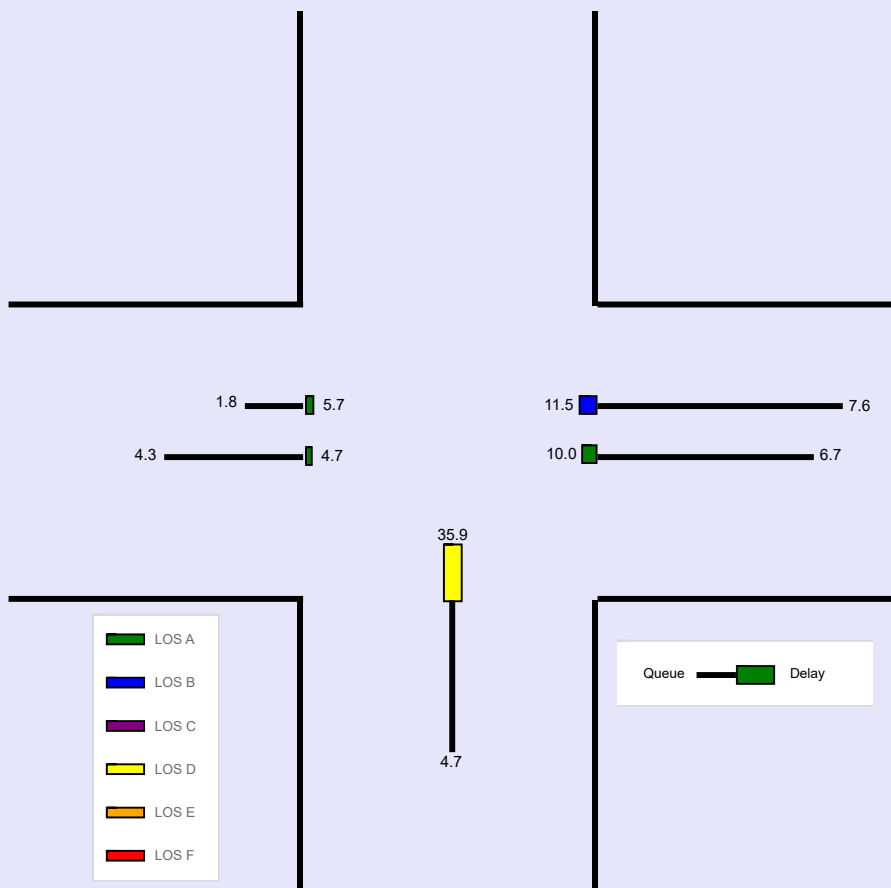
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	220	500			380	390	80	10	30			

Signal Information

Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	7.0	43.5	9.5	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

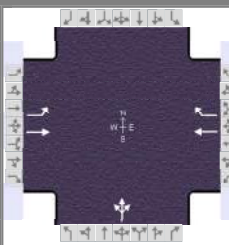
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	47	110			174	197		129				
Back of Queue (Q), veh/ln (95 th percentile)	1.8	4.3			6.7	7.6		4.7				
Queue Storage Ratio (RQ) (95 th percentile)	0.24	0.17			0.17	0.49		0.22				
Control Delay (d), s/veh	5.7	4.7			10.0	11.5		35.9				
Level of Service (LOS)	A	A			A	B		D				
Approach Delay, s/veh / LOS	5.0 A			10.7 B			35.9 D			0.0		
Intersection Delay, s/veh / LOS	10.1						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	10 2032 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	170	970			540	370	120	10	30			

Signal Information				Signal Timing (s)										
Cycle, s	95.0	Reference Phase	2	↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔		
Offset, s	0	Reference Point	End	Green	6.9	61.7	11.4	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	↗	↖		↕
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

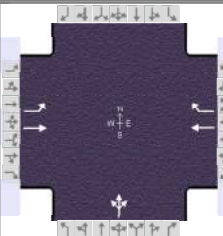
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	170	970			540	370	120	10	30			
Initial Queue (Q _b), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %	2	2			3	3		8				
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)	3	3			3	3	3	3	3			
Upstream Filtering (I)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Lane Width (W), ft	12.0	12.0			12.0	12.0		12.0				
Turn Bay Length, ft	200	650			999	400		600				
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	70.0		55.0		25.0		
Yellow Change Interval (Y), s	4.0	4.0		4.0		4.0		
Red Clearance Interval (R _c), s	1.0	1.0		1.0		1.0		
Minimum Green (G _{min}), s	7	20		20		10		
Start-Up Lost Time (l _t), s	2.0	2.0		2.0	2.0	2.0		
Extension of Effective Green (e), s	2.0	2.0		2.0	2.0	2.0		
Passage (P _T), s	3.0	2.0		2.0		3.0		
Recall Mode	Off	Min		Min		Off		
Dual Entry	No	Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	10 2032 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	170	970			540	370	120	10	30			

Signal Information				Signal Phases										
Cycle, s	95.0	Reference Phase	2	↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	
Offset, s	0	Reference Point	End	Green	6.9	61.7	11.4	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	↗	↖		↕
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0	↘	↙		↕

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		7.3		12.0		
Phase Duration, s	11.9	78.6		66.7		16.4		
Change Period, (Y+R _c), s	5.0	5.0		5.0		5.0		
Max Allow Headway (MAH), s	4.1	0.0		0.0		4.2		
Queue Clearance Time (g _s), s	4.7					11.2		
Green Extension Time (g _e), s	0.5	0.0		0.0		0.3		
Phase Call Probability	0.99					0.99		
Max Out Probability	0.00					0.03		

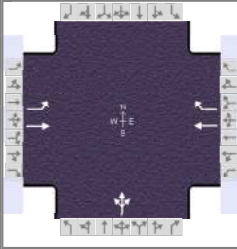
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	175	1000			557	381		165				
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1856	1572		1663				
Queue Service Time (g _s), s	2.7	24.6			14.3	10.7		9.2				
Cycle Queue Clearance Time (g _c), s	2.7	24.6			14.3	10.7		9.2				
Green Ratio (g/C)	0.74	0.77			0.65	0.65		0.12				
Capacity (c), veh/h	631	1449			1205	1021		199				
Volume-to-Capacity Ratio (X)	0.278	0.690			0.462	0.374		0.828				
Back of Queue (Q), ft/ln (95 th percentile)	34	294			233	157		199				
Back of Queue (Q), veh/ln (95 th percentile)	1.3	11.6			9.1	6.1		7.5				
Queue Storage Ratio (RQ) (95 th percentile)	0.17	0.45			0.23	0.39		0.33				
Uniform Delay (d ₁), s/veh	5.2	5.2			8.3	7.7		40.9				
Incremental Delay (d ₂), s/veh	0.2	2.7			1.3	1.0		8.5				
Initial Queue Delay (d ₃), s/veh	0.0	0.0			0.0	0.0		0.0				
Control Delay (d), s/veh	5.5	7.9			9.6	8.8		49.3				
Level of Service (LOS)	A	A			A	A		D				
Approach Delay, s/veh / LOS	7.5	A		9.3	A		49.3	D		0.0		
Intersection Delay, s/veh / LOS	11.3						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2032 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	10 2032 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

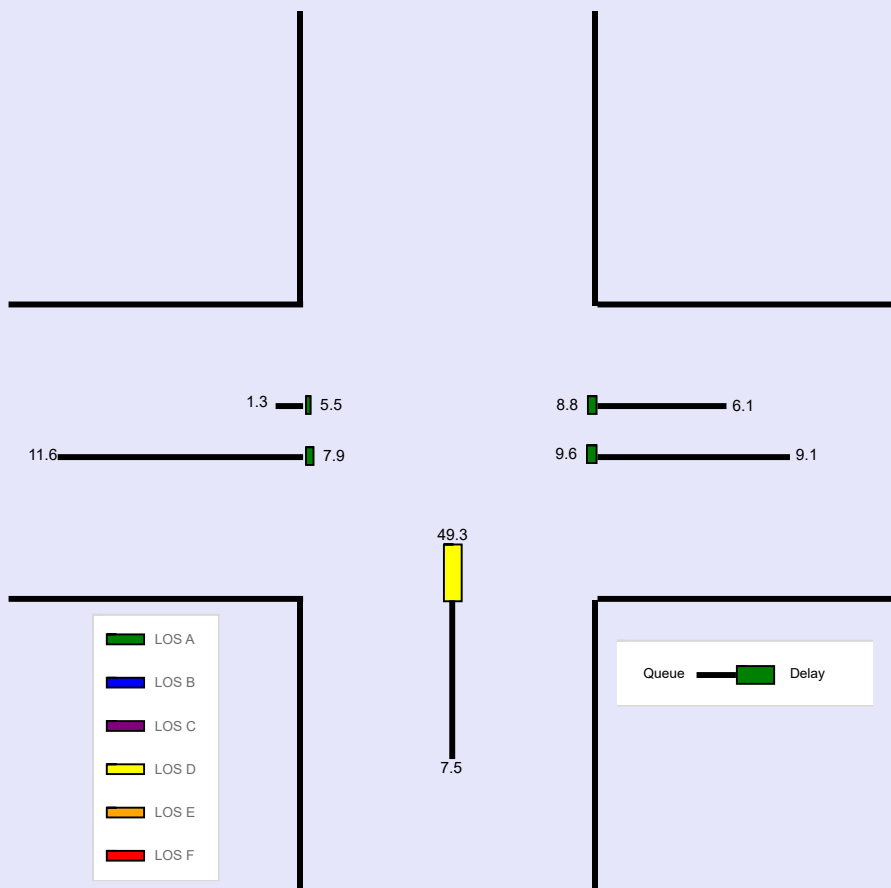
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	170	970			540	370	120	10	30			

Signal Information

Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	6.9	61.7	11.4	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

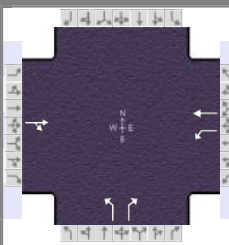
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	34	294			233	157		199				
Back of Queue (Q), veh/ln (95 th percentile)	1.3	11.6			9.1	6.1		7.5				
Queue Storage Ratio (RQ) (95 th percentile)	0.17	0.45			0.23	0.39		0.33				
Control Delay (d), s/veh	5.5	7.9			9.6	8.8		49.3				
Level of Service (LOS)	A	A			A	A		D				
Approach Delay, s/veh / LOS	7.5	A		9.3	A		49.3	D		0.0		
Intersection Delay, s/veh / LOS	11.3						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM Build Capacity Analysis US42 & McEl...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	55.5	9.3	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

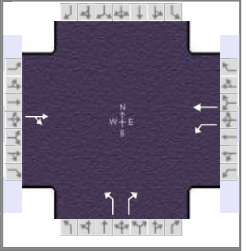
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		430	140	170	640		130		110			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		4		4	4		4		4			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		
Yellow Change Interval (Y), s		4.1		4.1		4.1		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM Build Capacity Analysis US42 & McEl...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	55.5	9.3	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		60.6		60.6		14.4		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.6		
Phase Call Probability						1.00		
Max Out Probability						0.20		

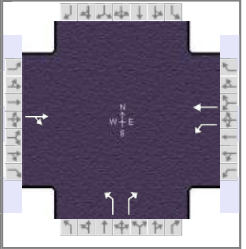
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		713		213	800		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1763		726	1841		1753		1560			
Queue Service Time (g _s), s		13.2		13.6	15.0		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		13.2		26.8	15.0		6.7		6.3			
Green Ratio (g/C)		0.74		0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1304		505	1362		218		194			
Volume-to-Capacity Ratio (X)		0.546		0.421	0.588		0.746		0.709			
Back of Queue (Q), ft/ln (95 th percentile)		156		100	186		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		6.1		3.9	7.2		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.11		1.34	0.12		2.80		0.13			
Uniform Delay (d ₁), s/veh		4.3		10.1	4.5		31.7		31.5			
Incremental Delay (d ₂), s/veh		1.6		2.6	1.9		5.0		4.7			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		5.9		12.7	6.4		36.7		36.2			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.9	A		7.7	A		36.5	D		0.0		
Intersection Delay, s/veh / LOS				11.3						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM Build Capacity Analysis US42 & McEl...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

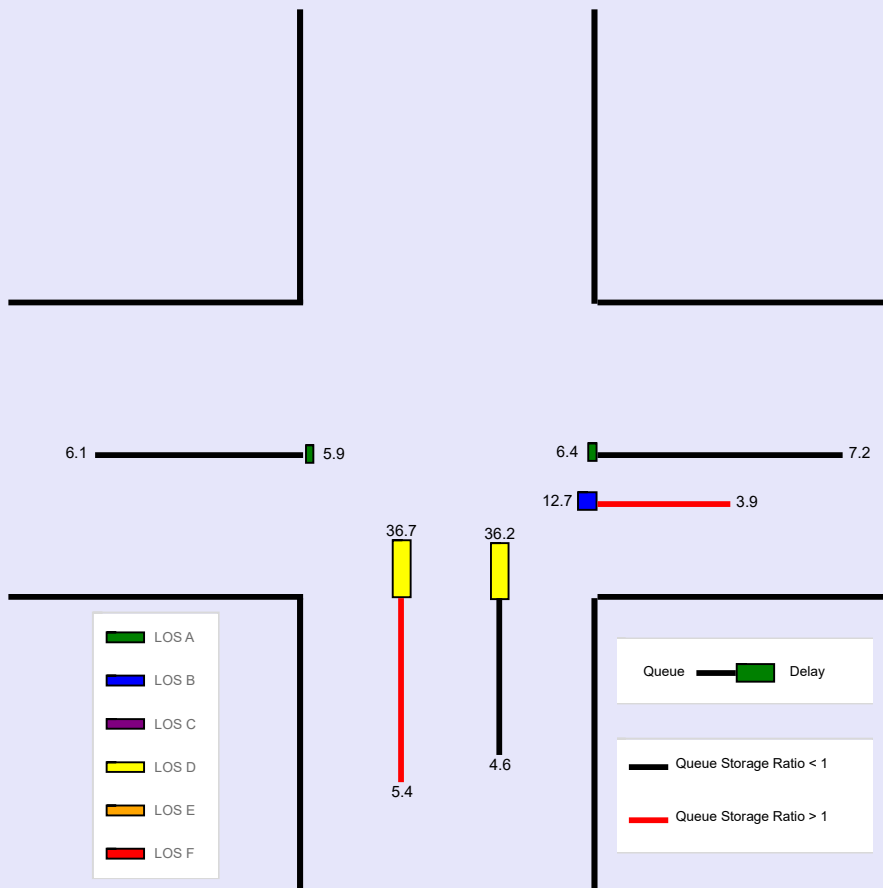
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information

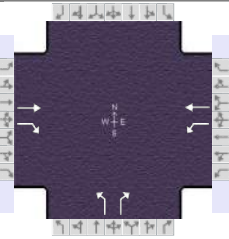
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	55.5	9.3	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Movement Group Results

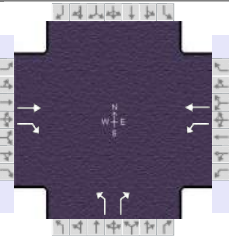
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		156		100	186		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		6.1		3.9	7.2		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.11		1.34	0.12		2.80		0.13			
Control Delay (d), s/veh		5.9		12.7	6.4		36.7		36.2			
Level of Service (LOS)		A		B	A		D		D			
Approach Delay, s/veh / LOS	5.9		A	7.7		A	36.5		D			0.0
Intersection Delay, s/veh / LOS	11.3						B					



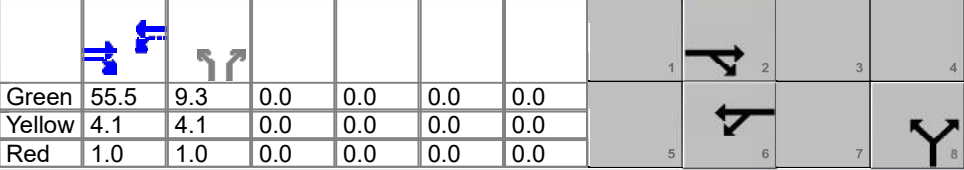
HCS Signalized Intersection Input Data

General Information					Intersection Information											
Agency	GPD Group				Duration, h	0.250										
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other										
Jurisdiction	Madison Township	Time Period	AM Peak Hour		PHF	0.80										
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A'		Analysis Period	1 > 7:00										
Intersection	McElroy Road	File Name	11 2032 AM Build US42 & McElroy.xus													
Project Description	US 30 & US 42 Planning Study															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						430	140	170	640		130		110			
Signal Information																
Cycle, s	75.0	Reference Phase	2													
Offset, s	0	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On		Green	55.5	9.3	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On		Yellow	4.1	4.1	0.0	0.0	0.0	0.0					
					Red	1.0	1.0	0.0	0.0	0.0	0.0					
Traffic Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						430	140	170	640		130		110			
Initial Queue (Q _b), veh/h						0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h						1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h						None			None			None				
Heavy Vehicles (P _{HV}), %						4	0	4	4		4		4			
Ped / Bike / RTOR, /h					0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h					0	0	0	0	0	0	0	0	0			
Arrival Type (AT)						3	3	3	3		3		3			
Upstream Filtering (I)						1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft						12.0	12.0	12.0	12.0		12.0		12.0			
Turn Bay Length, ft						1430	1430	75	1530		50		875			
Grade (P _g), %						0			0			0			0	
Speed Limit, mi/h						35	35	35	35		35		35			
Phase Information					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s						54.0		54.0		21.0						
Yellow Change Interval (Y), s						4.1		4.1		4.1						
Red Clearance Interval (R _c), s						1.0		1.0		1.0						
Minimum Green (G _{min}), s						20		20		8						
Start-Up Lost Time (l _t), s						2.0	2.0	2.0	2.0							
Extension of Effective Green (e), s						2.0	2.0	2.0	2.0							
Passage (PT), s						2.0		2.0		3.0						
Recall Mode						Min		Min		Off						
Dual Entry						Yes		Yes		Yes						
Walk (Walk), s						0.0				0.0		0.0				
Pedestrian Clearance Time (PC), s						0.0				0.0		0.0				
Multimodal Information					EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius					0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft					9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft					0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft					12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking					No	0.50			0.50		No	0.50		No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80	
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A'	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	11 2032 AM Build US42 & McElroy.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.5	9.3	0.0	0.0	0.0	0.0				
		Yellow	4.1	4.1	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

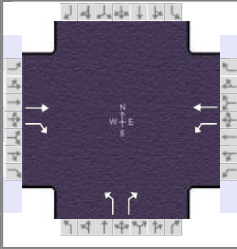
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		7.0		6.0		9.0		
Phase Duration, s		60.6		60.6		14.4		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.6		
Phase Call Probability						1.00		
Max Out Probability						0.20		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		538	175	213	800		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1841	1610	854	1841		1753		1560			
Queue Service Time (g _s), s		8.1	2.4	9.1	15.0		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		8.1	2.4	17.2	15.0		6.7		6.3			
Green Ratio (g/C)		0.74	0.74	0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1362	1191	636	1362		218		194			
Volume-to-Capacity Ratio (X)		0.395	0.147	0.334	0.588		0.746		0.709			
Back of Queue (Q), ft/ln (95 th percentile)		97	24	71	186		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		3.8	1.0	2.8	7.2		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.07	0.02	0.95	0.12		2.80		0.13			
Uniform Delay (d ₁), s/veh		3.6	2.9	6.8	4.5		31.7		31.5			
Incremental Delay (d ₂), s/veh		0.9	0.3	1.4	1.9		5.0		4.7			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		4.4	3.1	8.2	6.4		36.7		36.2			
Level of Service (LOS)		A	A	A	A		D		D			
Approach Delay, s/veh / LOS	4.1	A		6.7	A		36.5	D	0.0			
Intersection Delay, s/veh / LOS	10.2						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

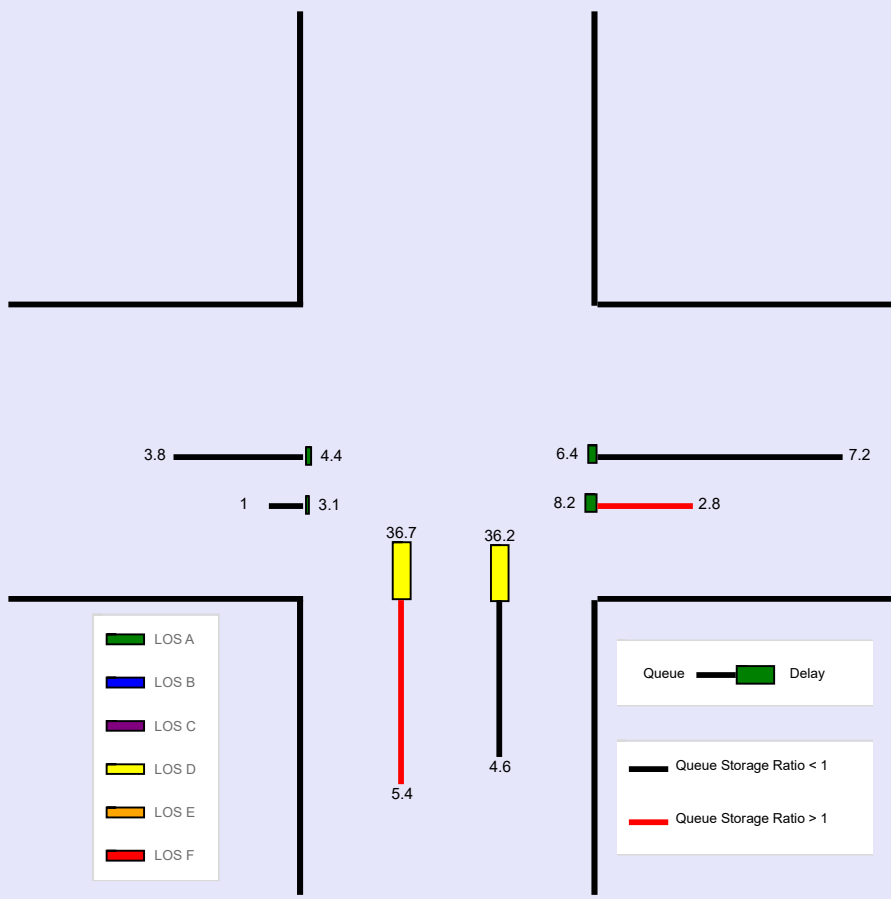
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2032 AM Build US42 & McElroy.xus		
Project Description	US 30 & US 42 Planning Study				



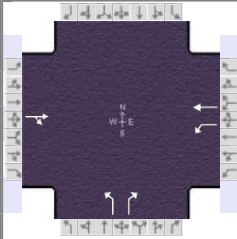
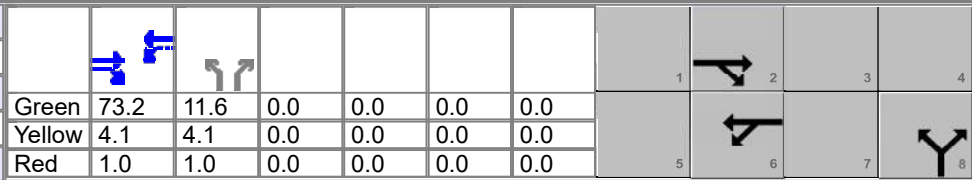
Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		430	140	170	640		130		110			

Signal Information															
Cycle, s	75.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On	Green	55.5	9.3	0.0	0.0	0.0	0.0	1 → 2		3	4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	← 5		6	7	8
				Red	1.0	1.0	0.0	0.0	0.0	0.0					

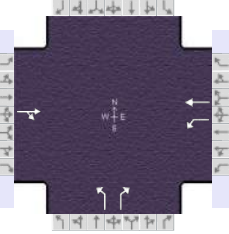
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		97	24	71	186		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		3.8	1.0	2.8	7.2		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.07	0.02	0.95	0.12		2.80		0.13			
Control Delay (d), s/veh		4.4	3.1	8.2	6.4		36.7		36.2			
Level of Service (LOS)		A	A	A	A		D		D			
Approach Delay, s/veh / LOS	4.1	A		6.7	A		36.5	D	0.0			
Intersection Delay, s/veh / LOS	10.2						B					



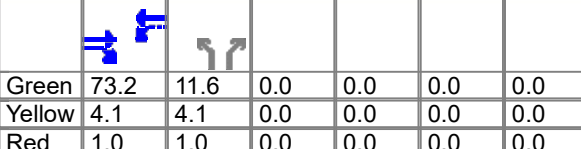
HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	GPD Group			Duration, h	0.250										
Analyst	Ryan Barco		Analysis Date	Nov 8, 2024		Area Type	Other								
Jurisdiction	Madison Township		Time Period	PM Peak Hour		PHF	0.99								
Urban Street	US Route 42		Analysis Year	2032 'BA 1,4'		Analysis Period	1 > 7:00								
Intersection	McElroy Road		File Name	12 2032 PM Build Capacity Analysis US42 & McE...											
Project Description	US 30 & US 42 Planning Study														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					870	130	160	780		100		150			
Signal Information															
Cycle, s	95.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	73.2	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					870	130	160	780		100		150			
Initial Queue (Q _b), veh/h					0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h					1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h					None			None			None				
Heavy Vehicles (P _{HV}), %					2		3	3		1		1			
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)					3	3	3	3		3		3			
Upstream Filtering (I)					1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft					12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft					1430		75	1530		50		875			
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h					35	35	35	35		35		35			
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					60.0		60.0		35.0						
Yellow Change Interval (Y), s					4.1		4.1		4.1						
Red Clearance Interval (R _c), s					1.0		1.0		1.0						
Minimum Green (G _{min}), s					20		20		8						
Start-Up Lost Time (l _t), s					2.0	2.0	2.0	2.0							
Extension of Effective Green (e), s					2.0	2.0	2.0	2.0							
Passage (P _T), s					2.0		2.0		3.0						
Recall Mode					Min		Min		Off						
Dual Entry					Yes		Yes		Yes						
Walk (Walk), s					0.0				0.0			0.0			
Pedestrian Clearance Time (P _C), s					0.0				0.0			0.0			
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking				No		0.50			0.50	No		0.50	No		0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99	
Urban Street	US Route 42	Analysis Year	2032 'BA 1,4'	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	12 2032 PM Build Capacity Analysis US42 & McE...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	73.2	11.6	0.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		78.3		78.3		16.7		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.7		
Green Extension Time (g _e), s		0.0		0.0		0.8		
Phase Call Probability						1.00		
Max Out Probability						0.00		

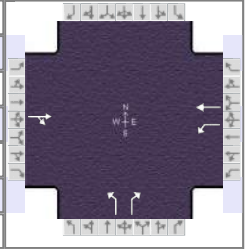
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		1010		162	788		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1828		554	1856		1795		1598			
Queue Service Time (g _s), s		26.9		20.1	16.1		5.0		8.7			
Cycle Queue Clearance Time (g _c), s		26.9		47.0	16.1		5.0		8.7			
Green Ratio (g/C)		0.77		0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1409		346	1430		219		195			
Volume-to-Capacity Ratio (X)		0.717		0.468	0.551		0.462		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		316		129	209		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.5		5.1	8.2		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.22		1.72	0.14		2.03		0.19			
Uniform Delay (d ₁), s/veh		5.6		17.6	4.3		38.8		40.5			
Incremental Delay (d ₂), s/veh		3.2		4.5	1.5		1.5		6.6			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		8.7		22.1	5.9		40.3		47.1			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	8.7	A		8.6	A		44.4	D		0.0		
Intersection Delay, s/veh / LOS				12.8						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2032 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2032 PM Build Capacity Analysis US42 & McE...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

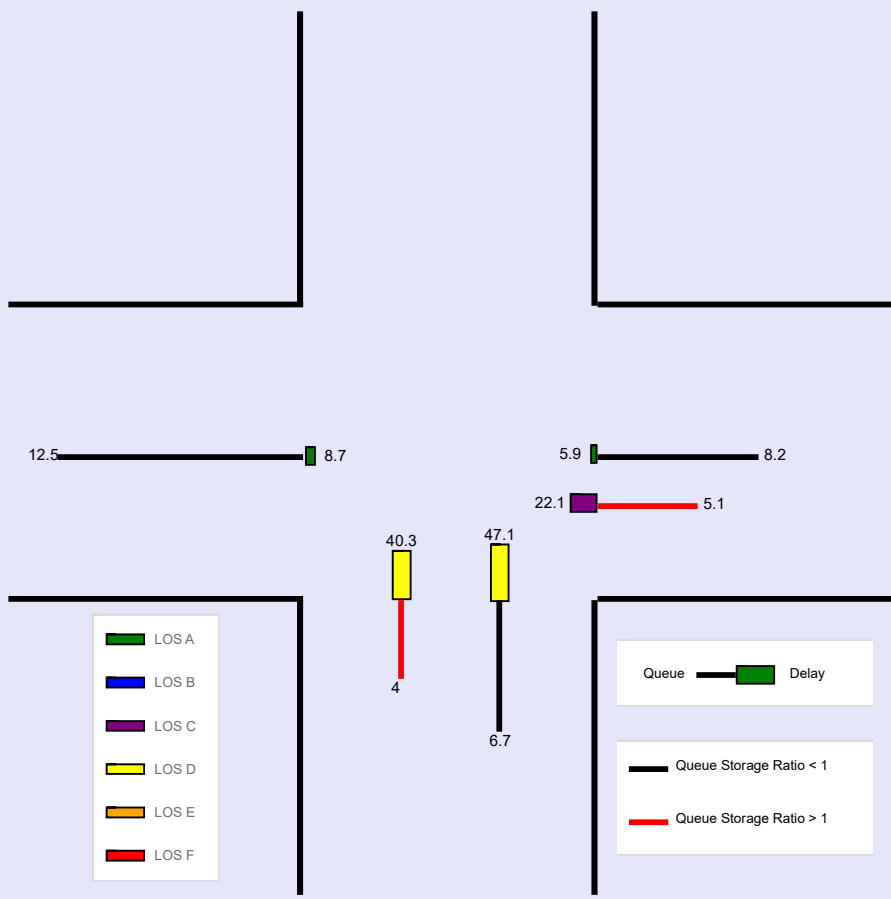
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

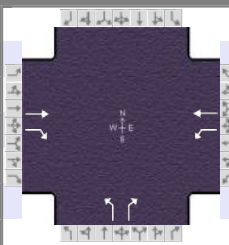
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		316		129	209		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.5		5.1	8.2		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.22		1.72	0.14		2.03		0.19			
Control Delay (d), s/veh		8.7		22.1	5.9		40.3		47.1			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	8.7	A		8.6	A		44.4	D		0.0		
Intersection Delay, s/veh / LOS	12.8						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A"	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2032 PM Build US42 & McElroy.xus		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		870	130	160	780		100		150			

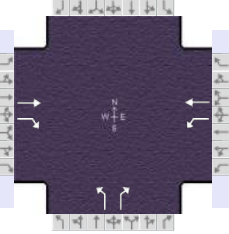
Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		870	130	160	780		100		150			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2	0	3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0	12.0	12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430	1430	75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

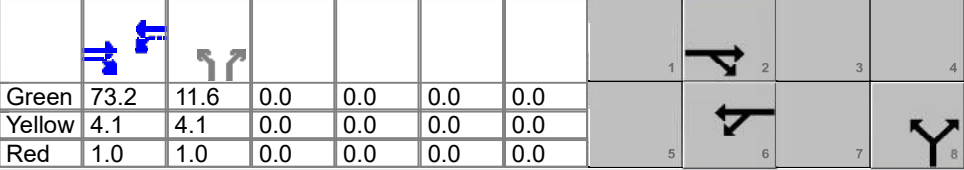
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.1		4.1		4.1		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99	
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A"	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	12 2032 PM Build US42 & McElroy.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.2	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		7.0		6.0		9.0		
Phase Duration, s		78.3		78.3		16.7		
Change Period, ($Y+R_c$), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g_s), s						10.7		
Green Extension Time (g_e), s		0.0		0.0		0.8		
Phase Call Probability						1.00		
Max Out Probability						0.00		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		879	131	162	788		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1870	1610	626	1856		1795		1598			
Queue Service Time (g_s), s		19.3	1.9	14.3	16.1		5.0		8.7			
Cycle Queue Clearance Time (g_c), s		19.3	1.9	33.6	16.1		5.0		8.7			
Green Ratio (g/C)		0.77	0.77	0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1442	1241	431	1430		219		195			
Volume-to-Capacity Ratio (X)		0.610	0.106	0.375	0.551		0.462		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		242	22	97	209		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		9.5	0.9	3.8	8.2		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.17	0.02	1.29	0.14		2.03		0.19			
Uniform Delay (d_1), s/veh		4.7	2.7	12.0	4.3		38.8		40.5			
Incremental Delay (d_2), s/veh		1.9	0.2	2.5	1.5		1.5		6.6			
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		6.6	2.9	14.5	5.9		40.3		47.1			
Level of Service (LOS)		A	A	B	A		D		D			
Approach Delay, s/veh / LOS	6.1	A		7.3	A		44.4	D		0.0		
Intersection Delay, s/veh / LOS	11.0						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

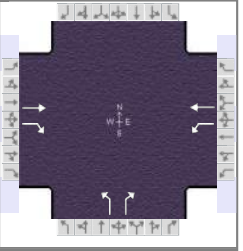
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group		
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024
Jurisdiction	Madison Township	Time Period	PM Peak Hour
Urban Street	US Route 42	Analysis Year	2032 'BA 2,2A"
Intersection	McElroy Road	File Name	12 2032 PM Build US42 & McElroy.xus
Project Description	US 30 & US 42 Planning Study		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.99
Analysis Period	1 > 7:00



Demand Information

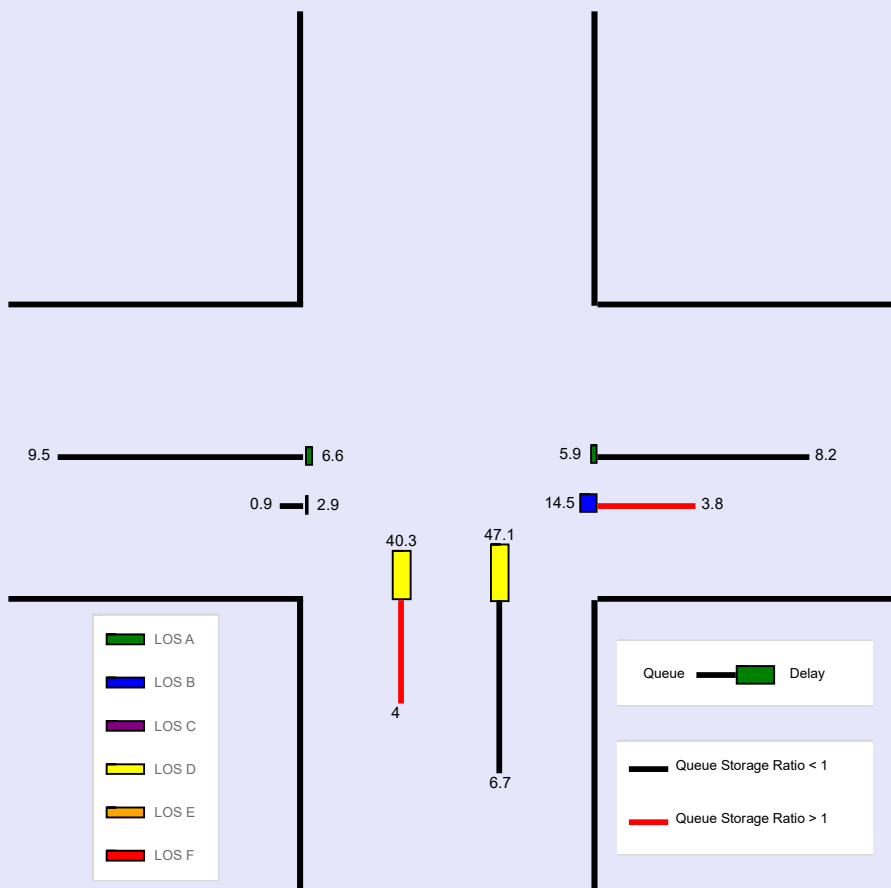
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		870	130	160	780		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2														
Offset, s	0	Reference Point	End														
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
				Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Movement Group Results

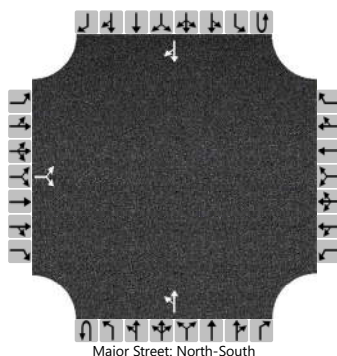
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		242	22	97	209		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		9.5	0.9	3.8	8.2		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.17	0.02	1.29	0.14		2.03		0.19			
Control Delay (d), s/veh		6.6	2.9	14.5	5.9		40.3		47.1			
Level of Service (LOS)		A	A	B	A		D		D			
Approach Delay, s/veh / LOS	6.1	A		7.3	A		44.4	D		0.0		
Intersection Delay, s/veh / LOS	11.0						B					



HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2032			North/South Street	Beal Road		
Time Analyzed	AM Peak Hour 'Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		30		10						10	10					10
Percent Heavy Vehicles (%)		6		6						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.26						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.35						2.24						

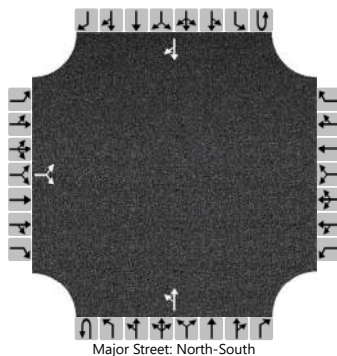
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			50							13						
Capacity, c (veh/h)			892							1434						
v/c Ratio			0.06							0.01						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
95% Queue Length, Q ₉₅ (ft)			5.2							0.0						
Control Delay (s/veh)			9.3							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.3								3.8							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2032			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'Build'			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		140		30						10	10					10
Percent Heavy Vehicles (%)		0		0						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.24						

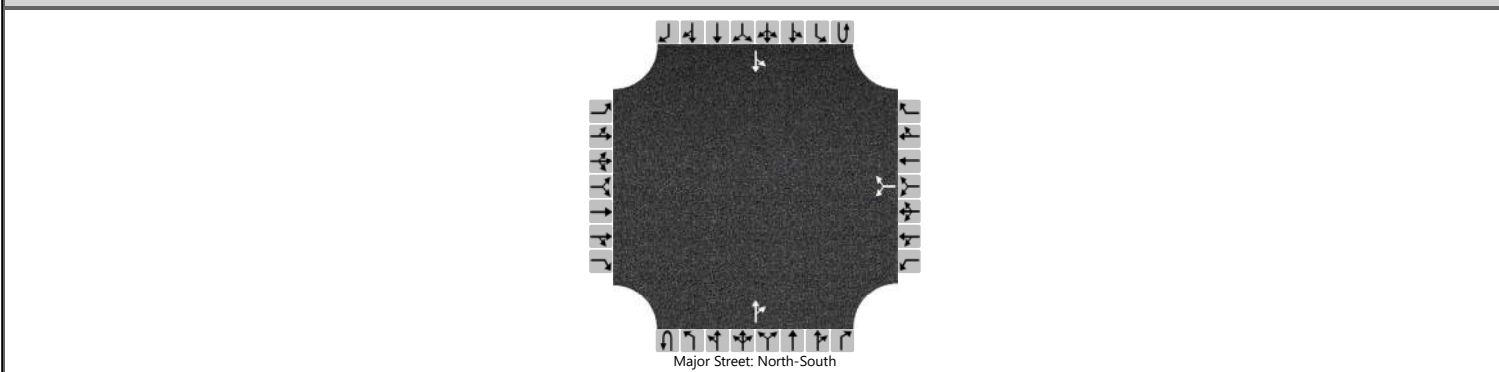
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			183							11						
Capacity, c (veh/h)			911							1444						
v/c Ratio			0.20							0.01						
95% Queue Length, Q ₉₅ (veh)			0.7							0.0						
95% Queue Length, Q ₉₅ (ft)			17.5							0.0						
Control Delay (s/veh)			9.9							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.9								3.8							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	Rayfield Drive
Analysis Year	2032	North/South Street	Expressview Drive
Time Analyzed	AM Peak Hour 'Build'	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						100		10			10	40		10	10	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.40		6.20							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.50		3.30							2.20		

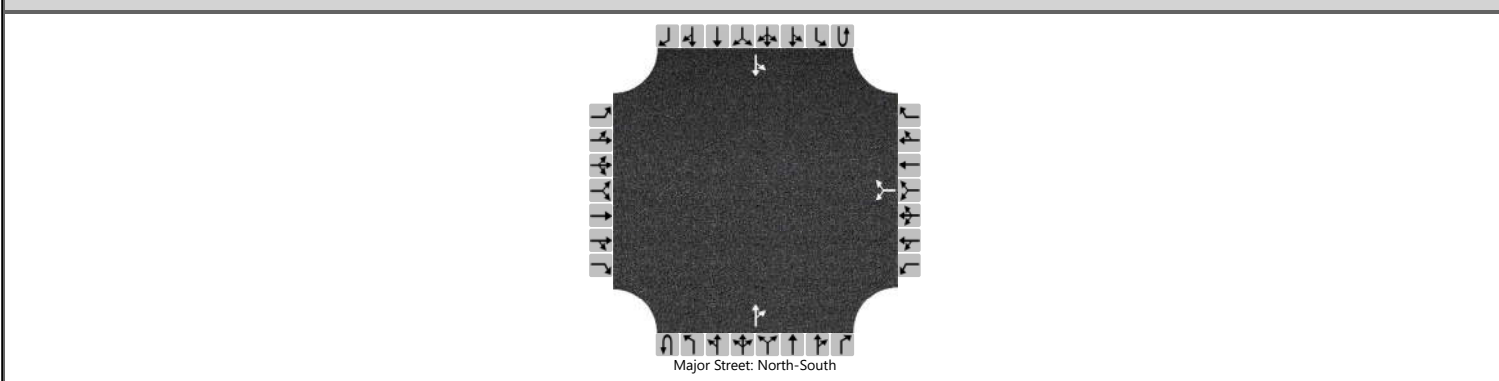
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						138									13		
Capacity, c (veh/h)						935									1553		
v/c Ratio						0.15									0.01		
95% Queue Length, Q ₉₅ (veh)						0.5									0.0		
95% Queue Length, Q ₉₅ (ft)						12.5									0.0		
Control Delay (s/veh)						9.5									7.3	0.1	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					9.5								3.7				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	Rayfield Drive
Analysis Year	2032	North/South Street	Expressview Drive
Time Analyzed	PM Peak Hour 'Build'	Peak Hour Factor	0.83
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						110		10			10	170		10	10	
Percent Heavy Vehicles (%)						9		9						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.49		6.29							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.58		3.38							2.20		

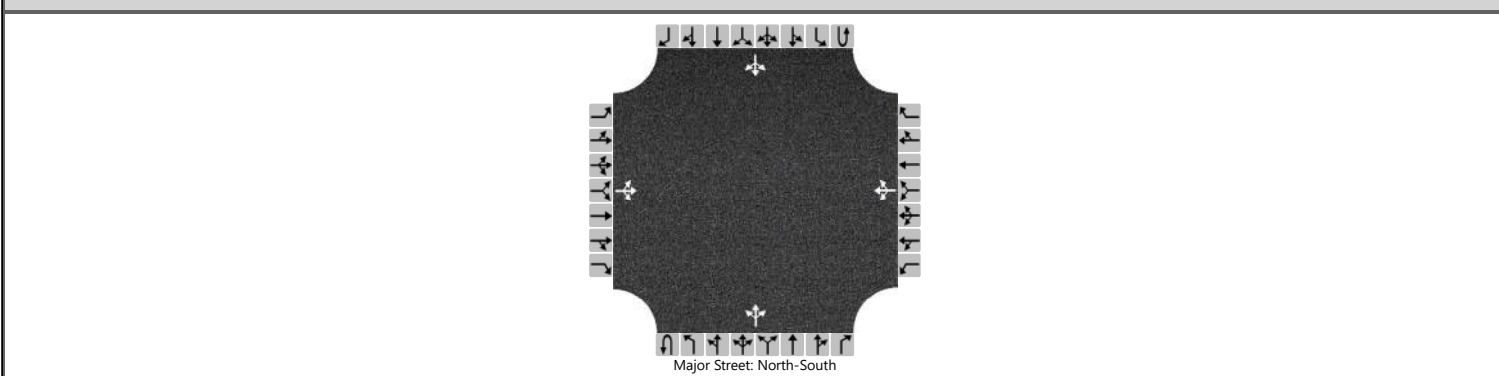
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						145									12		
Capacity, c (veh/h)						825									1365		
v/c Ratio						0.18									0.01		
95% Queue Length, Q ₉₅ (veh)						0.6									0.0		
95% Queue Length, Q ₉₅ (ft)						16.1									0.0		
Control Delay (s/veh)						10.3									7.7	0.1	
Level of Service (LOS)						B									A	A	
Approach Delay (s/veh)					10.3								3.9				
Approach LOS					B								A				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2032			North/South Street	Stewart Road		
Time Analyzed	AM Peak Hour 'Build'			Peak Hour Factor	0.84		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	30		110	10	10		10	70	40		10	160	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.21		

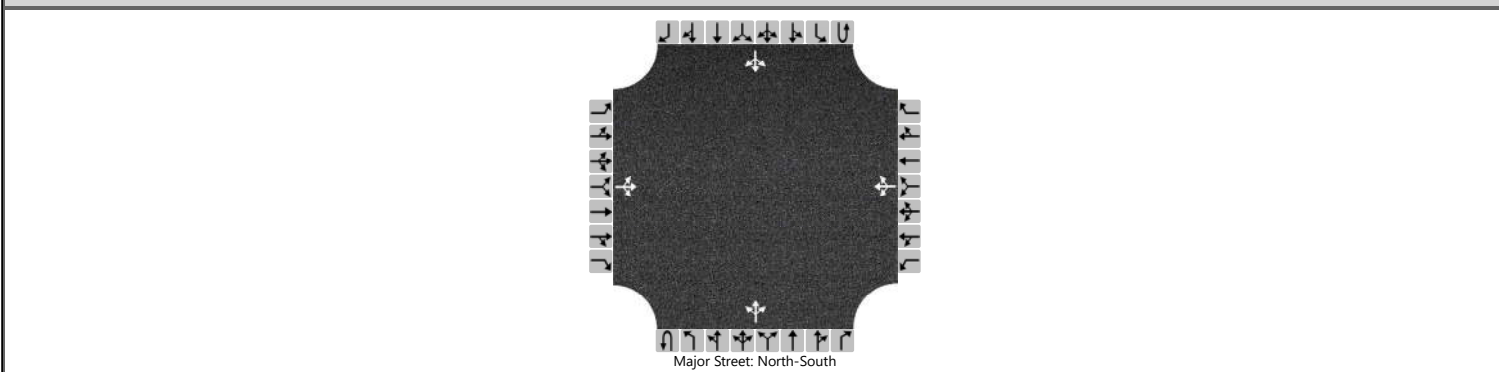
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			60				155				12				12	
Capacity, c (veh/h)			702				559				1363				1461	
v/c Ratio			0.08				0.28				0.01				0.01	
95% Queue Length, Q ₉₅ (veh)			0.3				1.1				0.0				0.0	
95% Queue Length, Q ₉₅ (ft)			7.5				27.5									
Control Delay (s/veh)			10.6				13.9			7.7	0.1	0.1		7.5	0.1	0.1
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	10.6				13.9				0.7				0.5			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2032			North/South Street	Stewart Road		
Time Analyzed	PM Peak Hour 'Build'			Peak Hour Factor	0.94		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	40		120	10	10		40	220	160		10	210	10
Percent Heavy Vehicles (%)		3	3	3		10	10	10		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.20	6.60	6.30		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.59	4.09	3.39		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			64				149							11		
Capacity, c (veh/h)			546				324							1154		
v/c Ratio			0.12				0.46							0.01		
95% Queue Length, Q ₉₅ (veh)			0.4				2.3							0.0		
95% Queue Length, Q ₉₅ (ft)			10.2				62.1									
Control Delay (s/veh)			12.5				25.2			7.8	0.3	0.3		8.1	0.1	0.1
Level of Service (LOS)			B				D			A	A	A		A	A	A
Approach Delay (s/veh)	12.5				25.2				1.0				0.4			
Approach LOS	B				D				A				A			

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD: Lane ID 272038				
1	214.0	0.20	4.1	A
2	225.0	0.20	3.8	A
3	211.0	0.20	3.4	A
4	207.0	0.20	4.1	A
5	211.0	0.20	3.6	A
6	221.0	0.20	3.9	A
7	212.0	0.20	3.7	A
8	215.0	0.20	3.9	A
9	207.0	0.20	3.5	A
10	226.0	0.20	3.7	A
Average:	214.0	0.20	3.8	A

EB T on ASHLAND RD: Lane ID 272039

1	425.0	0.50	4.2	A
2	415.0	0.40	3.8	A
3	430.0	0.40	3.2	A
4	429.0	0.50	3.8	A
5	418.0	0.40	3.6	A
6	417.0	0.40	3.7	A
7	422.0	0.40	3.6	A
8	423.0	0.40	3.6	A
9	430.0	0.40	3.5	A
10	410.0	0.40	3.8	A
Average:	421.0	0.42	3.7	A

SB R on US 30 EB EXIT RAMP: Lane ID 272214

1	130.0	0.30	9.3	A
2	130.0	0.30	7.9	A
3	131.0	0.30	8.1	A
4	128.0	0.30	8.7	A
5	131.0	0.30	7.9	A
6	129.0	0.30	9.1	A
7	128.0	0.30	8.3	A
8	132.0	0.30	8.2	A
9	131.0	0.30	8.0	A
10	130.0	0.30	7.4	A

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
Average:	130.0	0.30	8.3	A

SB T on US 30 EB EXIT RAMP: Lane ID 272208

1	242.0	0.50	6.7	A
2	239.0	0.50	7.1	A
3	238.0	0.50	6.9	A
4	236.0	0.40	6.7	A
5	241.0	0.50	7.3	A
6	239.0	0.50	7.5	A
7	241.0	0.40	6.4	A
8	238.0	0.40	6.1	A
9	239.0	0.40	6.4	A
10	237.0	0.40	6.2	A
Average:	239.0	0.45	6.7	A

WB T on ASHLAND RD (SB): Lane ID 272130

1	481.0	0.30	2.4	A
2	486.0	0.30	2.4	A
3	455.0	0.30	2.4	A
4	463.0	0.30	2.4	A
5	481.0	0.30	2.5	A
6	462.0	0.30	2.4	A
7	455.0	0.30	2.4	A
8	457.0	0.30	2.4	A
9	464.0	0.30	2.4	A
10	457.0	0.30	2.6	A
Average:	466.0	0.30	2.4	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
-----	--------------------	--------------------------	-----------------------------	------------------

EB T on ASHLAND RD (NB): Lane ID 272127

1	380.0	0.20	2.0	A
2	392.0	0.20	2.1	A
3	375.0	0.20	1.9	A
4	377.0	0.20	2.1	A
5	377.0	0.20	2.0	A
6	392.0	0.20	2.0	A
7	380.0	0.20	2.0	A
8	382.0	0.20	2.0	A
9	377.0	0.20	2.0	A
10	387.0	0.20	2.0	A
Average:	381.0	0.20	2.0	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD (NB): Lane ID 272128				
1	410.0	0.00	0.1	A
2	403.0	0.00	0.0	A
3	414.0	0.00	0.0	A
4	408.0	0.00	0.1	A
5	406.0	0.00	0.1	A
6	401.0	0.00	0.1	A
7	411.0	0.00	0.0	A
8	407.0	0.00	0.0	A
9	415.0	0.00	0.0	A
10	398.0	0.00	0.1	A
Average:	407.0	0.00	0.1	A
NB T on US 30 WB EXIT RAMP: Lane ID 272200				
1	139.0	0.30	8.0	A
2	143.0	0.30	8.1	A
3	142.0	0.40	9.1	A
4	145.0	0.30	6.5	A
5	142.0	0.30	7.5	A
6	142.0	0.30	8.7	A
7	138.0	0.30	8.2	A
8	144.0	0.30	8.7	A
9	140.0	0.30	8.0	A
10	138.0	0.30	8.7	A
Average:	141.0	0.31	8.1	A
SB T on BEAL RD: Lane ID 272070				
1	34.0	0.10	7.5	A
2	32.0	0.10	7.0	A
3	32.0	0.10	8.7	A
4	33.0	0.10	7.6	A
5	32.0	0.10	9.3	A
6	33.0	0.10	8.4	A
7	32.0	0.10	8.4	A
8	32.0	0.10	7.8	A
9	31.0	0.10	9.7	A
10	33.0	0.10	9.5	A
Average:	32.0	0.10	8.4	A
WB T on ASHLAND RD: Lane ID 272140				
1	411.0	0.50	4.2	A
2	416.0	0.50	4.4	A
3	412.0	0.40	3.8	A

**ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL
RD -- ROUNDABOUT**

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
4	413.0	0.50	4.4	A
5	417.0	0.50	4.6	A
6	410.0	0.50	4.4	A
7	416.0	0.50	4.5	A
8	409.0	0.60	4.9	A
9	409.0	0.40	3.9	A
10	411.0	0.50	4.6	A
Average:	412.0	0.49	4.4	A

WB T on ASHLAND RD: Lane ID 272141

1	436.0	0.40	3.6	A
2	437.0	0.40	3.3	A
3	438.0	0.40	3.3	A
4	437.0	0.40	3.5	A
5	436.0	0.40	3.6	A
6	433.0	0.40	3.4	A
7	433.0	0.40	3.5	A
8	434.0	0.40	3.6	A
9	434.0	0.40	3.6	A
10	435.0	0.50	3.7	A
Average:	435.0	0.41	3.5	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Total Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.2	0.0	0.2	0.2	10
EB T	272039	ASHLAND RD	0.4	0.0	0.4	0.5	10
WB T	272130	ASHLAND RD (SB)	0.3	0.0	0.3	0.3	10
SB T	272208	US 30 EB EXIT RAMP	0.5	0.1	0.4	0.5	10
SB R	272214	US 30 EB EXIT RAMP	0.3	0.0	0.3	0.3	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.1	0.1	10
EB T	272127	ASHLAND RD (NB)	0.2	0.0	0.2	0.2	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
WB T	272140	ASHLAND RD	0.5	0.1	0.4	0.6	10
WB T	272141	ASHLAND RD	0.4	0.0	0.4	0.5	10
NB T	272200	US 30 WB EXIT RAMP	0.3	0.0	0.3	0.4	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Avg Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	3.8	0.2	3.4	4.1	10
EB T	272039	ASHLAND RD	3.7	0.3	3.2	4.2	10
WB T	272130	ASHLAND RD (SB)	2.4	0.1	2.4	2.6	10
SB T	272208	US 30 EB EXIT RAMP	6.7	0.5	6.1	7.5	10
SB R	272214	US 30 EB EXIT RAMP	8.3	0.6	7.4	9.3	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	8.4	0.9	7.0	9.7	10
EB T	272127	ASHLAND RD (NB)	2.0	0.0	1.9	2.1	10
EB T	272128	ASHLAND RD (NB)	0.1	0.0	0.0	0.1	10
WB T	272140	ASHLAND RD	4.4	0.3	3.8	4.9	10
WB T	272141	ASHLAND RD	3.5	0.1	3.3	3.7	10
NB T	272200	US 30 WB EXIT RAMP	8.1	0.7	6.5	9.1	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,492.0	1.90	4.5	A
2	1,495.0	1.80	4.2	A
3	1,465.0	1.60	4.0	A
4	1,463.0	1.70	4.3	A
5	1,482.0	1.70	4.2	A
6	1,468.0	1.80	4.4	A
7	1,458.0	1.70	4.1	A
8	1,465.0	1.70	4.1	A
9	1,471.0	1.60	4.0	A
10	1,460.0	1.70	4.1	A
Average:	1,471.9	1.72	4.2	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,810.0	1.50	3.0	A
2	1,823.0	1.50	3.0	A
3	1,813.0	1.50	2.9	A
4	1,813.0	1.50	3.0	A
5	1,810.0	1.60	3.1	A
6	1,811.0	1.60	3.1	A
7	1,810.0	1.50	3.1	A
8	1,808.0	1.60	3.2	A
9	1,806.0	1.50	2.9	A
10	1,802.0	1.60	3.2	A
Average:	1,810.6	1.54	3.1	A

Project: US.30_US.42_Study_Roundabout Option
Scenario: OY 2032 AM Peak - Roundabout Option
Run(s): Batch (10 runs)
Simulated: Various
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: Roundabout

Roundabout Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	1.7	0.1	1.6	1.9	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	1.5	0.1	1.5	1.6	10

Project: US.30_US.42_Study_Roundabout Option
Scenario: OY 2032 AM Peak - Roundabout Option
Run(s): Batch (10 runs)
Simulated: Various
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: Roundabout

Roundabout Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	4.2	0.2	4.0	4.5	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	3.1	0.1	2.9	3.2	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection

- Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD - Lane ID 272038						
1	119.0	3.0	0.1	19.8	1.0	0.0%
2	119.0	1.8	0.1	16.6	1.0	0.0%
3	119.0	1.0	0.1	1.6	0.1	0.0%
4	119.0	2.6	0.1	17.1	1.0	0.0%
5	119.0	1.4	0.1	14.8	1.0	0.0%
6	119.0	1.0	0.1	1.3	0.1	0.0%
7	119.0	0.7	0.0	0.0	0.0	0.0%
8	119.0	1.3	0.1	1.6	0.1	0.0%
9	119.0	1.3	0.0	0.0	0.0	0.0%
10	119.0	1.3	0.1	16.2	1.0	0.0%
Average:	119.0	1.5	0.1	8.9	0.5	0.0%

EB T on ASHLAND RD - Lane ID 272039

1	119.0	5.2	0.2	38.3	2.0	0.0%
2	119.0	2.2	0.1	18.6	1.0	0.0%
3	119.0	2.5	0.1	17.7	1.0	0.0%
4	119.0	6.0	0.2	44.3	2.0	0.0%
5	119.0	1.6	0.1	1.5	0.1	0.0%
6	119.0	2.5	0.1	17.1	1.0	0.0%
7	119.0	1.0	0.0	0.0	0.0	0.0%
8	119.0	1.5	0.1	18.4	1.0	0.0%
9	119.0	2.2	0.1	17.6	1.0	0.0%
10	119.0	4.1	0.2	32.7	1.1	0.0%
Average:	119.0	2.9	0.1	20.6	1.0	0.0%

SB R on US 30 EB EXIT RAMP - Lane ID 272214

1	119.0	4.9	0.2	24.2	1.0	0.0%
2	119.0	3.2	0.2	17.3	1.0	0.0%
3	119.0	2.9	0.1	18.1	1.0	0.0%
4	119.0	3.7	0.2	20.3	1.0	0.0%
5	119.0	4.0	0.2	21.7	1.0	0.0%
6	119.0	2.8	0.1	18.0	1.0	0.0%
7	119.0	3.1	0.2	20.7	1.0	0.0%
8	119.0	2.6	0.1	17.0	1.0	0.0%
9	119.0	3.4	0.1	18.9	1.0	0.0%

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB R on US 30 EB EXIT RAMP - Lane ID 272214						
10	119.0	2.6	0.1	18.7	1.0	0.0%
Average:	119.0	3.3	0.2	19.5	1.0	0.0%

SB T on US 30 EB EXIT RAMP - Lane ID 272208

1	119.0	4.5	0.2	24.5	1.0	0.0%
2	119.0	6.8	0.3	40.8	2.0	0.0%
3	119.0	5.2	0.3	36.3	2.0	0.0%
4	119.0	2.3	0.1	17.9	1.0	0.0%
5	119.0	5.5	0.3	27.8	1.1	0.0%
6	119.0	8.4	0.4	46.6	2.0	0.0%
7	119.0	3.9	0.2	20.3	1.0	0.0%
8	119.0	5.1	0.3	38.1	2.0	0.0%
9	119.0	4.7	0.2	34.2	1.0	0.0%
10	119.0	5.3	0.2	32.4	1.0	0.0%
Average:	119.0	5.2	0.3	31.9	1.4	0.0%

WB T on ASHLAND RD (SB) - Lane ID 272130

1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
1	119.0	0.1	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
EB T on ASHLAND RD (NB) - Lane ID 272128						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
NB T on US 30 WB EXIT RAMP - Lane ID 272200						
1	119.0	4.1	0.2	19.4	1.0	0.0%
2	119.0	3.7	0.2	19.4	1.0	0.0%
3	119.0	6.5	0.3	32.4	1.1	0.0%
4	119.0	3.6	0.2	19.0	1.0	0.0%
5	119.0	5.0	0.2	30.4	1.1	0.0%
6	119.0	4.4	0.2	21.9	1.0	0.0%
7	119.0	5.0	0.2	43.5	2.0	0.0%
8	119.0	3.5	0.2	19.3	1.0	0.0%
9	119.0	6.3	0.3	44.1	2.0	0.0%
10	119.0	4.6	0.2	29.7	1.0	0.0%
Average:	119.0	4.7	0.2	27.9	1.2	0.0%
SB T on BEAL RD - Lane ID 272070						
1	119.0	0.7	0.0	0.0	0.0	0.0%
2	119.0	1.1	0.0	0.0	0.0	0.0%
3	119.0	1.3	0.1	0.0	0.0	0.0%
4	119.0	1.0	0.1	0.0	0.0	0.0%
5	119.0	1.7	0.1	15.8	1.0	0.0%
6	119.0	1.0	0.1	9.4	1.0	0.0%
7	119.0	0.6	0.0	0.0	0.0	0.0%
8	119.0	1.1	0.1	15.1	1.0	0.0%
9	119.0	1.3	0.1	16.5	1.0	0.0%
10	119.0	1.3	0.1	1.5	0.1	0.0%
Average:	119.0	1.1	0.1	5.8	0.4	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
-----	--------------	-----------------------	---------------------	-----------------------------	----------------------------	--------------------

SB T on BEAL RD - Lane ID 272070

WB T on ASHLAND RD - Lane ID 272140

1	119.0	2.8	0.1	17.2	1.0	0.0%
2	119.0	4.5	0.2	34.8	2.0	0.0%
3	119.0	4.0	0.2	22.5	1.0	0.0%
4	119.0	3.3	0.2	23.9	1.0	0.0%
5	119.0	4.7	0.2	40.8	2.0	0.0%
6	119.0	5.9	0.3	44.9	2.0	0.0%
7	119.0	5.7	0.2	42.0	2.0	0.0%
8	119.0	6.3	0.2	44.1	2.0	0.0%
9	119.0	2.9	0.1	23.1	1.0	0.0%
10	119.0	4.7	0.2	24.5	1.0	0.0%
Average:	119.0	4.5	0.2	31.8	1.5	0.0%

WB T on ASHLAND RD - Lane ID 272141

1	119.0	2.9	0.1	16.6	1.0	0.0%
2	119.0	3.8	0.1	20.5	1.0	0.0%
3	119.0	3.7	0.1	22.7	1.0	0.0%
4	119.0	3.5	0.1	19.0	1.0	0.0%
5	119.0	2.4	0.1	17.0	1.0	0.0%
6	119.0	1.6	0.1	1.5	0.1	0.0%
7	119.0	2.9	0.1	18.8	1.0	0.0%
8	119.0	1.9	0.1	17.3	1.0	0.0%
9	119.0	2.8	0.1	18.3	1.0	0.0%
10	119.0	4.6	0.2	43.5	1.1	0.0%
Average:	119.0	3.0	0.1	19.5	0.9	0.0%

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	1.5	0.7	0.7	3.0	10
EB T	272039	ASHLAND RD	2.9	1.7	1.0	6.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	5.2	1.6	2.3	8.4	10
SB R	272214	US 30 EB EXIT RAMP	3.3	0.7	2.6	4.9	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	4.5	1.2	2.8	6.3	10
WB T	272141	ASHLAND RD	3.0	0.9	1.6	4.6	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.1	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	1.1	0.3	0.6	1.7	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	4.7	1.1	3.5	6.5	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.1	0.0	0.0	0.1	10
EB T	272039	ASHLAND RD	0.1	0.1	0.0	0.2	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.3	0.1	0.1	0.4	10
SB R	272214	US 30 EB EXIT RAMP	0.2	0.1	0.1	0.2	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.2	0.1	0.1	0.3	10
WB T	272141	ASHLAND RD	0.1	0.0	0.1	0.2	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.2	0.0	0.2	0.3	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	8.9	8.5	0.0	19.8	10
EB T	272039	ASHLAND RD	20.6	14.3	0.0	44.3	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	31.9	9.2	17.9	46.6	10
SB R	272214	US 30 EB EXIT RAMP	19.5	2.2	17.0	24.2	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	31.8	10.6	17.2	44.9	10
WB T	272141	ASHLAND RD	19.5	10.2	1.5	43.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	5.8	7.5	0.0	16.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	27.9	9.8	19.0	44.1	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.5	0.5	0.0	1.0	10
EB T	272039	ASHLAND RD	1.0	0.7	0.0	2.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	1.4	0.5	1.0	2.0	10
SB R	272214	US 30 EB EXIT RAMP	1.0	0.0	1.0	1.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL

RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	1.5	0.5	1.0	2.0	10
WB T	272141	ASHLAND RD	0.9	0.3	0.1	1.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL

RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL

RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.4	0.5	0.0	1.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	1.2	0.4	1.0	2.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Spillback Rate

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.0	0.0	0.0	0.0	10
EB T	272039	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SB R	272214	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.0	0.0	0.0	0.0	10
WB T	272141	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD: Lane ID 272038				
1	335.0	0.90	9.7	A
2	332.0	0.80	8.4	A
3	334.0	0.80	8.8	A
4	342.0	0.90	9.3	A
5	318.0	0.90	10.2	B
6	319.0	0.90	10.3	B
7	334.0	0.90	9.5	A
8	327.0	0.80	8.4	A
9	339.0	0.90	9.2	A
10	327.0	0.70	7.8	A
Average:	330.0	0.85	9.2	A

EB T on ASHLAND RD: Lane ID 272039

1	629.0	2.10	11.8	B
2	633.0	2.00	11.3	B
3	630.0	2.00	11.4	B
4	626.0	2.20	12.9	B
5	648.0	2.10	11.9	B
6	629.0	1.90	11.1	B
7	635.0	2.10	11.9	B
8	636.0	1.90	10.5	B
9	620.0	2.10	12.5	B
10	634.0	2.10	11.9	B
Average:	632.0	2.05	11.7	B

SB R on US 30 EB EXIT RAMP: Lane ID 272214

1	325.0	1.70	19.0	C
2	326.0	1.40	15.1	C
3	326.0	1.70	18.7	C
4	327.0	1.60	17.4	C
5	328.0	2.00	21.8	C
6	327.0	1.60	17.7	C
7	325.0	1.60	17.6	C
8	326.0	1.70	19.1	C
9	324.0	1.90	21.1	C
10	327.0	1.60	17.7	C

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
Average:	326.0	1.68	18.5	C

SB T on US 30 EB EXIT RAMP: Lane ID 272208

1	445.0	2.10	16.8	C
2	443.0	1.60	12.9	B
3	447.0	2.00	15.8	C
4	446.0	1.60	13.3	B
5	445.0	2.10	16.6	C
6	447.0	1.90	15.0	B
7	441.0	2.10	17.2	C
8	442.0	1.80	14.6	B
9	440.0	2.30	18.6	C
10	445.0	1.70	13.5	B
Average:	444.0	1.92	15.4	C

WB T on ASHLAND RD (SB): Lane ID 272130

1	679.0	0.50	2.8	A
2	652.0	0.50	2.8	A
3	657.0	0.50	2.8	A
4	657.0	0.50	2.8	A
5	665.0	0.50	2.8	A
6	656.0	0.50	2.8	A
7	669.0	0.50	2.8	A
8	666.0	0.50	2.9	A
9	670.0	0.50	2.9	A
10	652.0	0.50	2.8	A
Average:	662.0	0.50	2.8	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
-----	--------------------	--------------------------	-----------------------------	------------------

EB T on ASHLAND RD (NB): Lane ID 272127

1	568.0	0.40	2.2	A
2	542.0	0.30	2.2	A
3	563.0	0.30	2.2	A
4	565.0	0.40	2.3	A
5	541.0	0.30	2.1	A
6	553.0	0.30	2.2	A
7	541.0	0.30	2.2	A
8	531.0	0.30	2.1	A
9	577.0	0.40	2.3	A
10	557.0	0.30	2.1	A
Average:	553.0	0.33	2.2	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD (NB): Lane ID 272128				
1	678.0	0.00	0.1	A
2	704.0	0.00	0.1	A
3	682.0	0.00	0.1	A
4	687.0	0.00	0.1	A
5	708.0	0.00	0.1	A
6	680.0	0.00	0.1	A
7	703.0	0.00	0.1	A
8	711.0	0.00	0.1	A
9	669.0	0.00	0.1	A
10	685.0	0.00	0.1	A
Average:	690.0	0.00	0.1	A
NB T on US 30 WB EXIT RAMP: Lane ID 272200				
1	183.0	1.30	25.1	D
2	189.0	1.10	20.9	C
3	182.0	1.10	21.4	C
4	180.0	0.80	16.8	C
5	184.0	1.30	25.7	D
6	183.0	1.30	26.4	D
7	186.0	1.20	23.6	C
8	185.0	1.60	31.0	D
9	189.0	1.60	30.0	D
10	179.0	1.20	23.4	C
Average:	184.0	1.25	24.4	C
SB T on BEAL RD: Lane ID 272070				
1	32.0	0.10	7.4	A
2	34.0	0.10	6.6	A
3	31.0	0.10	6.8	A
4	32.0	0.10	6.3	A
5	32.0	0.10	6.2	A
6	33.0	0.10	7.1	A
7	32.0	0.10	6.0	A
8	33.0	0.10	6.4	A
9	30.0	0.10	7.7	A
10	33.0	0.10	8.2	A
Average:	32.0	0.10	6.9	A
WB T on ASHLAND RD: Lane ID 272140				
1	590.0	0.80	4.6	A
2	589.0	0.80	4.7	A
3	586.0	0.80	4.9	A

**ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL
RD -- ROUNDABOUT**

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
4	587.0	0.70	4.3	A
5	591.0	0.70	4.2	A
6	584.0	0.80	4.8	A
7	594.0	0.80	5.0	A
8	588.0	0.70	4.4	A
9	593.0	0.80	5.0	A
10	595.0	0.80	4.8	A
Average:	589.0	0.77	4.7	A

WB T on ASHLAND RD: Lane ID 272141

1	412.0	0.40	3.1	A
2	414.0	0.30	3.0	A
3	410.0	0.40	3.4	A
4	414.0	0.40	3.1	A
5	412.0	0.40	3.3	A
6	414.0	0.40	3.4	A
7	414.0	0.40	3.1	A
8	413.0	0.30	3.0	A
9	414.0	0.40	3.1	A
10	416.0	0.40	3.3	A
Average:	413.0	0.38	3.2	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Total Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.9	0.1	0.7	0.9	10
EB T	272039	ASHLAND RD	2.1	0.1	1.9	2.2	10
WB T	272130	ASHLAND RD (SB)	0.5	0.0	0.5	0.5	10
SB T	272208	US 30 EB EXIT RAMP	1.9	0.2	1.6	2.3	10
SB R	272214	US 30 EB EXIT RAMP	1.7	0.2	1.4	2.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.1	0.1	10
EB T	272127	ASHLAND RD (NB)	0.3	0.0	0.3	0.4	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
WB T	272140	ASHLAND RD	0.8	0.0	0.7	0.8	10
WB T	272141	ASHLAND RD	0.4	0.0	0.3	0.4	10
NB T	272200	US 30 WB EXIT RAMP	1.3	0.2	0.8	1.6	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Avg Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	9.2	0.8	7.8	10.3	10
EB T	272039	ASHLAND RD	11.7	0.7	10.5	12.9	10
WB T	272130	ASHLAND RD (SB)	2.8	0.0	2.8	2.9	10
SB T	272208	US 30 EB EXIT RAMP	15.4	1.9	12.9	18.6	10
SB R	272214	US 30 EB EXIT RAMP	18.5	1.9	15.1	21.8	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	6.9	0.7	6.0	8.2	10
EB T	272127	ASHLAND RD (NB)	2.2	0.1	2.1	2.3	10
EB T	272128	ASHLAND RD (NB)	0.1	0.0	0.1	0.1	10
WB T	272140	ASHLAND RD	4.7	0.3	4.2	5.0	10
WB T	272141	ASHLAND RD	3.2	0.2	3.0	3.4	10
NB T	272200	US 30 WB EXIT RAMP	24.4	4.2	16.8	31.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,413.0	7.30	10.9	B
2	2,386.0	6.20	9.4	A
3	2,394.0	7.00	10.5	B
4	2,398.0	6.90	10.3	B
5	2,404.0	7.60	11.4	B
6	2,378.0	6.80	10.3	B
7	2,404.0	7.20	10.8	B
8	2,397.0	6.70	10.0	B
9	2,393.0	7.70	11.6	B
10	2,385.0	6.60	9.9	A
Average:	2,395.2	7.00	10.5	B

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,463.0	2.80	4.1	A
2	2,472.0	2.60	3.8	A
3	2,454.0	2.70	4.0	A
4	2,465.0	2.30	3.4	A
5	2,468.0	2.80	4.1	A
6	2,447.0	2.90	4.3	A
7	2,470.0	2.80	4.1	A
8	2,461.0	3.00	4.4	A
9	2,472.0	3.20	4.7	A
10	2,465.0	2.80	4.0	A
Average:	2,463.7	2.79	4.1	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	7.0	0.5	6.2	7.7	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	2.8	0.2	2.3	3.2	10

Project: US.30_US.42_Study_Roundabout Option
Scenario: OY 2032 PM Peak - Roundabout Option
Run(s): Batch (10 runs)
Simulated: Various
Time: 15:15:00 - 16:15:00
Interval: Summary
Selection: Roundabout

Roundabout Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	10.5	0.7	9.4	11.6	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	4.1	0.3	3.4	4.7	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection

- Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD - Lane ID 272038						
1	119.0	11.0	0.4	94.8	4.0	0.0%
2	119.0	8.0	0.3	71.2	3.0	0.0%
3	119.0	11.6	0.5	69.7	3.0	0.0%
4	119.0	8.5	0.3	46.2	2.0	0.0%
5	119.0	11.3	0.5	74.6	3.0	0.0%
6	119.0	16.5	0.6	109.7	4.0	0.0%
7	119.0	10.2	0.4	66.5	3.0	0.0%
8	119.0	9.0	0.3	60.5	2.0	0.0%
9	119.0	18.0	0.8	102.6	4.0	0.0%
10	119.0	12.6	0.5	76.0	3.0	0.0%
Average:	119.0	11.7	0.5	77.2	3.1	0.0%

EB T on ASHLAND RD - Lane ID 272039

1	119.0	27.8	1.1	188.9	6.1	0.0%
2	119.0	22.6	0.9	148.1	5.0	0.0%
3	119.0	29.3	1.1	136.4	5.0	0.0%
4	119.0	36.1	1.4	189.1	7.0	0.0%
5	119.0	26.4	1.0	151.6	6.0	0.0%
6	119.0	26.0	1.0	149.7	5.1	0.0%
7	119.0	26.8	1.0	151.1	6.0	0.0%
8	119.0	22.0	0.8	95.3	4.0	0.0%
9	119.0	39.0	1.4	179.0	6.0	0.0%
10	119.0	24.5	0.9	140.3	5.0	0.0%
Average:	119.0	28.1	1.1	153.0	5.5	0.0%

SB R on US 30 EB EXIT RAMP - Lane ID 272214

1	119.0	27.2	1.1	123.1	4.1	0.0%
2	119.0	19.3	0.9	93.2	4.0	0.0%
3	119.0	28.6	1.2	103.0	4.0	0.0%
4	119.0	27.6	1.2	120.4	4.1	0.0%
5	119.0	34.7	1.4	134.1	5.1	0.0%
6	119.0	24.5	1.1	85.3	3.0	0.0%
7	119.0	23.1	1.0	96.1	4.0	0.0%
8	119.0	29.8	1.2	119.8	5.0	0.0%
9	119.0	33.4	1.4	118.4	5.0	0.0%

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB R on US 30 EB EXIT RAMP - Lane ID 272214						
10	119.0	24.5	1.0	108.1	4.0	0.0%
Average:	119.0	27.3	1.2	110.2	4.2	0.0%

SB T on US 30 EB EXIT RAMP - Lane ID 272208

1	119.0	32.5	1.3	122.1	5.0	0.0%
2	119.0	22.3	0.9	111.5	3.0	0.0%
3	119.0	31.5	1.3	121.2	4.1	0.0%
4	119.0	27.4	1.1	102.6	4.0	0.0%
5	119.0	36.4	1.4	122.2	5.0	0.0%
6	119.0	31.1	1.3	134.1	5.0	0.0%
7	119.0	37.5	1.4	139.0	5.0	0.0%
8	119.0	27.4	1.1	117.2	4.0	0.0%
9	119.0	37.5	1.5	143.9	5.1	0.0%
10	119.0	24.0	1.0	103.0	4.0	0.0%
Average:	119.0	30.8	1.2	121.7	4.4	0.0%

WB T on ASHLAND RD (SB) - Lane ID 272130

1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
1	119.0	0.2	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
EB T on ASHLAND RD (NB) - Lane ID 272128						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
NB T on US 30 WB EXIT RAMP - Lane ID 272200						
1	119.0	27.2	1.1	113.3	4.1	0.0%
2	119.0	21.4	0.9	95.2	4.0	0.0%
3	119.0	22.3	0.9	104.2	4.0	0.0%
4	119.0	11.4	0.5	63.0	3.0	0.0%
5	119.0	23.4	1.1	80.2	3.1	0.0%
6	119.0	28.7	1.2	106.9	4.0	0.0%
7	119.0	24.8	1.0	114.1	4.0	0.0%
8	119.0	39.5	1.4	153.7	5.0	0.0%
9	119.0	35.7	1.4	146.6	5.1	0.0%
10	119.0	23.0	0.9	106.2	4.0	0.0%
Average:	119.0	25.7	1.0	108.3	4.0	0.0%
SB T on BEAL RD - Lane ID 272070						
1	119.0	0.9	0.0	0.0	0.0	0.0%
2	119.0	0.8	0.1	1.5	0.1	0.0%
3	119.0	0.8	0.0	0.0	0.0	0.0%
4	119.0	0.5	0.0	0.0	0.0	0.0%
5	119.0	0.3	0.0	0.0	0.0	0.0%
6	119.0	0.6	0.0	0.0	0.0	0.0%
7	119.0	0.2	0.0	0.0	0.0	0.0%
8	119.0	0.6	0.0	0.0	0.0	0.0%
9	119.0	0.6	0.0	0.0	0.0	0.0%
10	119.0	0.3	0.0	0.0	0.0	0.0%
Average:	119.0	0.6	0.0	0.2	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
-----	--------------	-----------------------	---------------------	-----------------------------	----------------------------	--------------------

SB T on BEAL RD - Lane ID 272070

WB T on ASHLAND RD - Lane ID 272140

1	119.0	3.3	0.1	20.4	1.0	0.0%
2	119.0	3.6	0.2	19.4	1.0	0.0%
3	119.0	5.7	0.2	43.7	2.0	0.0%
4	119.0	5.6	0.2	26.3	1.0	0.0%
5	119.0	6.3	0.3	43.7	2.0	0.0%
6	119.0	5.6	0.2	23.3	1.0	0.0%
7	119.0	7.4	0.3	45.2	2.0	0.0%
8	119.0	6.2	0.2	29.5	1.1	0.0%
9	119.0	4.7	0.2	24.4	1.1	0.0%
10	119.0	7.6	0.3	54.1	2.1	0.0%
Average:	119.0	5.6	0.2	33.0	1.4	0.0%

WB T on ASHLAND RD - Lane ID 272141

1	119.0	1.3	0.1	15.5	1.0	0.0%
2	119.0	2.2	0.1	15.9	1.0	0.0%
3	119.0	2.4	0.1	18.0	1.0	0.0%
4	119.0	2.1	0.1	19.0	1.0	0.0%
5	119.0	4.1	0.1	22.4	1.0	0.0%
6	119.0	1.5	0.1	14.9	1.0	0.0%
7	119.0	1.0	0.1	1.4	0.1	0.0%
8	119.0	1.7	0.1	0.0	0.0	0.0%
9	119.0	1.6	0.1	18.4	1.0	0.0%
10	119.0	1.4	0.1	15.4	1.0	0.0%
Average:	119.0	1.9	0.1	14.1	0.8	0.0%

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	11.7	3.3	8.0	18.0	10
EB T	272039	ASHLAND RD	28.1	5.5	22.0	39.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	30.8	5.4	22.3	37.5	10
SB R	272214	US 30 EB EXIT RAMP	27.3	4.7	19.3	34.7	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	5.6	1.4	3.3	7.6	10
WB T	272141	ASHLAND RD	1.9	0.9	1.0	4.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.1	0.0	0.2	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.6	0.2	0.2	0.9	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	25.7	7.8	11.4	39.5	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.5	0.2	0.3	0.8	10
EB T	272039	ASHLAND RD	1.1	0.2	0.8	1.4	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	1.2	0.2	0.9	1.5	10
SB R	272214	US 30 EB EXIT RAMP	1.2	0.2	0.9	1.4	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.2	0.1	0.1	0.3	10
WB T	272141	ASHLAND RD	0.1	0.0	0.1	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	1.0	0.3	0.5	1.4	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	77.2	19.6	46.2	109.7	10
EB T	272039	ASHLAND RD	153.0	28.0	95.3	189.1	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	121.7	14.1	102.6	143.9	10
SB R	272214	US 30 EB EXIT RAMP	110.2	15.5	85.3	134.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	33.0	12.4	19.4	54.1	10
WB T	272141	ASHLAND RD	14.1	7.4	0.0	22.4	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.2	0.5	0.0	1.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	108.3	27.1	63.0	153.7	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	3.1	0.7	2.0	4.0	10
EB T	272039	ASHLAND RD	5.5	0.9	4.0	7.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	4.4	0.7	3.0	5.1	10
SB R	272214	US 30 EB EXIT RAMP	4.2	0.6	3.0	5.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	1.4	0.5	1.0	2.1	10
WB T	272141	ASHLAND RD	0.8	0.4	0.0	1.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	4.0	0.7	3.0	5.1	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: OY 2032 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Spillback Rate

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.0	0.0	0.0	0.0	10
EB T	272039	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SB R	272214	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.0	0.0	0.0	0.0	10
WB T	272141	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

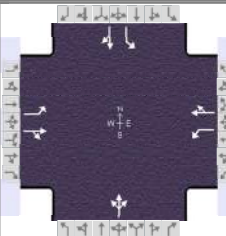
NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

DESIGN YEAR 2052 'NO-BUILD' CONDITIONS

HCS Signalized Intersection Input Data

General Information					Intersection Information			
Agency	GPD Group			Duration, h	0.250			
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	AM Peak Hour		PHF	0.85		
Urban Street	US Route 42	Analysis Year	2052 'No-Build'		Analysis Period	1 > 7:00		
Intersection	Parry Avenue / Mansfiel...	File Name	01 2052 AM No-Build Capacity Analysis US42 &...					
Project Description	US 30 & US 42 Planning Study							



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10

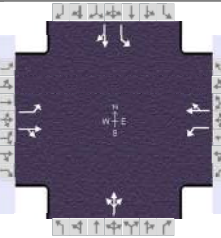
Signal Information																		
Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	4	4		2	2			9		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

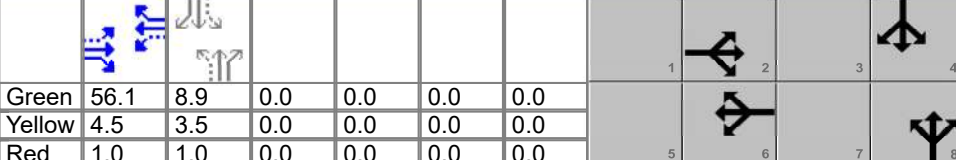
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		21.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	01 2052 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10

Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	56.1	8.9	0.0	0.0	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		61.6		61.6		13.4		13.4
Change Period, ($Y+R_c$), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.3		4.3
Queue Clearance Time (g_s), s						5.0		5.6
Green Extension Time (g_e), s		0.0		0.0		0.2		0.2
Phase Call Probability						0.89		0.89
Max Out Probability						0.00		0.00

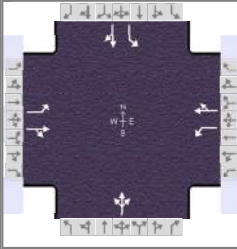
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	12	400		35	588			71		12	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	815	1821		985	1864			1520		1380	1743	
Queue Service Time (g_s), s	0.4	5.3		0.9	8.7			0.0		0.6	0.9	
Cycle Queue Clearance Time (g_c), s	9.1	5.3		6.2	8.7			3.0		3.6	0.9	
Green Ratio (g/C)	0.75	0.75		0.75	0.75			0.12		0.12	0.12	
Capacity (c), veh/h	611	1362		763	1394			244		204	207	
Volume-to-Capacity Ratio (X)	0.019	0.294		0.046	0.422			0.289		0.058	0.114	
Back of Queue (Q), ft/ln (95 th percentile)	3	60		7	100			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	2.3		0.3	3.9			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.24		0.12	0.22			0.06		0.18	0.35	
Uniform Delay (d_1), s/veh	5.2	3.1		4.1	3.5			30.5		32.1	29.5	
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	0.9			0.6		0.1	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	5.2	3.6		4.2	4.4			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.6		A	4.4		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2052 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

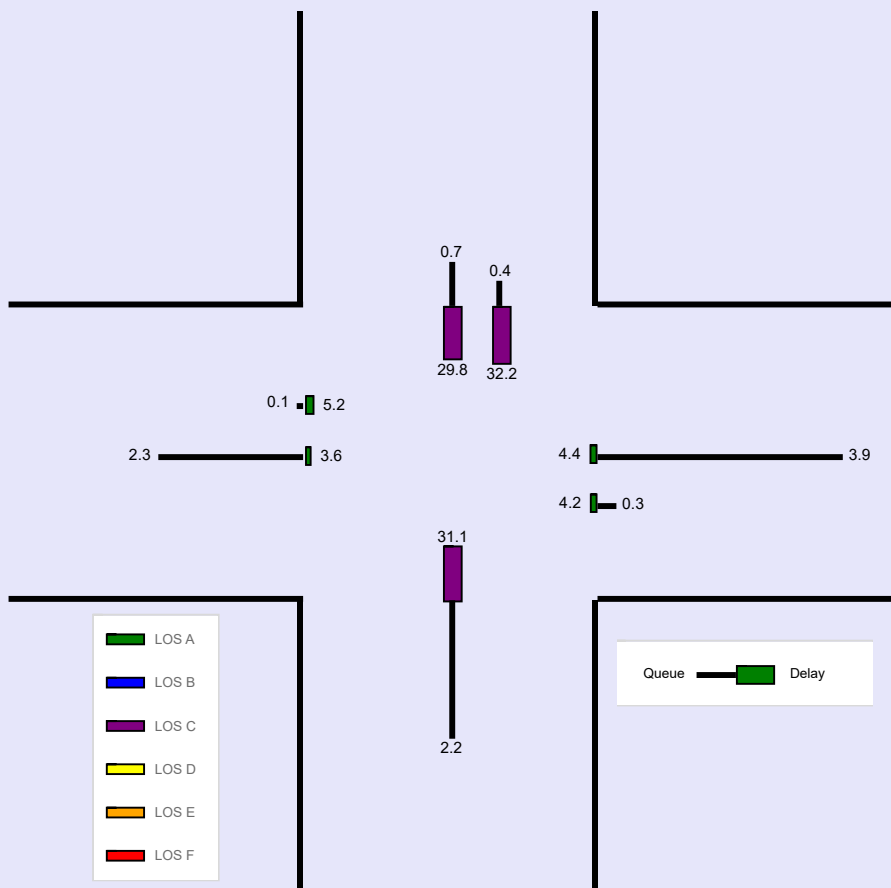
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

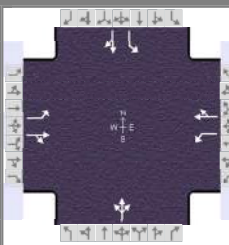
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	60		7	100			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	2.3		0.3	3.9			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.24		0.12	0.22			0.06		0.18	0.35	
Control Delay (d), s/veh	5.2	3.6		4.2	4.4			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.6		A	4.4		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

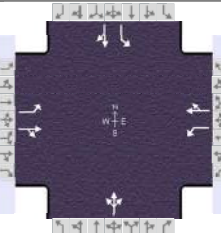
Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		2	2			2		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25


Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		69.0		69.0		26.0		26.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	75.3	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

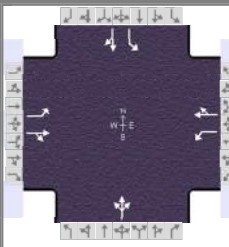
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		80.8		80.8		14.2		14.2
Change Period, (Y+R _c), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		4.4
Queue Clearance Time (g _s), s						8.0		8.7
Green Extension Time (g _e), s		0.0		0.0		0.4		0.4
Phase Call Probability						0.97		0.97
Max Out Probability						0.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	926		21	840			106		11	21	
Adjusted Saturation Flow Rate (s), veh/h/ln	660	1874		604	1866			1598		1333	1743	
Queue Service Time (g _s), s	0.6	19.3		1.4	16.2			2.6		0.7	1.1	
Cycle Queue Clearance Time (g _c), s	16.8	19.3		20.7	16.2			6.0		6.7	1.1	
Green Ratio (g/C)	0.79	0.79		0.79	0.79			0.10		0.10	0.10	
Capacity (c), veh/h	486	1484		432	1478			209		128	179	
Volume-to-Capacity Ratio (X)	0.022	0.624		0.049	0.568			0.508		0.083	0.119	
Back of Queue (Q), ft/ln (95 th percentile)	4	224		9	195			114		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	8.9		0.4	7.7			4.5		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.90		0.15	0.42			0.11		0.23	0.42	
Uniform Delay (d ₁), s/veh	6.9	4.1		8.3	3.7			40.9		44.2	38.7	
Incremental Delay (d ₂), s/veh	0.1	2.0		0.2	1.6			1.9		0.3	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	7.0	6.0		8.5	5.3			42.8		44.5	39.0	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	6.0		A	5.4		A	42.8		D	40.8		D
Intersection Delay, s/veh / LOS	8.4						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

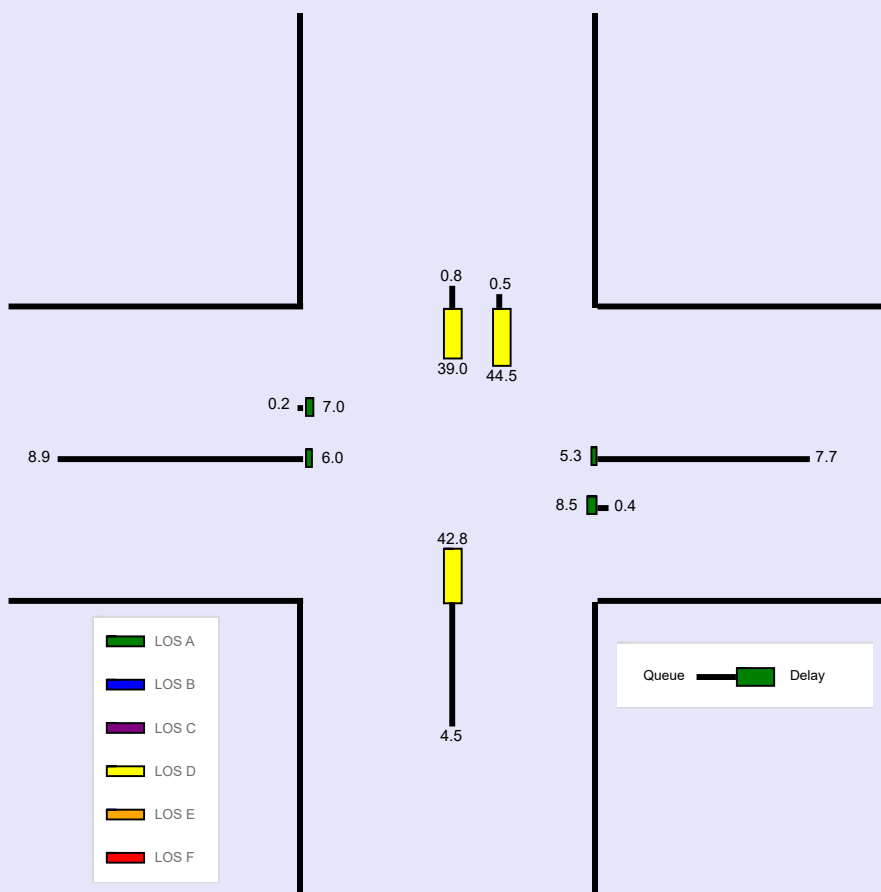
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



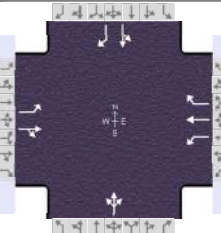
Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

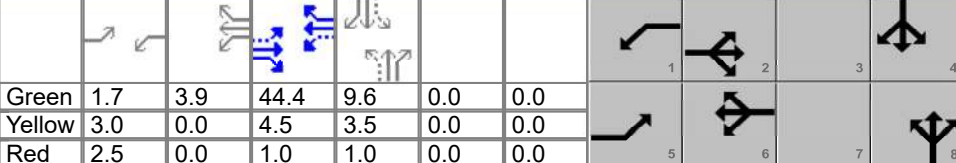
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)	4	224		9	195			114		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	8.9		0.4	7.7			4.5		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.90		0.15	0.42			0.11		0.23	0.42	
Control Delay (d), s/veh	7.0	6.0		8.5	5.3			42.8		44.5	39.0	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	6.0		A	5.4		A	42.8		D	40.8		D
Intersection Delay, s/veh / LOS	8.4						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	03 2052 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	460	10	40	10	50	10	10	10

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	1.7	3.9	44.4	9.6	0.0	0.0	Yellow	3.0	0.0	4.5	3.5	0.0	0.0	Red	2.5	0.0	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

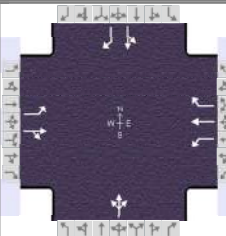
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	460	10	40	10	50	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		2	2	2		5			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		95	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	16.0	42.0		18.0		18.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R _c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information			
Agency	GPD Group			Duration, h	0.250		
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other		
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87		
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00		
Intersection	Kroger & University Hos...	File Name	03 2052 AM No-Build Capacity Analysis US42 &...				
Project Description	US 30 & US 42 Planning Study						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	350	30	50	460	10	40	10	50	10	10	10

Signal Information				Signal Phases									
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		1.7	3.9	44.4	9.6	0.0	0.0				
		Yellow		3.0	0.0	4.5	3.5	0.0	0.0				
		Red		2.5	0.0	1.0	1.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	7.2	49.9	11.1	53.7		14.1		14.1
Change Period, ($Y+R_c$), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		2.8			7.2		2.8
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.21		0.70			0.96		0.96
Max Out Probability	0.00		0.00			0.22		0.01

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	11	437		57	529	11		115			23	11	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1786		1781	1870	1585		1533			1645	1610	
Queue Service Time (g_s), s	0.2	9.9		0.8	10.5	0.2		3.0			0.0	0.5	
Cycle Queue Clearance Time (g_c), s	0.2	9.9		0.8	10.5	0.2		5.2			0.8	0.5	
Green Ratio (g/C)	0.61	0.59		0.67	0.64	0.64		0.13			0.13	0.13	
Capacity (c), veh/h	538	1056		666	1203	1020		263			282	205	
Volume-to-Capacity Ratio (X)	0.021	0.414		0.086	0.440	0.011		0.438			0.082	0.056	
Back of Queue (Q), ft/ln (95 th percentile)	3	164		10	164	3		94			17	8	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.3		0.4	6.4	0.1		3.6			0.7	0.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.31		0.11	0.50	0.01		1.04			0.17	0.08	
Uniform Delay (d_1), s/veh	6.1	8.3		4.9	6.7	4.8		30.7			28.9	28.8	
Incremental Delay (d_2), s/veh	0.0	1.2		0.1	1.2	0.0		1.1			0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	6.1	9.5		5.0	7.8	4.8		31.9			29.0	28.9	
Level of Service (LOS)	A	A		A	A	A		C			C	C	
Approach Delay, s/veh / LOS	9.4		A	7.5		A		31.9		C	29.0		C
Intersection Delay, s/veh / LOS	11.2						B						

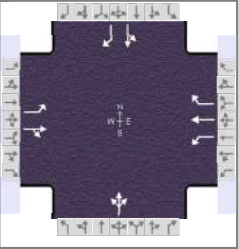
Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2052 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				

Intersection Information



Demand Information

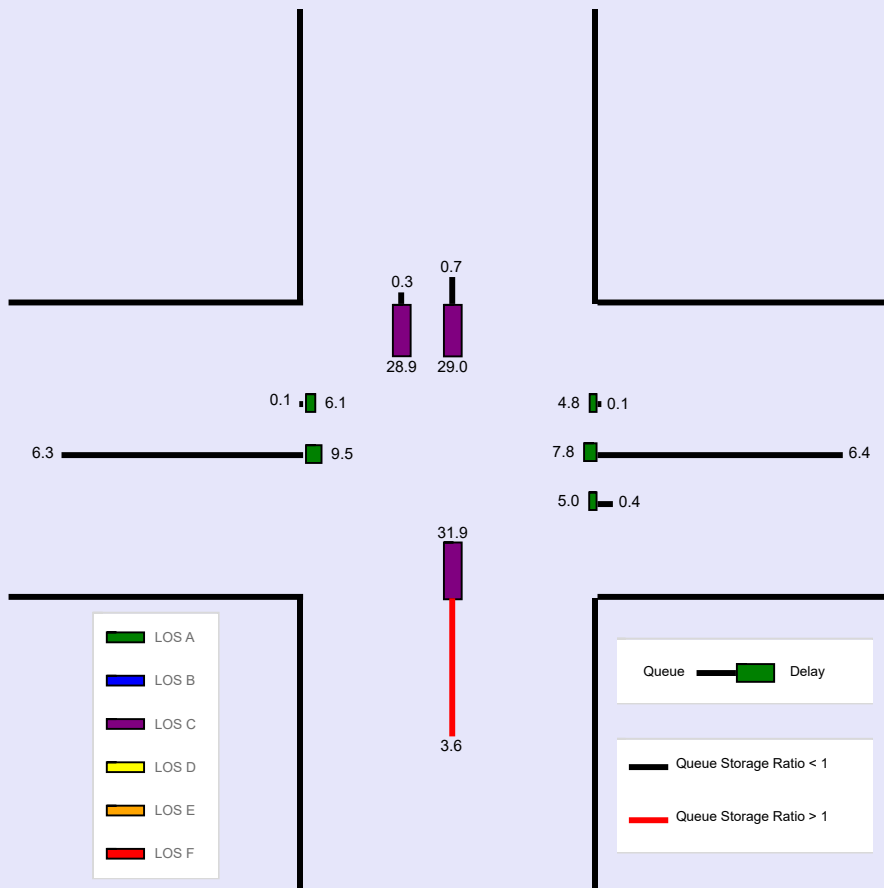
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	460	10	40	10	50	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Green, s	1.7	3.9	44.4	9.6	0.0	0.0					
Yellow, s	3.0	0.0	4.5	3.5	0.0	0.0					
Red, s	2.5	0.0	1.0	1.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

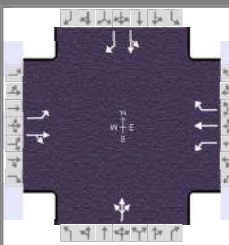
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	164		10	164	3		94			17	8
Back of Queue (Q), veh/ln (95 th percentile)	0.1	6.3		0.4	6.4	0.1		3.6			0.7	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.31		0.11	0.50	0.01		1.04			0.17	0.08
Control Delay (d), s/veh	6.1	9.5		5.0	7.8	4.8		31.9			29.0	28.9
Level of Service (LOS)	A	A		A	A	A		C			C	C
Approach Delay, s/veh / LOS	9.4	A		7.5	A			31.9	C		29.0	C
Intersection Delay, s/veh / LOS	11.2						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	740	110	140	630	10	110	10	130	10	10	10

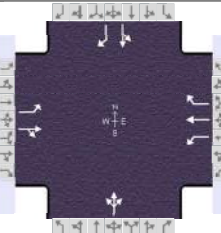
Signal Information				Phase Diagrams										
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
		Green	1.9	0.4	53.7	18.0	0.0	0.0						
		Yellow	3.0	3.0	4.5	3.5	0.0	0.0						
		Red	2.5	2.5	1.0	1.0	0.0	0.0						

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	10	740	110	140	630	10	110	10	130	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		1	1	1		1			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		95	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

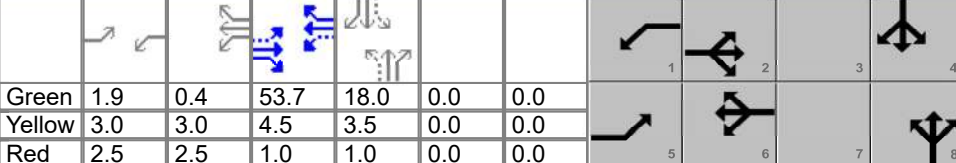
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	14.0	58.0	14.0	58.0		23.0		23.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		3.5		3.5
Red Clearance Interval (R _c), s	2.5	1.0	2.5	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2052 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	630	10	110	10	130	10	10	10

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	1.9	0.4	53.7	18.0	0.0	0.0	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	Red	2.5	2.5	1.0	1.0	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	7.4	59.2	13.3	65.1		22.5		22.5
Change Period, ($Y+R_c$), s	5.5	5.5	5.5	5.5		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		4.8			17.9		2.9
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.1		1.0
Phase Call Probability	0.24		0.98			1.00		1.00
Max Out Probability	0.01		0.94			1.00		0.00

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	895		147	663	11		263			21	11
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1842		1795	1885	1598		1534			1355	1610
Queue Service Time (g_s), s	0.2	39.0		2.8	19.2	0.2		14.8			0.0	0.5
Cycle Queue Clearance Time (g_c), s	0.2	39.0		2.8	19.2	0.2		15.9			0.9	0.5
Green Ratio (g/C)	0.59	0.56		0.67	0.63	0.63		0.19			0.19	0.19
Capacity (c), veh/h	426	1041		321	1182	1002		345			313	305
Volume-to-Capacity Ratio (X)	0.025	0.860		0.460	0.561	0.011		0.763			0.067	0.035
Back of Queue (Q), ft/ln (95 th percentile)	4	607		77	303	4		280			18	9
Back of Queue (Q), veh/ln (95 th percentile)	0.2	24.1		3.0	12.0	0.1		11.1			0.7	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.06	1.16		0.81	0.93	0.01		3.11			0.18	0.09
Uniform Delay (d_1), s/veh	9.5	17.5		17.3	10.2	6.7		37.6			31.6	31.4
Incremental Delay (d_2), s/veh	0.0	9.2		1.0	1.9	0.0		9.3			0.1	0.0
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	9.5	26.7		18.3	12.1	6.7		46.9			31.7	31.5
Level of Service (LOS)	A	C		B	B	A		D			C	C
Approach Delay, s/veh / LOS	26.5	C		13.2	B			46.9	D		31.6	C
Intersection Delay, s/veh / LOS	23.8						C					

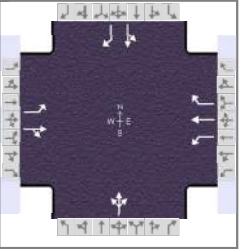
Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				

Intersection Information



Demand Information

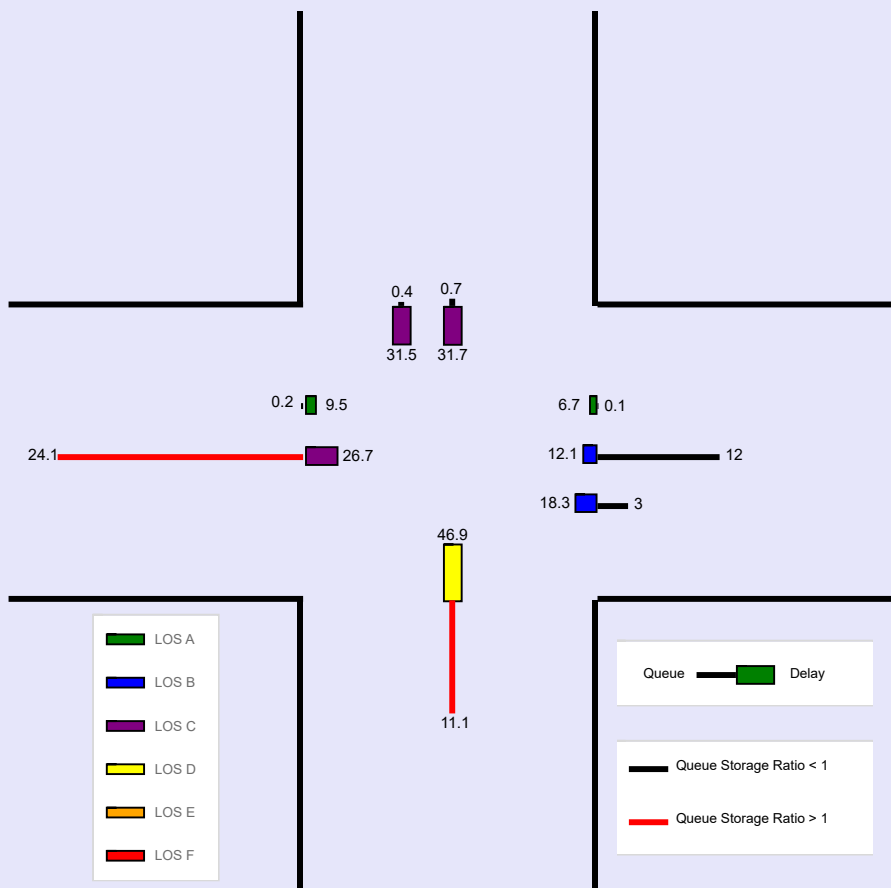
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	630	10	110	10	130	10	10	10

Signal Information

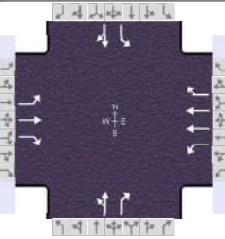
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	1.9	0.4	53.7	18.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.0	3.0	4.5	3.5	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.5	2.5	1.0	1.0	0.0	0.0				

Movement Group Results

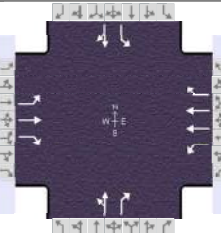
Approach Movement	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Back of Queue (Q), ft/ln (95 th percentile)	4	607		77	303	4		280			18	9	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	24.1		3.0	12.0	0.1		11.1			0.7	0.4	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	1.16		0.81	0.93	0.01		3.11			0.18	0.09	
Control Delay (d), s/veh	9.5	26.7		18.3	12.1	6.7		46.9			31.7	31.5	
Level of Service (LOS)	A	C		B	B	A		D			C	C	
Approach Delay, s/veh / LOS	26.5		C	13.2		B		46.9		D	31.6		C
Intersection Delay, s/veh / LOS	23.8						C						



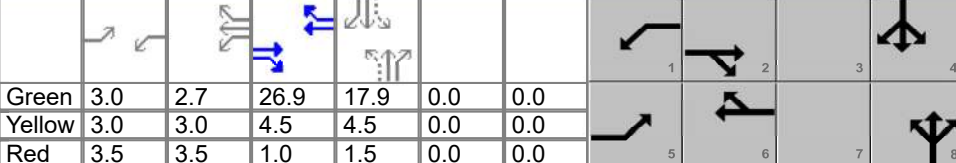
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency		GPD Group				Duration, h		0.250								
Analyst		Ryan Barco		Analysis Date		Nov 8, 2024		Area Type		Other						
Jurisdiction		Madison Township		Time Period		AM Peak Hour		PHF		0.90						
Urban Street		US Route 42		Analysis Year		2052 'No-Build'		Analysis Period		1 > 7:00						
Intersection		Stewart Road		File Name		05 2052 AM No-Build Capacity Analysis US42 &...										
Project Description		US 30 & US 42 Planning Study														
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				20	330	60	220	420	60	30	70	280	80	180	70	
Signal Information																
Cycle, s		75.0		Reference Phase		2										
Offset, s		0		Reference Point		End										
Uncoordinated		No		Simult. Gap E/W		On										
Force Mode		Fixed		Simult. Gap N/S		On										
				Green	3.0	2.7	26.9	17.9	0.0	0.0						
				Yellow	3.0	3.0	4.5	4.5	0.0	0.0						
				Red	3.5	3.5	1.0	1.5	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				20	330	60	220	420	60	30	70	280	80	180	70	
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Parking (N _m), man/h				None			None			None			None			
Heavy Vehicles (P _{HV}), %				6	6	6	3	3	3		1	1	1	1		
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0	
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0	
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3	
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0		
Turn Bay Length, ft				90	325	100	440	550	160		1075	110	70	375		
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h				35	35	35	35	35	35	35	35	35	35	35	35	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s				15.0	30.0	21.0	36.0		24.0			24.0				
Yellow Change Interval (Y), s				3.0	4.5	3.0	4.5		4.5			4.5				
Red Clearance Interval (R _c), s				3.5	1.0	3.5	1.0		1.5			1.5				
Minimum Green (G _{min}), s				8	20	8	20		10			10				
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Passage (P _T), s				3.0	2.0	3.0	2.0		3.0			3.0			3.0	
Recall Mode				Off	Min	Off	Min		Off			Off			Off	
Dual Entry				No	Yes	No	Yes		Yes			Yes			Yes	
Walk (Walk), s					0.0		0.0		0.0			0.0			0.0	
Pedestrian Clearance Time (P _C), s					0.0		0.0		0.0			0.0			0.0	
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50	No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2052 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	330	60	220	420	60	30	70	280	80	180	70

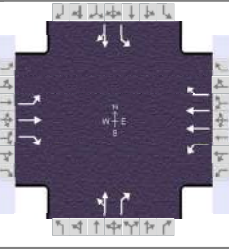
Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	3.0	2.7	26.9	17.9	0.0	0.0	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	Red	3.5	3.5	1.0	1.5	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	9.5	32.4	18.7	41.6		23.9		23.9
Change Period, (Y+R _c), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2		4.2
Queue Clearance Time (g _s), s	2.9		12.1			15.8		17.8
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.8		0.1
Phase Call Probability	0.37		0.99			1.00		1.00
Max Out Probability	0.10		1.00			1.00		1.00

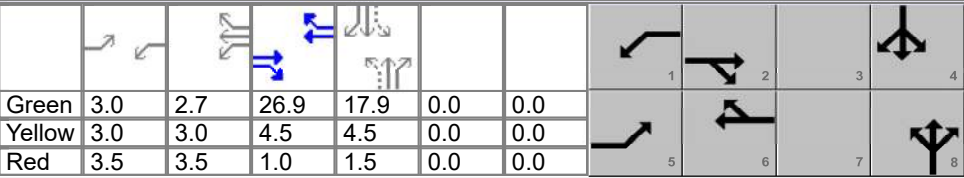
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	22	367	67	244	467	67		111	311	89	278		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1535	1767	1766	1572		1123	1598	1332	1795		
Queue Service Time (g _s), s	0.9	12.2	2.2	10.1	5.9	1.7		0.5	13.8	4.9	10.4		
Cycle Queue Clearance Time (g _c), s	0.9	12.2	2.2	10.1	5.9	1.7		10.9	13.8	15.8	10.4		
Green Ratio (g/C)	0.04	0.36	0.36	0.16	0.48	0.48		0.24	0.24	0.24	0.24		
Capacity (c), veh/h	68	648	549	288	1700	757		331	382	220	430		
Volume-to-Capacity Ratio (X)	0.326	0.566	0.121	0.850	0.275	0.088		0.336	0.814	0.403	0.647		
Back of Queue (Q), ft/ln (95 th percentile)	20	240	37	233	100	27		71	261	71	204		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	9.2	1.4	9.1	3.9	1.1		2.8	10.3	2.8	8.1		
Queue Storage Ratio (RQ) (95 th percentile)	0.23	0.74	0.37	0.53	0.18	0.17		0.07	2.37	1.02	0.54		
Uniform Delay (d ₁), s/veh	35.0	19.4	16.2	30.5	11.6	10.5		23.3	26.9	33.0	25.7		
Incremental Delay (d ₂), s/veh	2.7	3.6	0.5	15.8	0.4	0.2		0.6	12.6	1.2	3.3		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	37.8	22.9	16.6	46.4	12.0	10.8		23.9	39.5	34.2	29.0		
Level of Service (LOS)	D	C	B	D	B	B		C	D	C	C		
Approach Delay, s/veh / LOS	22.7		C	22.7		C		35.4		D	30.3		C
Intersection Delay, s/veh / LOS	26.7						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

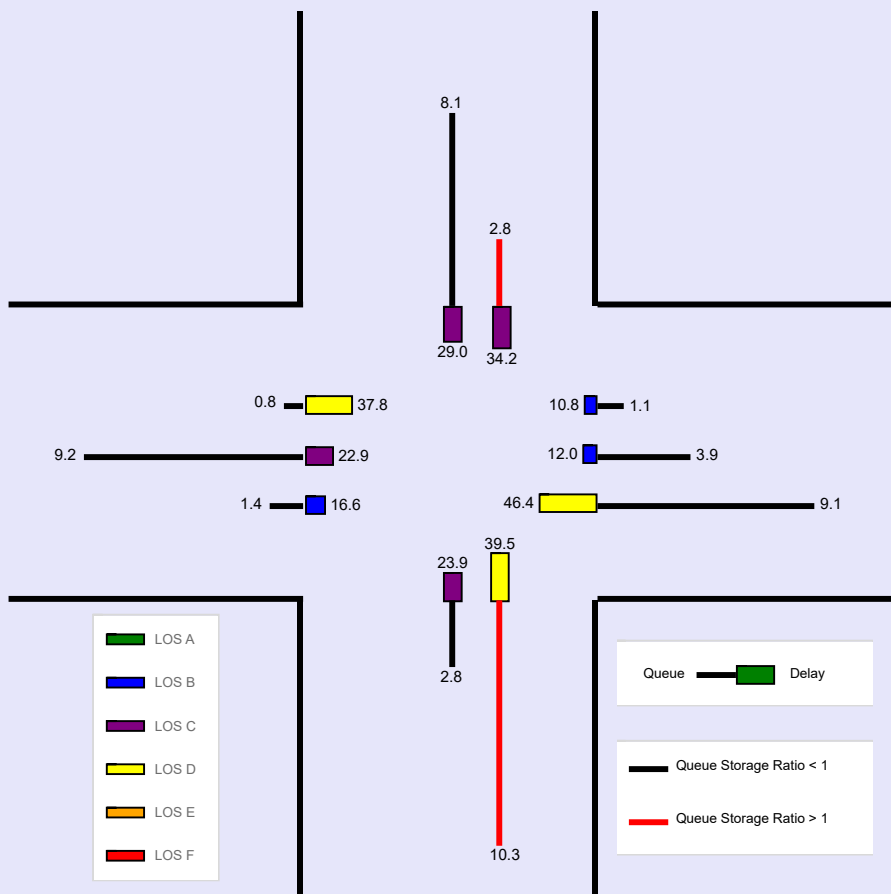
HCS Signalized Intersection Results Graphical Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2052 AM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	330	60	220	420	60	30	70	280	80	180	70

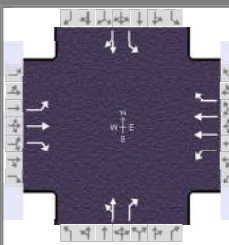
Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	3.0	2.7	26.9	17.9	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.0	3.0	4.5	4.5	0.0	0.0			
				Red	3.5	3.5	1.0	1.5	0.0	0.0			

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	20	240	37	233	100	27		71	261	71	204		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	9.2	1.4	9.1	3.9	1.1		2.8	10.3	2.8	8.1		
Queue Storage Ratio (RQ) (95 th percentile)	0.23	0.74	0.37	0.53	0.18	0.17		0.07	2.37	1.02	0.54		
Control Delay (d), s/veh	37.8	22.9	16.6	46.4	12.0	10.8		23.9	39.5	34.2	29.0		
Level of Service (LOS)	D	C	B	D	B	B		C	D	C	C		
Approach Delay, s/veh / LOS	22.7		C	22.7		C		35.4		D	30.3		C
Intersection Delay, s/veh / LOS	26.7						C						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	690	70	320	620	170	40	150	290	180	290	120

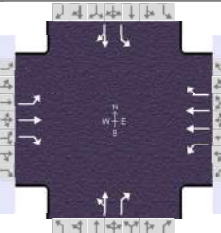
Signal Information														
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
				Green	8.1	3.9	35.5	23.0	0.0	0.0				
				Yellow	3.0	3.0	4.5	4.5	0.0	0.0				
				Red	3.5	3.5	1.0	1.5	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	690	70	320	620	170	40	150	290	180	290	120
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	1	1	1	1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	90	325	100	440	550	160		1075	110	70	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

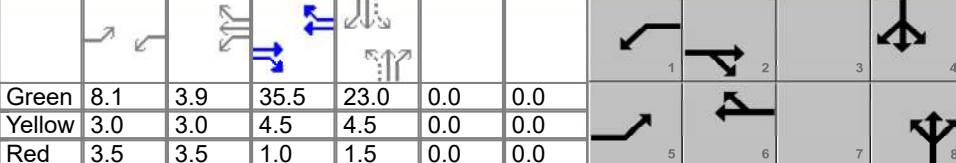
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	25.0	51.0		29.0		29.0
Yellow Change Interval (Y), s	3.0	4.5	3.0	4.5		4.5		4.5
Red Clearance Interval (R _c), s	3.5	1.0	3.5	1.0		1.5		1.5
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2052 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	690	70	320	620	170	40	150	290	180	290	120

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	8.1	3.9	35.5	23.0	0.0	0.0	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	Red	3.5	3.5	1.0	1.5	0.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

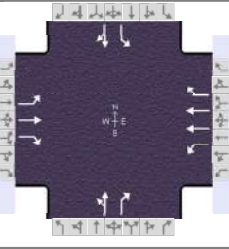
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	2.0	3.0	2.0	3.0		7.0		6.0
Phase Duration, s	14.6	41.0	25.0	51.4		29.0		29.0
Change Period, ($Y+R_c$), s	6.5	5.5	6.5	5.5		6.0		6.0
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	8.4		19.2			25.0		25.0
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0		0.0		0.0
Phase Call Probability	0.96		1.00			1.00		1.00
Max Out Probability	1.00		1.00			1.00		1.00

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	124	711	72	330	639	175		196	299	186	423		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1598	1795	1795	1598		621	1585	1242	1791		
Queue Service Time (g_s), s	6.4	35.5	2.8	17.2	10.6	6.1		0.8	16.7	0.0	22.2		
Cycle Queue Clearance Time (g_c), s	6.4	35.5	2.8	17.2	10.6	6.1		23.0	16.7	23.0	22.2		
Green Ratio (g/C)	0.09	0.37	0.37	0.19	0.48	0.48		0.24	0.24	0.24	0.24		
Capacity (c), veh/h	153	704	597	350	1734	772		196	384	76	434		
Volume-to-Capacity Ratio (X)	0.807	1.010	0.121	0.944	0.369	0.227		0.998	0.779	2.448	0.975		
Back of Queue (Q), ft/ln (95 th percentile)	174	759	49	402	192	101		322	297	738	499		
Back of Queue (Q), veh/ln (95 th percentile)	6.9	30.1	1.9	15.9	7.6	4.0		12.7	11.7	29.3	19.8		
Queue Storage Ratio (RQ) (95 th percentile)	1.93	2.34	0.49	0.91	0.35	0.63		0.30	2.70	10.55	1.33		
Uniform Delay (d_1), s/veh	42.7	29.8	19.5	37.7	15.4	14.3		33.7	33.6	47.5	35.7		
Incremental Delay (d_2), s/veh	24.5	36.3	0.4	33.7	0.6	0.7		63.7	9.8	689.6	36.6		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	67.2	66.1	19.9	71.4	16.0	14.9		97.5	43.5	737.1	72.3		
Level of Service (LOS)	E	F	B	E	B	B		F	D	F	E		
Approach Delay, s/veh / LOS	62.6		E	31.8		C		64.8		E	275.1		F
Intersection Delay, s/veh / LOS	92.8						F						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

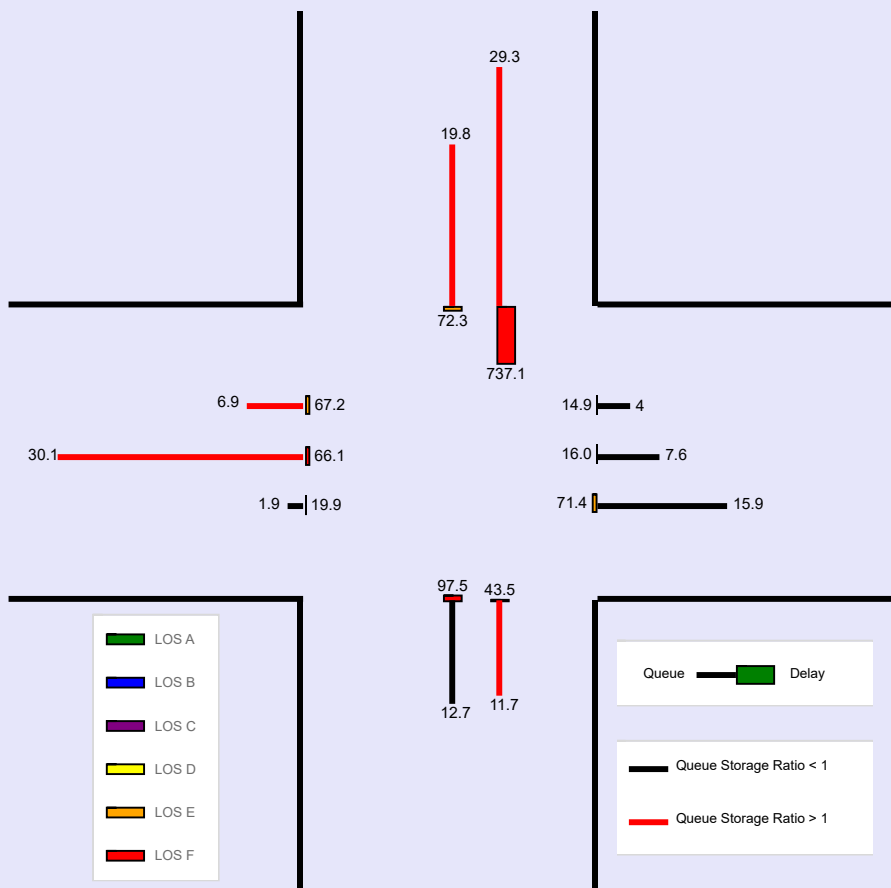
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	120	690	70	320	620	170	40	150	290	180	290	120

Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	95.0	Reference Phase	2	Green	8.1	3.9	35.5	23.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.0	3.0	4.5	4.5	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	3.5	3.5	1.0	1.5	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

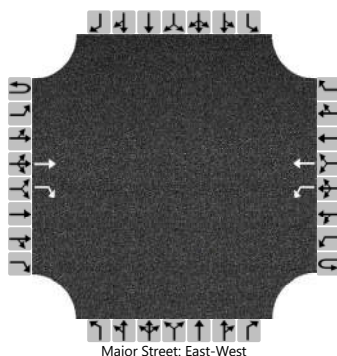
Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	174	759	49	402	192	101		322	297	738	499		
Back of Queue (Q), veh/ln (95 th percentile)	6.9	30.1	1.9	15.9	7.6	4.0		12.7	11.7	29.3	19.8		
Queue Storage Ratio (RQ) (95 th percentile)	1.93	2.34	0.49	0.91	0.35	0.63		0.30	2.70	10.55	1.33		
Control Delay (d), s/veh	67.2	66.1	19.9	71.4	16.0	14.9		97.5	43.5	737.1	72.3		
Level of Service (LOS)	E	F	B	E	B	B		F	D	F	E		
Approach Delay, s/veh / LOS	62.6		E	31.8		C		64.8		E	275.1		F
Intersection Delay, s/veh / LOS	92.8						F						



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2052	North/South Street	US Route 30 EB Ramps
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.92
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	1	0	1	1	0		0	0	0		0	0	0
Configuration			T	R		L	T									
Volume (veh/h)			580	110		30	580									
Percent Heavy Vehicles (%)						4										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized	Yes															
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						4.1										
Critical Headway (sec)						4.14										
Base Follow-Up Headway (sec)						2.2										
Follow-Up Headway (sec)						2.24										

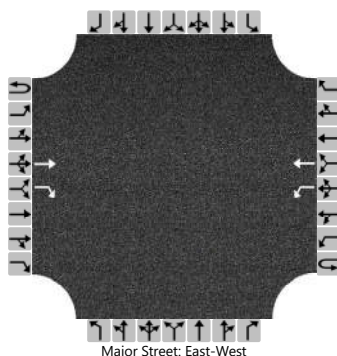
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						33										
Capacity, c (veh/h)						942										
v/c Ratio						0.03										
95% Queue Length, Q ₉₅ (veh)						0.1										
95% Queue Length, Q ₉₅ (ft)						2.6										
Control Delay (s/veh)						9.0										
Level of Service (LOS)						A										
Approach Delay (s/veh)					0.4											
Approach LOS					A											

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 EB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2052	North/South Street	US Route 30 EB Ramps
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.94
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6								
Priority																
Number of Lanes	0	0	1	1	0	1	1	0								
Configuration			T	R		L	T									
Volume (veh/h)			960	200		40	810									
Percent Heavy Vehicles (%)						1										
Proportion Time Blocked																
Percent Grade (%)																
Right Turn Channelized			Yes													
Median Type Storage					Undivided											

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

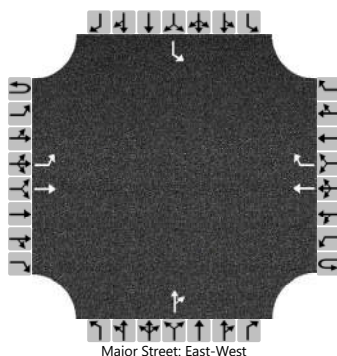
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)																
Capacity, c (veh/h)																
v/c Ratio																
95% Queue Length, Q ₉₅ (veh)																
95% Queue Length, Q ₉₅ (ft)																
Control Delay (s/veh)																
Level of Service (LOS)																
Approach Delay (s/veh)																
Approach LOS																

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 WB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2052	North/South Street	US Route 30 WB Ramps
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.84
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	1		0	1	0		1	0	0
Configuration		L	T				T	R				TR		L		
Volume (veh/h)		200	600				450	380			10	40		10		
Percent Heavy Vehicles (%)		3									12	12		4		
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1									6.5	6.2		7.1		
Critical Headway (sec)		4.13									6.62	6.32		7.14		
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5		
Follow-Up Headway (sec)		2.23									4.11	3.41		3.54		

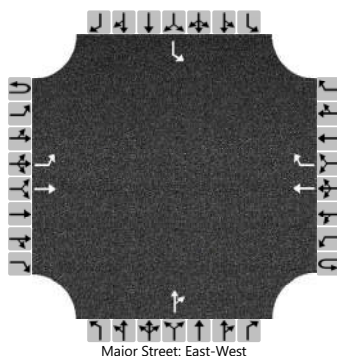
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		238									60	12					
Capacity, c (veh/h)		1027									199	38					
v/c Ratio		0.23									0.30	0.31					
95% Queue Length, Q ₉₅ (veh)		0.9									1.2	1.0					
95% Queue Length, Q ₉₅ (ft)		23.0									32.9	25.8					
Control Delay (s/veh)		9.6									30.7	138.0					
Level of Service (LOS)		A									D	F					
Approach Delay (s/veh)		2.4								30.7				138.0			
Approach LOS		A								D				F			

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 42 / US 30 WB Ramps
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 42
Analysis Year	2052	North/South Street	US Route 30 WB Ramps
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.97
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	1	1	0	0	0	1	1		0	1	0		1	0	0
Configuration		L	T				T	R				TR		L		
Volume (veh/h)		220	1140				630	360			10	40		10		
Percent Heavy Vehicles (%)		2									8	8		3		
Proportion Time Blocked																
Percent Grade (%)									0				0			
Right Turn Channelized					Yes											
Median Type Storage	Undivided															

Critical and Follow-up Headways

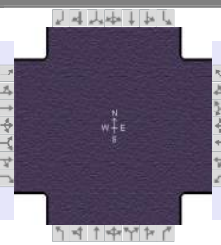
Base Critical Headway (sec)		4.1									6.5	6.2		7.1		
Critical Headway (sec)		4.12									6.58	6.28		7.13		
Base Follow-Up Headway (sec)		2.2									4.0	3.3		3.5		
Follow-Up Headway (sec)		2.22									4.07	3.37		3.53		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		227									52	10					
Capacity, c (veh/h)		937									96	12					
v/c Ratio		0.24									0.54	0.88					
95% Queue Length, Q ₉₅ (veh)		0.9									2.4	1.9					
95% Queue Length, Q ₉₅ (ft)		22.9									63.8	48.6					
Control Delay (s/veh)		10.1									79.4	633.6					
Level of Service (LOS)		B									F	F					
Approach Delay (s/veh)		1.6								79.4				633.6			
Approach LOS		A								F				F			

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.6	9.4	0.0	0.0	0.0	0.0				
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

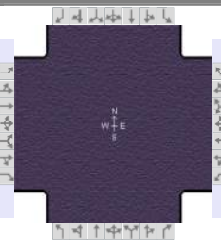
Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		4		4	4		4		4			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.6	9.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		61.1		61.1		13.9		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.7		
Phase Call Probability						1.00		
Max Out Probability						0.15		

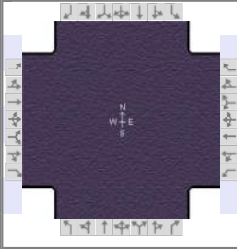
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		850		250	950		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1761		638	1841		1753		1560			
Queue Service Time (g _s), s		18.1		24.1	20.6		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		18.1		42.1	20.6		6.7		6.3			
Green Ratio (g/C)		0.74		0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1307		416	1366		219		195			
Volume-to-Capacity Ratio (X)		0.650		0.601	0.696		0.743		0.707			
Back of Queue (Q), ft/ln (95 th percentile)		211		173	244		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		8.2		6.7	9.5		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.15		2.31	0.16		2.79		0.13			
Uniform Delay (d ₁), s/veh		4.8		15.3	5.2		31.7		31.5			
Incremental Delay (d ₂), s/veh		2.5		6.3	2.9		4.9		4.7			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		7.3		21.6	8.1		36.6		36.2			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	7.3	A		10.9	B		36.4	D		0.0		
Intersection Delay, s/veh / LOS				12.9						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

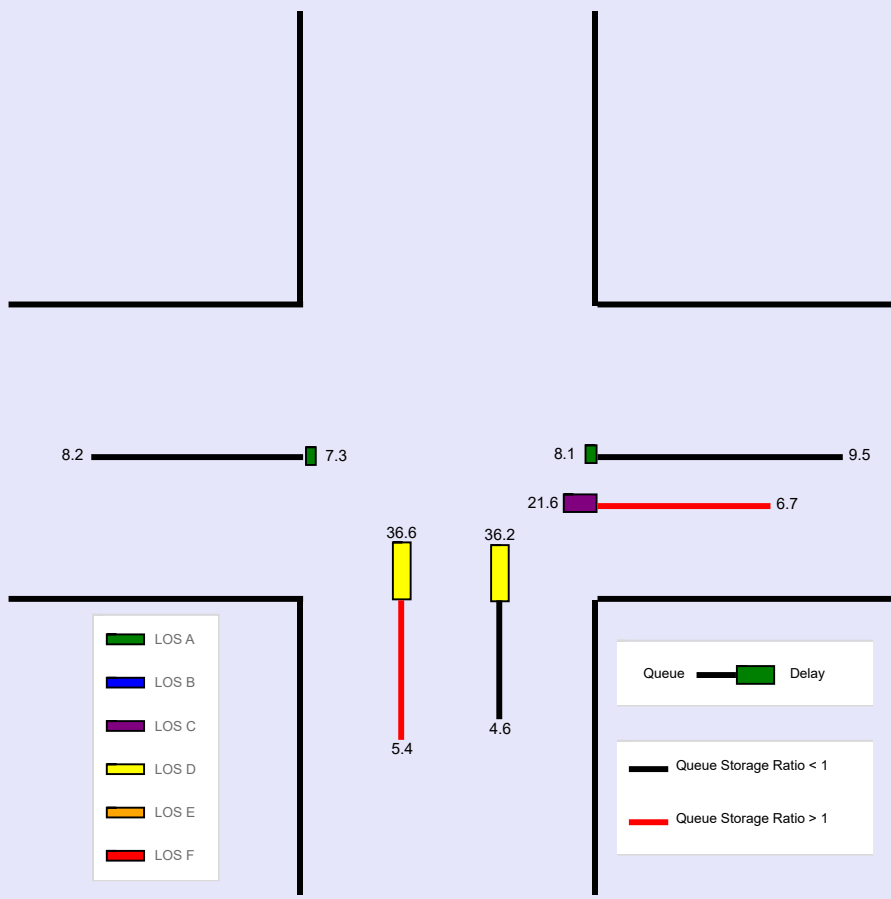
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

Signal Information

Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	55.6	9.4	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

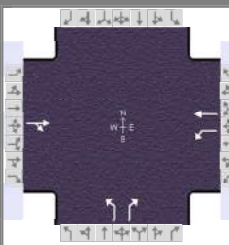
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		211		173	244		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		8.2		6.7	9.5		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.15		2.31	0.16		2.79		0.13			
Control Delay (d), s/veh		7.3		21.6	8.1		36.6		36.2			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	7.3		A	10.9		B	36.4		D	0.0		
Intersection Delay, s/veh / LOS				12.9					B			



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1030	150	190	920		100		150			

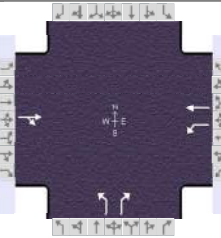
Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1030	150	190	920		100		150			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2		3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

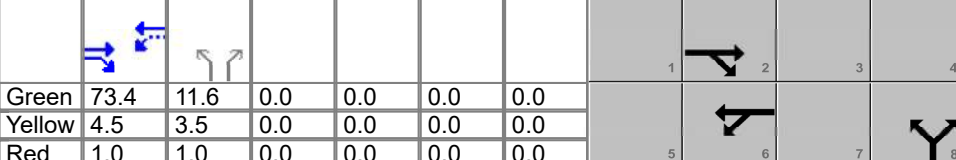
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.5		4.5		3.5		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99	
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	12 2052 PM No-Build Capacity Analysis US42 &...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information													
Cycle, s	95.0	Reference Phase	2	Green	73.4	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On										

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		78.9		78.9		16.1		
Change Period, (Y+R _c), s		5.5		5.5		4.5		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.7		
Green Extension Time (g _e), s		0.0		0.0		0.9		
Phase Call Probability						1.00		
Max Out Probability						0.00		

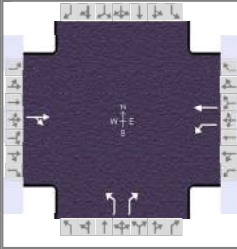
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		1192		192	929		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1829		466	1856		1795		1598			
Queue Service Time (g _s), s		40.4		33.0	21.7		5.0		8.7			
Cycle Queue Clearance Time (g _c), s		40.4		73.4	21.7		5.0		8.7			
Green Ratio (g/C)		0.77		0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1413		238	1434		219		195			
Volume-to-Capacity Ratio (X)		0.843		0.808	0.648		0.461		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		460		260	266		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		18.1		10.1	10.4		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.32		3.46	0.17		2.03		0.19			
Uniform Delay (d ₁), s/veh		7.0		33.6	4.9		38.8		40.5			
Incremental Delay (d ₂), s/veh		6.3		24.7	2.3		1.5		6.6			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		13.3		58.3	7.2		40.3		47.0			
Level of Service (LOS)		B		E	A		D		D			
Approach Delay, s/veh / LOS	13.3	B		15.9	B		44.3	D		0.0		
Intersection Delay, s/veh / LOS				17.5						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'No-Build'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM No-Build Capacity Analysis US42 &...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

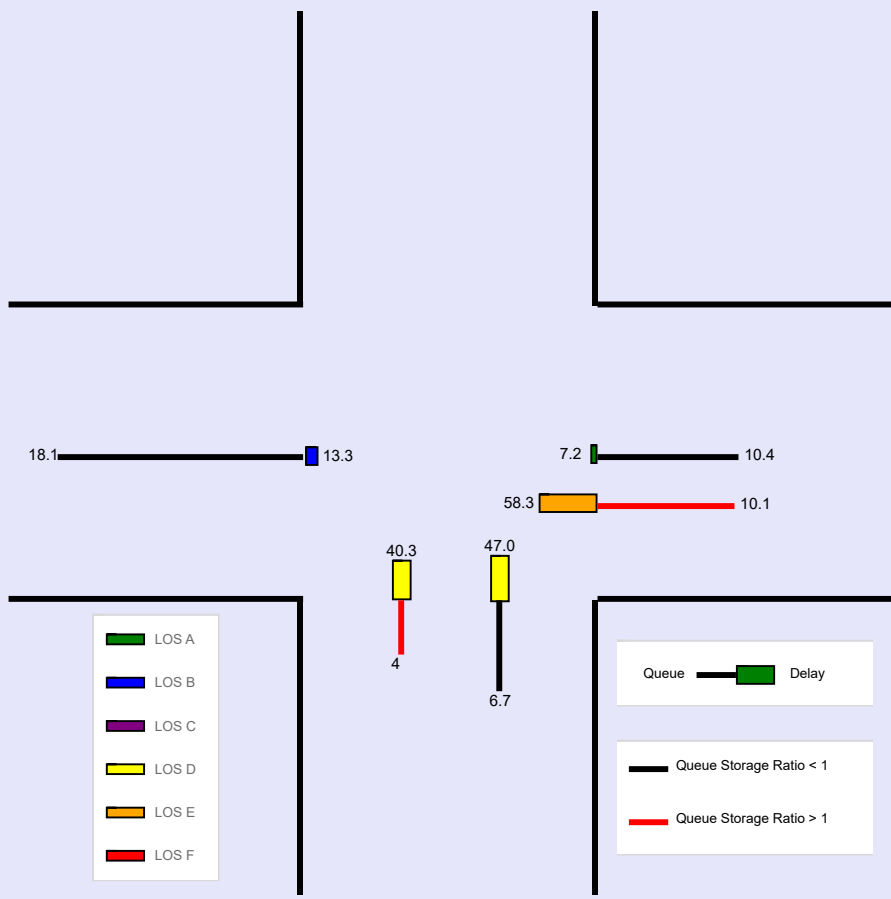
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	73.4	11.6	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Movement Group Results

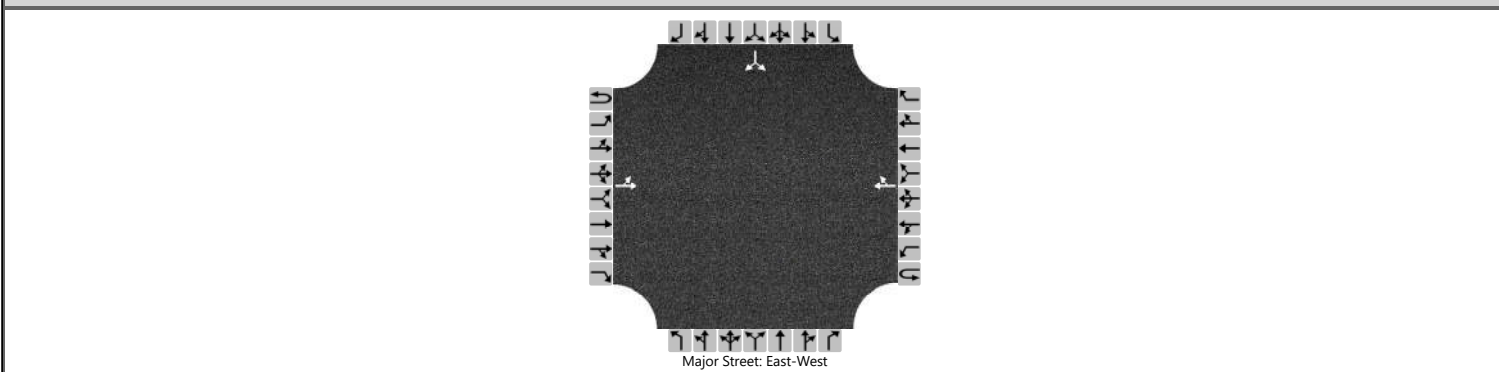
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		460		260	266		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		18.1		10.1	10.4		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.32		3.46	0.17		2.03		0.19			
Control Delay (d), s/veh		13.3		58.3	7.2		40.3		47.0			
Level of Service (LOS)		B		E	A		D		D			
Approach Delay, s/veh / LOS	13.3		B	15.9		B	44.3		D	0.0		
Intersection Delay, s/veh / LOS	17.5			B			B			B		



HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	US 30 WB Ramps / Beal Road
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	US Route 30 WB Ramps
Analysis Year	2052	North/South Street	Beal Road
Time Analyzed	AM Peak Hour 'No-Build'	Peak Hour Factor	0.88
Intersection Orientation	East-West	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		10	110				560	30						60		50
Percent Heavy Vehicles (%)		7												0		0
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.17												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.26												3.50		3.30

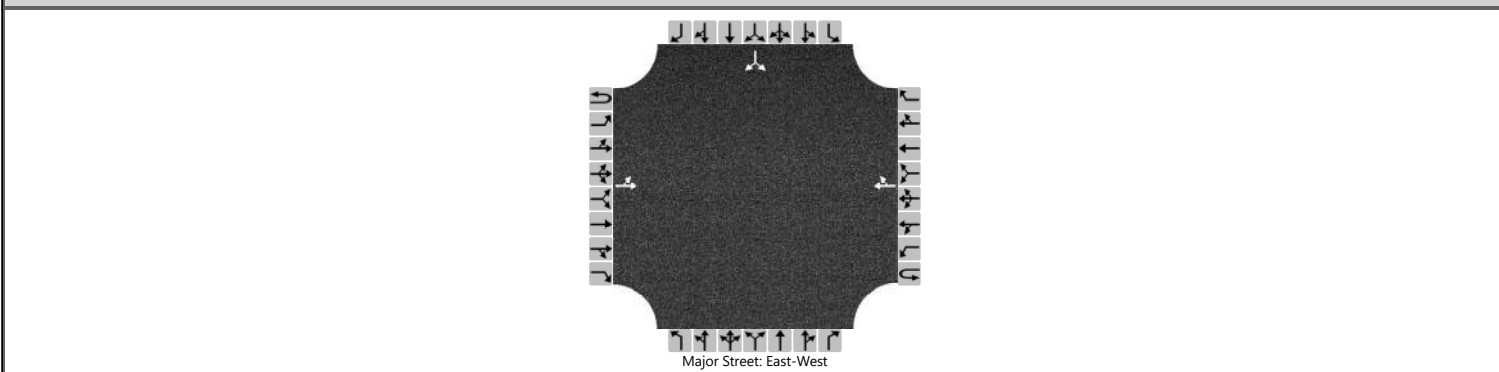
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11														125	
Capacity, c (veh/h)		897														397	
v/c Ratio		0.01														0.31	
95% Queue Length, Q ₉₅ (veh)		0.0														1.3	
95% Queue Length, Q ₉₅ (ft)		0.0														32.5	
Control Delay (s/veh)		9.1	0.1													18.2	
Level of Service (LOS)		A	A													C	
Approach Delay (s/veh)		0.9												18.2			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	US 30 WB Ramps / Beal Road		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	US Route 30 WB Ramps		
Analysis Year	2052			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.91		
Intersection Orientation	East-West			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Priority																
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		10	150				480	110						80		50
Percent Heavy Vehicles (%)		3												0		0
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.40		6.20
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.50		3.30

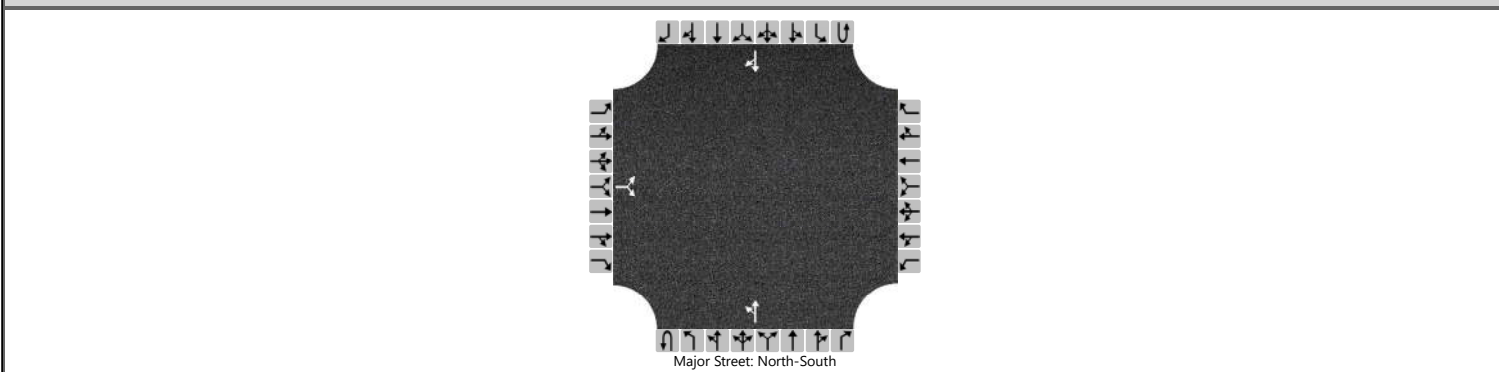
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11													143		
Capacity, c (veh/h)		933													410		
v/c Ratio		0.01													0.35		
95% Queue Length, Q ₉₅ (veh)		0.0													1.5		
95% Queue Length, Q ₉₅ (ft)		0.0													37.5		
Control Delay (s/veh)		8.9	0.1												18.4		
Level of Service (LOS)		A	A												C		
Approach Delay (s/veh)		0.7												18.4			
Approach LOS		A												C			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2052			North/South Street	Beal Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		20						10	30				100	10
Percent Heavy Vehicles (%)		6		6						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.26						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.35						2.24						

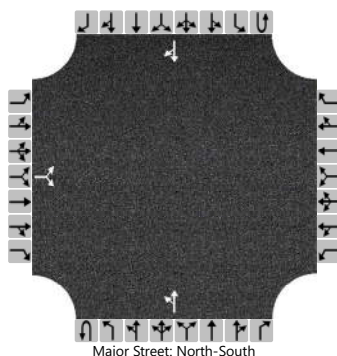
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			38							13						
Capacity, c (veh/h)			860							1434						
v/c Ratio			0.04							0.01						
95% Queue Length, Q ₉₅ (veh)			0.1							0.0						
95% Queue Length, Q ₉₅ (ft)			2.6							0.0						
Control Delay (s/veh)			9.4							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.4								1.9							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2052			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		10		30						10	130				110	10
Percent Heavy Vehicles (%)		0		0						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.24						

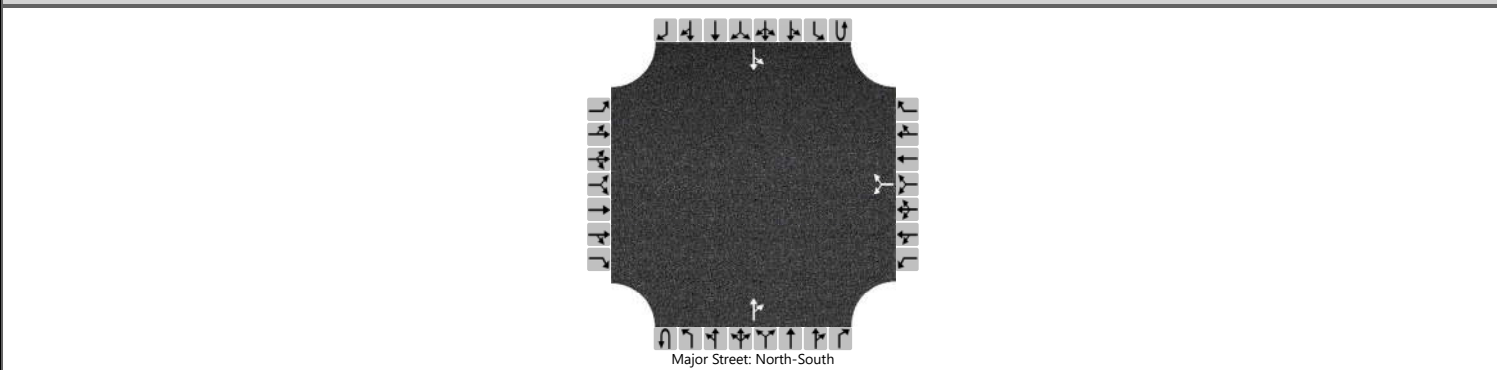
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			43							11						
Capacity, c (veh/h)			863							1444						
v/c Ratio			0.05							0.01						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
95% Queue Length, Q ₉₅ (ft)			5.0							0.0						
Control Delay (s/veh)			9.4							7.5	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.4								0.6							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Expressview Drive / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2052			North/South Street	Expressview Drive		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		10			10	10		10	10	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.40		6.20							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.50		3.30							2.20		

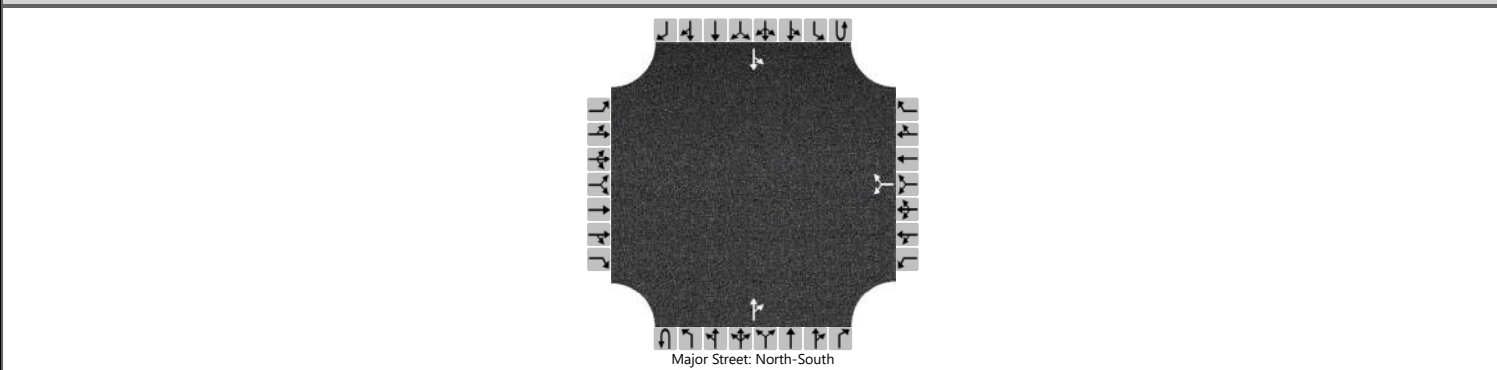
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						25									13		
Capacity, c (veh/h)						1004									1603		
v/c Ratio						0.02									0.01		
95% Queue Length, Q ₉₅ (veh)						0.1									0.0		
95% Queue Length, Q ₉₅ (ft)						2.5									0.0		
Control Delay (s/veh)						8.7									7.3	0.1	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					8.7								3.7				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	Rayfield Drive
Analysis Year	2052	North/South Street	Expressview Drive
Time Analyzed	PM Peak Hour 'No-Build'	Peak Hour Factor	0.83
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						10		10			10	50		10	10	
Percent Heavy Vehicles (%)						9		9						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.49		6.29							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.58		3.38							2.20		

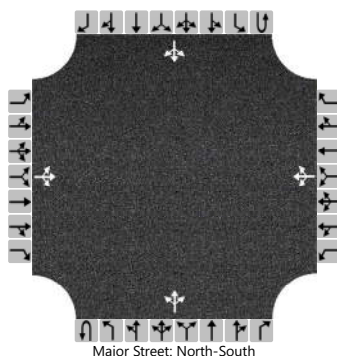
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						24									12		
Capacity, c (veh/h)						951									1541		
v/c Ratio						0.03									0.01		
95% Queue Length, Q ₉₅ (veh)						0.1									0.0		
95% Queue Length, Q ₉₅ (ft)						2.7									0.0		
Control Delay (s/veh)						8.9									7.4	0.1	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					8.9								3.7				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2052			North/South Street	Stewart Road		
Time Analyzed	AM Peak Hour 'No-Build'			Peak Hour Factor	0.84		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	40		10	10	10		10	80	10		10	180	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.21		

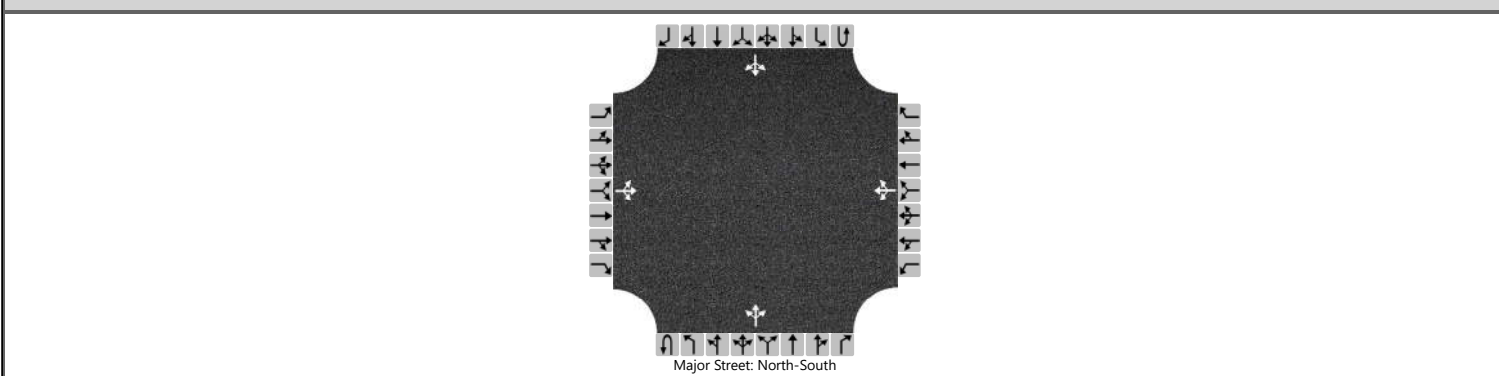
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			71				36			12				12		
Capacity, c (veh/h)			707				622			1336				1490		
v/c Ratio			0.10				0.06			0.01				0.01		
95% Queue Length, Q ₉₅ (veh)			0.3				0.2			0.0				0.0		
95% Queue Length, Q ₉₅ (ft)			7.5				5.0									
Control Delay (s/veh)			10.7				11.1			7.7	0.1	0.1		7.4	0.1	0.1
Level of Service (LOS)			B				B			A	A	A		A	A	A
Approach Delay (s/veh)	10.7				11.1				0.8				0.4			
Approach LOS	B				B				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2052			North/South Street	Stewart Road		
Time Analyzed	PM Peak Hour 'No-Build'			Peak Hour Factor	0.94		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	40		20	10	10		50	240	40		10	230	10
Percent Heavy Vehicles (%)		3	3	3		10	10	10		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

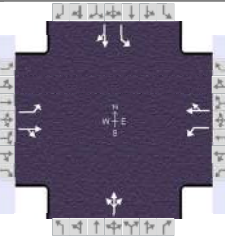
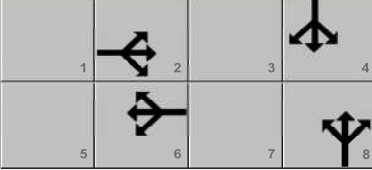
Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.20	6.60	6.30		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.59	4.09	3.39		2.22				2.22		

Delay, Queue Length, and Level of Service

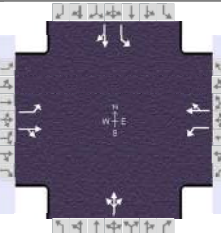
Flow Rate, v (veh/h)			64				43			53				11		
Capacity, c (veh/h)			550				373			1310				1263		
v/c Ratio			0.12				0.11			0.04				0.01		
95% Queue Length, Q ₉₅ (veh)			0.4				0.4			0.1				0.0		
95% Queue Length, Q ₉₅ (ft)			10.2				10.8									
Control Delay (s/veh)			12.4				15.9			7.9	0.4	0.4		7.9	0.1	0.1
Level of Service (LOS)			B				C			A	A	A		A	A	A
Approach Delay (s/veh)	12.4				15.9				1.5				0.4			
Approach LOS	B				C				A				A			

DESIGN YEAR 2052 'BUILD' CONDITIONS

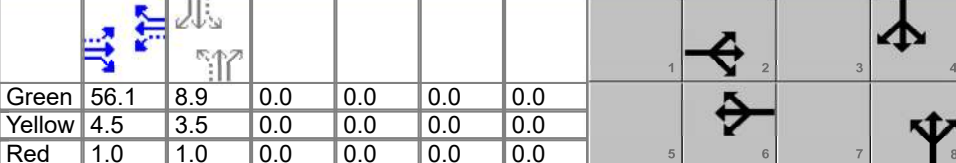
HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	GPD Group					Duration, h	0.250								
Analyst	Ryan Barco		Analysis Date	Nov 8, 2024		Area Type	Other								
Jurisdiction	Madison Township		Time Period	AM Peak Hour		PHF	0.85								
Urban Street	US Route 42		Analysis Year	2052 'Build'		Analysis Period	1 > 7:00								
Intersection	Parry Avenue / Mansfiel...		File Name	01 2052 AM Build Capacity Analysis US42 & Parr...											
Project Description	US 30 & US 42 Planning Study														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				10	320	20	30	490	10	20	10	30	10	10	10
Signal Information															
Cycle, s	75.0	Reference Phase	2	Green	56.1	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Offset, s	0	Reference Point	End	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On												
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				10	320	20	30	490	10	20	10	30	10	10	10
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h				None			None			None			None		
Heavy Vehicles (P _{HV}), %				4	4		2	2			9		0	0	
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft				60	250		60	460			999		50	50	
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h				35	35	35	35	35	35	25	25	25	25	25	25
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					54.0		54.0		21.0		21.0				
Yellow Change Interval (Y), s					4.5		4.5		3.5		3.5				
Red Clearance Interval (R _c), s					1.0		1.0		1.0		1.0				
Minimum Green (G _{min}), s					20		20		10		10				
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (P _T), s					2.0		2.0		3.0		3.0				
Recall Mode					Min		Min		Off		Off				
Dual Entry					Yes		Yes		Yes		Yes				
Walk (Walk), s					0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (P _C), s					0.0		0.0		0.0		0.0				
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	01 2052 AM Build Capacity Analysis US42 & Parr...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10

Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	56.1	8.9	0.0	0.0	0.0	0.0				
		Yellow	4.5	3.5	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		61.6		61.6		13.4		13.4
Change Period, ($Y+R_c$), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.3		4.3
Queue Clearance Time (g_s), s						5.0		5.6
Green Extension Time (g_e), s		0.0		0.0		0.2		0.2
Phase Call Probability						0.89		0.89
Max Out Probability						0.00		0.00

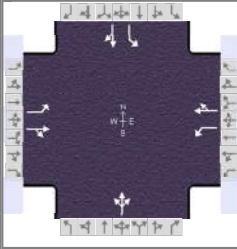
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	12	400		35	588			71		12	24	
Adjusted Saturation Flow Rate (s), veh/h/ln	815	1821		985	1864			1520		1380	1743	
Queue Service Time (g_s), s	0.4	5.3		0.9	8.7			0.0		0.6	0.9	
Cycle Queue Clearance Time (g_c), s	9.1	5.3		6.2	8.7			3.0		3.6	0.9	
Green Ratio (g/C)	0.75	0.75		0.75	0.75			0.12		0.12	0.12	
Capacity (c), veh/h	611	1362		763	1394			244		204	207	
Volume-to-Capacity Ratio (X)	0.019	0.294		0.046	0.422			0.289		0.058	0.114	
Back of Queue (Q), ft/ln (95 th percentile)	3	60		7	100			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	2.3		0.3	3.9			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.24		0.12	0.22			0.06		0.18	0.35	
Uniform Delay (d_1), s/veh	5.2	3.1		4.1	3.5			30.5		32.1	29.5	
Incremental Delay (d_2), s/veh	0.1	0.5		0.1	0.9			0.6		0.1	0.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	5.2	3.6		4.2	4.4			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.6		A	4.4		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.85
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	01 2052 AM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

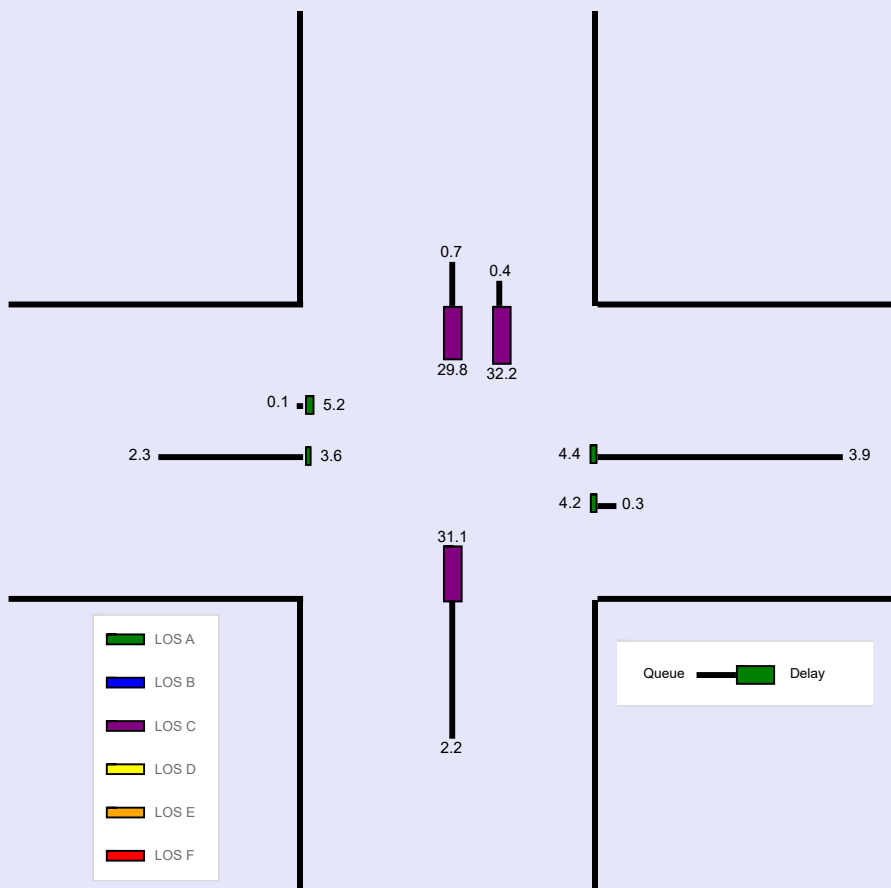
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	320	20	30	490	10	20	10	30	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	56.1	8.9	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0		
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

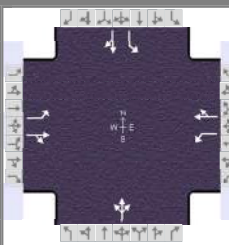
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	60		7	100			58		9	18	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	2.3		0.3	3.9			2.2		0.4	0.7	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.24		0.12	0.22			0.06		0.18	0.35	
Control Delay (d), s/veh	5.2	3.6		4.2	4.4			31.1		32.2	29.8	
Level of Service (LOS)	A	A		A	A			C		C	C	
Approach Delay, s/veh / LOS	3.6		A	4.4		A	31.1		C	30.6		C
Intersection Delay, s/veh / LOS	6.6						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

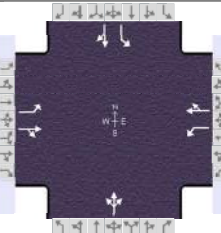
Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		2	2			2		0	0	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0			12.0		12.0	12.0	
Turn Bay Length, ft	60	250		60	460			999		50	50	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

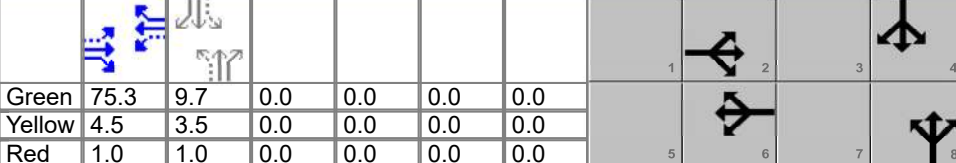
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		69.0		69.0		26.0		26.0
Yellow Change Interval (Y), s		4.5		4.5		3.5		3.5
Red Clearance Interval (R _c), s		1.0		1.0		1.0		1.0
Minimum Green (G _{min}), s		20		20		10		10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0		3.0		3.0
Recall Mode		Min		Min		Off		Off
Dual Entry		Yes		Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM Build Capacity Analysis US42 & Parr...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
	Green	75.3	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		4
Case Number		6.0		6.0		8.0		6.0
Phase Duration, s		80.8		80.8		14.2		14.2
Change Period, (Y+R _c), s		5.5		5.5		4.5		4.5
Max Allow Headway (MAH), s		0.0		0.0		4.4		4.4
Queue Clearance Time (g _s), s						8.0		8.7
Green Extension Time (g _e), s		0.0		0.0		0.4		0.4
Phase Call Probability						0.97		0.97
Max Out Probability						0.00		0.00

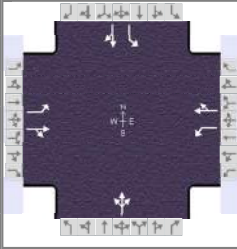
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	926		21	840			106		11	21	
Adjusted Saturation Flow Rate (s), veh/h/ln	660	1874		604	1866			1598		1333	1743	
Queue Service Time (g _s), s	0.6	19.3		1.4	16.2			2.6		0.7	1.1	
Cycle Queue Clearance Time (g _c), s	16.8	19.3		20.7	16.2			6.0		6.7	1.1	
Green Ratio (g/C)	0.79	0.79		0.79	0.79			0.10		0.10	0.10	
Capacity (c), veh/h	486	1484		432	1478			209		128	179	
Volume-to-Capacity Ratio (X)	0.022	0.624		0.049	0.568			0.508		0.083	0.119	
Back of Queue (Q), ft/ln (95 th percentile)	4	224		9	195			114		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	8.9		0.4	7.7			4.5		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.90		0.15	0.42			0.11		0.23	0.42	
Uniform Delay (d ₁), s/veh	6.9	4.1		8.3	3.7			40.9		44.2	38.7	
Incremental Delay (d ₂), s/veh	0.1	2.0		0.2	1.6			1.9		0.3	0.3	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Control Delay (d), s/veh	7.0	6.0		8.5	5.3			42.8		44.5	39.0	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	6.0		A	5.4		A	42.8		D	40.8		D
Intersection Delay, s/veh / LOS	8.4						A					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Parry Avenue / Mansfiel...	File Name	02 2052 PM Build Capacity Analysis US42 & Parr...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

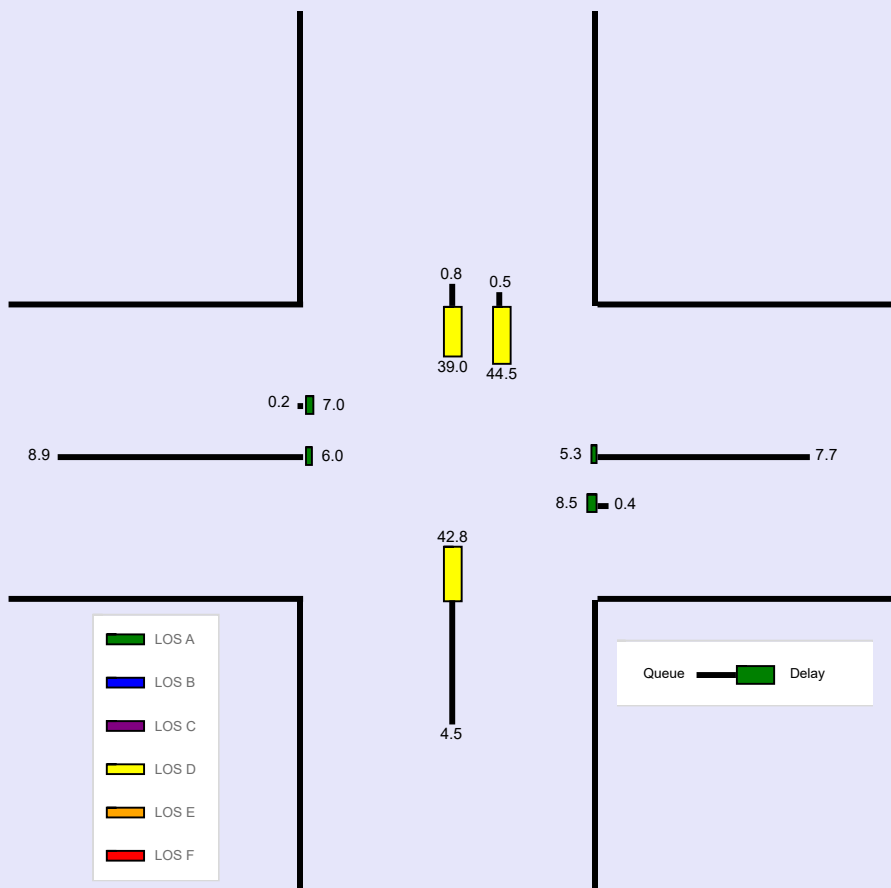
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	840	30	20	780	10	20	10	70	10	10	10

Signal Information

Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	75.3	9.7	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.5	3.5	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

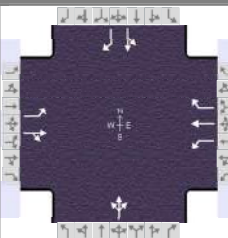
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	4	224		9	195			114		11	21	
Back of Queue (Q), veh/ln (95 th percentile)	0.2	8.9		0.4	7.7			4.5		0.5	0.8	
Queue Storage Ratio (RQ) (95 th percentile)	0.06	0.90		0.15	0.42			0.11		0.23	0.42	
Control Delay (d), s/veh	7.0	6.0		8.5	5.3			42.8		44.5	39.0	
Level of Service (LOS)	A	A		A	A			D		D	D	
Approach Delay, s/veh / LOS	6.0		A	5.4		A	42.8		D	40.8		D
Intersection Delay, s/veh / LOS	8.4						A					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2052 AM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	470	10	40	10	50	10	10	10

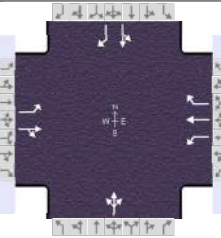
Signal Information											
Cycle, s	75.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On								
Force Mode	Fixed	Simult. Gap N/S	On								

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	470	10	40	10	50	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		2	2	2		5			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		165	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

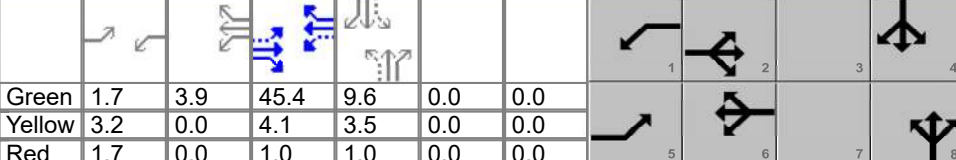
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	41.0	16.0	42.0		18.0		18.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		3.5		3.5
Red Clearance Interval (R _c), s	1.7	1.0	1.7	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	03 2052 AM Build Capacity Analysis US42 & Krog...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	470	10	40	10	50	10	10	10

Signal Information														
Cycle, s	75.0	Reference Phase	2	Green	1.7	3.9	45.4	9.6	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.2	0.0	4.1	3.5	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Red	1.7	0.0	1.0	1.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.6	50.5	10.5	54.3		14.1		14.1
Change Period, ($Y+R_c$), s	4.9	5.1	4.9	5.1		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g_s), s	2.2		2.8			7.2		2.8
Green Extension Time (g_e), s	0.0	0.0	0.1	0.0		0.2		0.3
Phase Call Probability	0.21		0.70			0.96		0.96
Max Out Probability	0.00		0.00			0.22		0.01

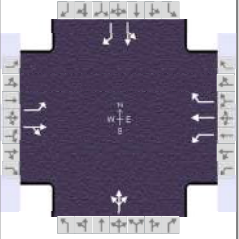
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	11	437		57	540	11		115			23	11	
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1786		1781	1870	1585		1533			1645	1610	
Queue Service Time (g_s), s	0.2	9.6		0.8	10.5	0.2		3.0			0.0	0.5	
Cycle Queue Clearance Time (g_c), s	0.2	9.6		0.8	10.5	0.2		5.2			0.8	0.5	
Green Ratio (g/C)	0.63	0.60		0.69	0.66	0.66		0.13			0.13	0.13	
Capacity (c), veh/h	546	1080		682	1228	1041		263			282	205	
Volume-to-Capacity Ratio (X)	0.021	0.404		0.084	0.440	0.011		0.438			0.082	0.056	
Back of Queue (Q), ft/ln (95 th percentile)	3	156		9	158	2		94			17	8	
Back of Queue (Q), veh/ln (95 th percentile)	0.1	5.9		0.4	6.2	0.1		3.6			0.7	0.3	
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.30		0.06	0.49	0.01		1.04			0.17	0.08	
Uniform Delay (d_1), s/veh	5.7	7.8		4.5	6.2	4.5		30.7			28.9	28.8	
Incremental Delay (d_2), s/veh	0.0	1.1		0.1	1.1	0.0		1.1			0.1	0.1	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0	
Control Delay (d), s/veh	5.8	8.9		4.5	7.4	4.5		31.9			29.0	28.9	
Level of Service (LOS)	A	A		A	A	A		C			C	C	
Approach Delay, s/veh / LOS	8.8		A	7.0		A		31.9		C	29.0		C
Intersection Delay, s/veh / LOS	10.7						B						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.87
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	03 2052 AM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

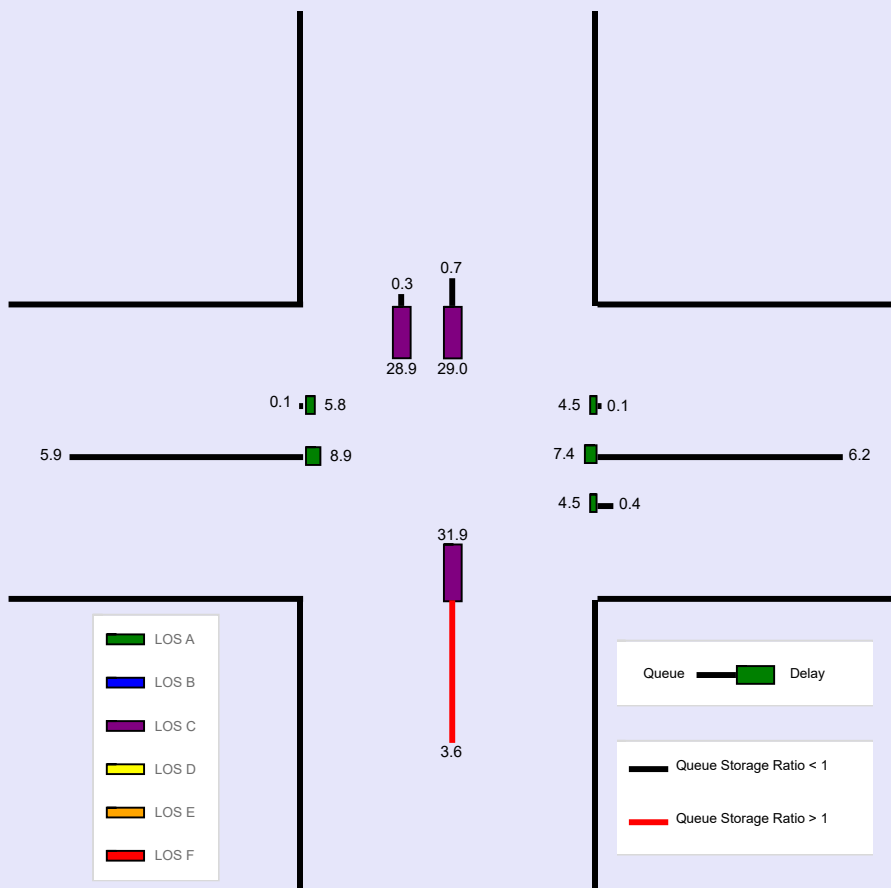
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	350	30	50	470	10	40	10	50	10	10	10

Signal Information

Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	1.7	3.9	45.4	9.6	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.2	0.0	4.1	3.5	0.0	0.0			
				Red	1.7	0.0	1.0	1.0	0.0	0.0			

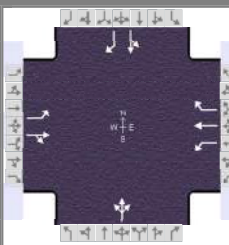
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	3	156		9	158	2		94			17	8
Back of Queue (Q), veh/ln (95 th percentile)	0.1	5.9		0.4	6.2	0.1		3.6			0.7	0.3
Queue Storage Ratio (RQ) (95 th percentile)	0.04	0.30		0.06	0.49	0.01		1.04			0.17	0.08
Control Delay (d), s/veh	5.8	8.9		4.5	7.4	4.5		31.9			29.0	28.9
Level of Service (LOS)	A	A		A	A	A		C			C	C
Approach Delay, s/veh / LOS	8.8 A		7.0 A		31.9 C		29.0 C					
Intersection Delay, s/veh / LOS	10.7						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2052 PM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	640	10	110	10	130	10	10	10

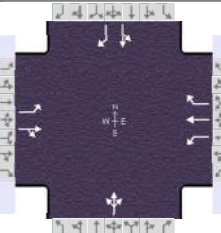
Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	95.0	Reference Phase	2	Green	1.9	1.0	54.7	18.0	0.0	0.0	1	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.2	3.2	4.1	3.5	0.0	0.0	5	6	7	8	
Uncoordinated	No	Simult. Gap E/W	On	Red	1.7	1.7	1.0	1.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	640	10	110	10	130	10	10	10
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		1	1	1		1			0	0
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0			12.0	12.0
Turn Bay Length, ft	65	525		165	325	325		90			100	100
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	25	25	25	25	25	25

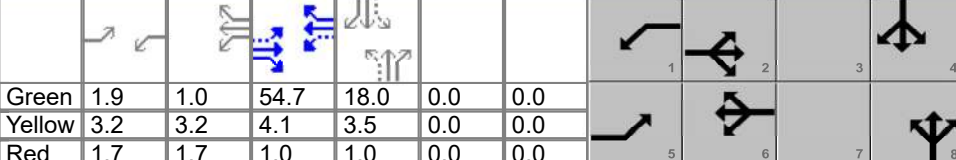
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	14.0	58.0	14.0	58.0		23.0		23.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		3.5		3.5
Red Clearance Interval (R _c), s	1.7	1.0	1.7	1.0		1.0		1.0
Minimum Green (G _{min}), s	8	20	8	20		10		10
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (P _T), s	3.0	2.0	3.0	2.0		3.0		3.0
Recall Mode	Off	Min	Off	Min		Off		Off
Dual Entry	No	Yes	No	Yes		Yes		Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	Kroger & University Hos...	File Name	04 2052 PM Build Capacity Analysis US42 & Krog...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	640	10	110	10	130	10	10	10

Signal Information														
Cycle, s	95.0	Reference Phase	2	Green	1.9	1.0	54.7	18.0	0.0	0.0				
Offset, s	0	Reference Point	End	Yellow	3.2	3.2	4.1	3.5	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Red	1.7	1.7	1.0	1.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8		4
Case Number	1.1	4.0	1.1	3.0		8.0		7.0
Phase Duration, s	6.8	59.8	12.7	65.7		22.5		22.5
Change Period, (Y+R _c), s	4.9	5.1	4.9	5.1		4.5		4.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3		4.3
Queue Clearance Time (g _s), s	2.2		4.7			17.9		2.9
Green Extension Time (g _e), s	0.0	0.0	0.2	0.0		0.1		1.0
Phase Call Probability	0.24		0.98			1.00		1.00
Max Out Probability	0.00		0.54			1.00		0.00

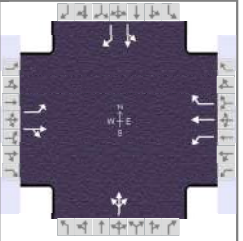
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14
Adjusted Flow Rate (v), veh/h	11	895		147	674	11		263			21	11
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1842		1795	1885	1598		1534			1355	1610
Queue Service Time (g _s), s	0.2	38.1		2.7	19.1	0.2		14.8			0.0	0.5
Cycle Queue Clearance Time (g _c), s	0.2	38.1		2.7	19.1	0.2		15.9			0.9	0.5
Green Ratio (g/C)	0.60	0.58		0.68	0.64	0.64		0.19			0.19	0.19
Capacity (c), veh/h	432	1060		333	1202	1019		345			313	305
Volume-to-Capacity Ratio (X)	0.024	0.844		0.442	0.561	0.010		0.763			0.067	0.035
Back of Queue (Q), ft/ln (95 th percentile)	4	584		74	299	3		280			18	9
Back of Queue (Q), veh/ln (95 th percentile)	0.1	23.2		2.9	11.9	0.1		11.1			0.7	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.06	1.11		0.45	0.92	0.01		3.11			0.18	0.09
Uniform Delay (d ₁), s/veh	9.0	16.6		16.4	9.7	6.3		37.6			31.6	31.4
Incremental Delay (d ₂), s/veh	0.0	8.2		0.9	1.9	0.0		9.3			0.1	0.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0	0.0		0.0			0.0	0.0
Control Delay (d), s/veh	9.1	24.9		17.3	11.6	6.3		46.9			31.7	31.5
Level of Service (LOS)	A	C		B	B	A		D			C	C
Approach Delay, s/veh / LOS	24.7	C		12.5	B			46.9	D		31.6	C
Intersection Delay, s/veh / LOS	22.7						C					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.95
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	Kroger & University Hos...	File Name	04 2052 PM Build Capacity Analysis US42 & Krog...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

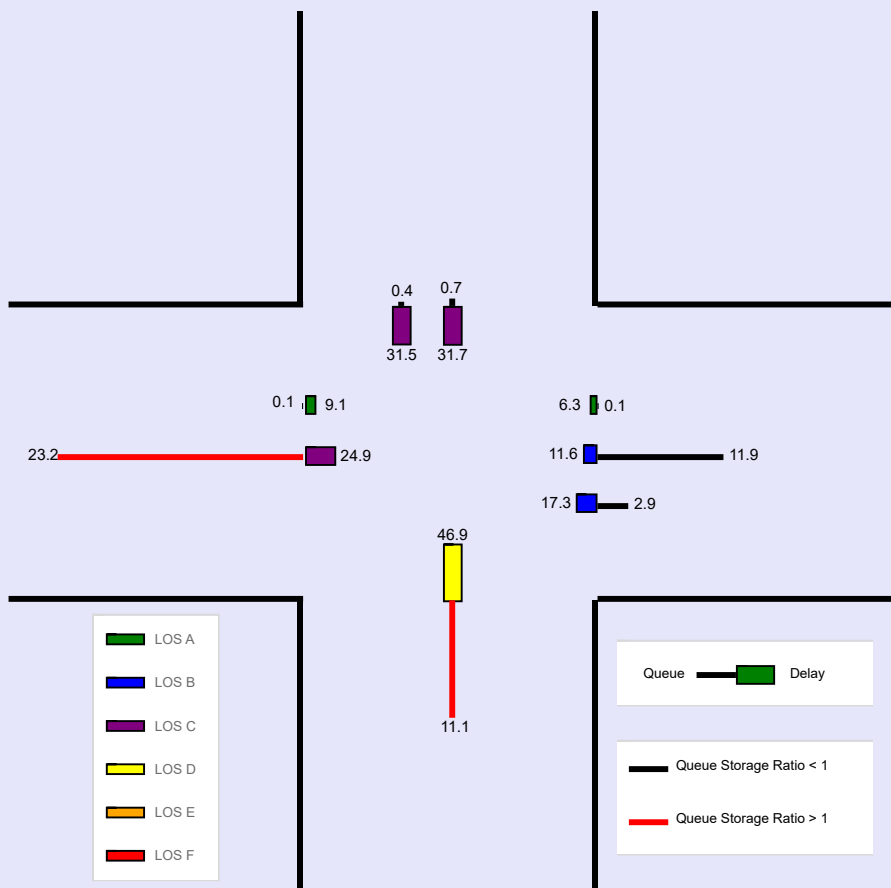
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	10	740	110	140	640	10	110	10	130	10	10	10

Signal Information

Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	1.9	1.0	54.7	18.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	3.2	4.1	3.5	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.7	1.0	1.0	0.0	0.0				

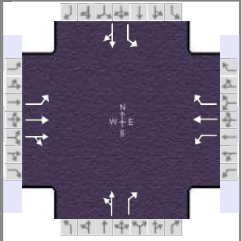
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	4	584		74	299	3		280			18	9
Back of Queue (Q), veh/ln (95 th percentile)	0.1	23.2		2.9	11.9	0.1		11.1			0.7	0.4
Queue Storage Ratio (RQ) (95 th percentile)	0.06	1.11		0.45	0.92	0.01		3.11			0.18	0.09
Control Delay (d), s/veh	9.1	24.9		17.3	11.6	6.3		46.9			31.7	31.5
Level of Service (LOS)	A	C		B	B	A		D			C	C
Approach Delay, s/veh / LOS	24.7	C		12.5	B			46.9	D		31.6	C
Intersection Delay, s/veh / LOS	22.7						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	60	290	60	220	370	60	30	70	270	160	160	130

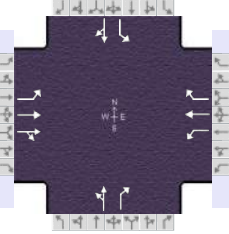
Signal Information				Phase Diagram										
Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On											
Force Mode	Fixed	Simult. Gap N/S	On											
		Green	6.0	0.3	20.8	7.8	12.8	0.0						
		Yellow	3.2	3.2	4.1	3.5	4.5	0.0						
		Red	2.7	2.7	1.0	1.4	1.0	0.0						

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	60	290	60	220	370	60	30	70	270	160	160	130
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	6	6		3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

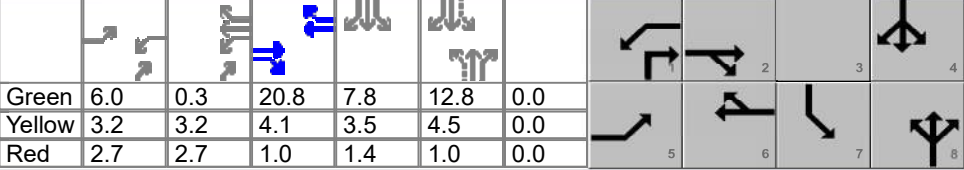
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	23.0	21.0	29.0		16.0	15.0	31.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (R _c), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (G _{min}), s	8	15	8	20		10	8	10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	60	290	60	220	370	60	30	70	270	160	160	130

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	6.0	0.3	20.8	7.8	12.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	11.9	25.9	18.1	32.1		18.3	12.7	31.0
Change Period, ($Y+R_c$), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3	4.1	4.3
Queue Clearance Time (g_s), s	4.8		12.1			13.6	7.8	13.2
Green Extension Time (g_e), s	0.0	0.0	0.2	0.0		0.0	0.1	2.5
Phase Call Probability	0.75		0.99			1.00	0.98	1.00
Max Out Probability	0.79		1.00			1.00	1.00	0.12

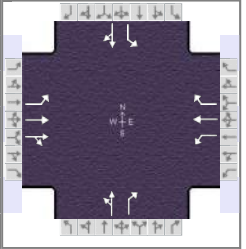
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	67	198	191	244	411	67		111	300	178	322		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1704	1767	1856	1572		1648	1598	1795	1744		
Queue Service Time (g_s), s	2.8	6.7	6.8	10.1	13.7	2.1		0.0	11.6	5.8	11.2		
Cycle Queue Clearance Time (g_c), s	2.8	6.7	6.8	10.1	13.7	2.1		3.9	11.6	5.8	11.2		
Green Ratio (g/C)	0.08	0.28	0.28	0.16	0.36	0.36		0.17	0.33	0.30	0.34		
Capacity (c), veh/h	138	501	472	288	668	566		343	533	441	593		
Volume-to-Capacity Ratio (X)	0.483	0.396	0.404	0.847	0.616	0.118		0.323	0.563	0.403	0.543		
Back of Queue (Q), ft/ln (95 th percentile)	57	141	137	230	263	36		78	189	106	197		
Back of Queue (Q), veh/ln (95 th percentile)	2.2	5.4	5.2	9.0	10.3	1.4		3.1	7.5	4.2	7.8		
Queue Storage Ratio (RQ) (95 th percentile)	0.20	0.43	0.42	0.51	0.29	0.18		0.07	1.26	0.38	0.53		
Uniform Delay (d_1), s/veh	33.0	22.0	22.1	30.5	19.7	16.0		27.4	20.5	20.6	20.0		
Incremental Delay (d_2), s/veh	2.6	2.3	2.6	14.6	4.2	0.4		0.5	1.4	0.6	1.0		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	35.6	24.4	24.6	45.0	23.9	16.5		28.0	21.8	21.2	21.1		
Level of Service (LOS)	D	C	C	D	C	B		C	C	C	C		
Approach Delay, s/veh / LOS	26.1		C	30.4		C		23.5		C	21.1		C
Intersection Delay, s/veh / LOS	25.9						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

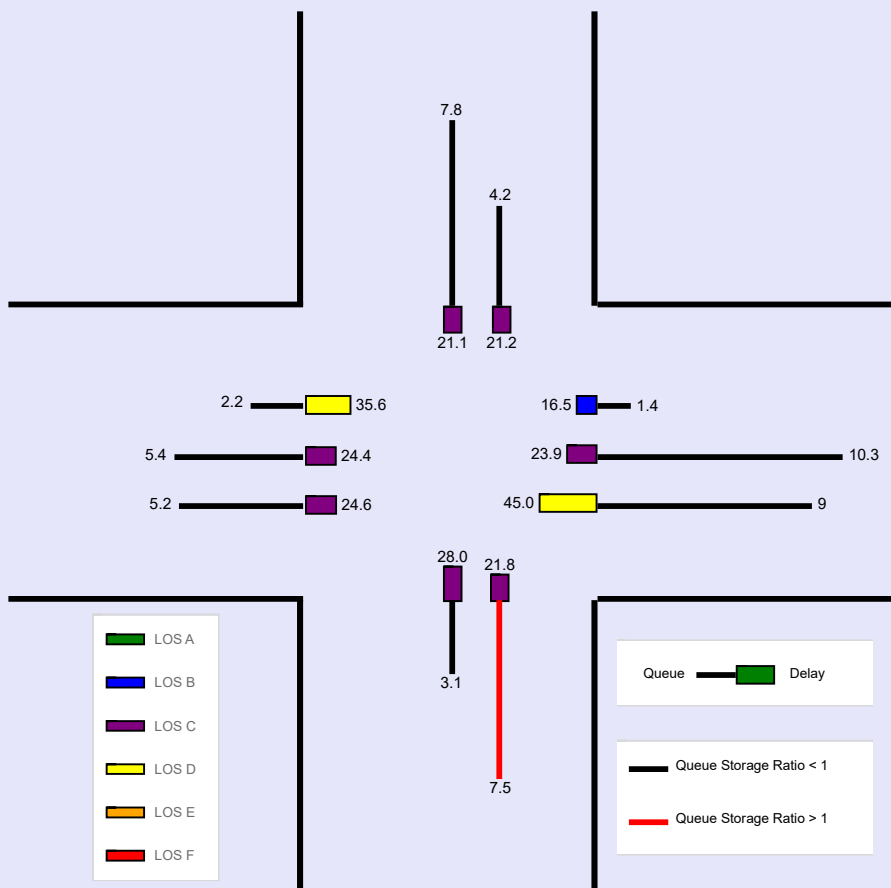
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	60	290	60	220	370	60	30	70	270	160	160	130

Signal Information

Cycle, s	75.0	Reference Phase	2																					
Offset, s	0	Reference Point	End	Green	6.0	0.3	20.8	7.8	12.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

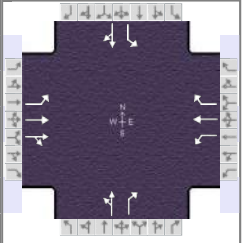
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	57	141	137	230	263	36	78	189	106	197		
Back of Queue (Q), veh/ln (95 th percentile)	2.2	5.4	5.2	9.0	10.3	1.4	3.1	7.5	4.2	7.8		
Queue Storage Ratio (RQ) (95 th percentile)	0.20	0.43	0.42	0.51	0.29	0.18	0.07	1.26	0.38	0.53		
Control Delay (d), s/veh	35.6	24.4	24.6	45.0	23.9	16.5	28.0	21.8	21.2	21.1		
Level of Service (LOS)	D	C	C	D	C	B	C	C	C	C		
Approach Delay, s/veh / LOS	26.1	C		30.4	C		23.5	C	21.1	C		
Intersection Delay, s/veh / LOS	25.9						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	320	60	220	430	50	30	70	270	90	160	60

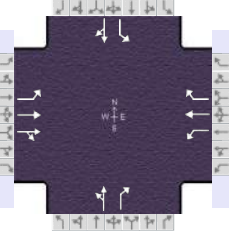
Signal Information				Signal Timing (s)										
Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End											
Uncoordinated	No	Simult. Gap E/W	On	Green	3.0	3.4	20.9	7.0	13.5	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	3.2	3.2	4.1	3.5	4.5	0.0				
				Red	2.7	2.7	1.0	1.4	1.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	20	320	60	220	430	50	30	70	270	90	160	60
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	6	6		3	3	3		1	1	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

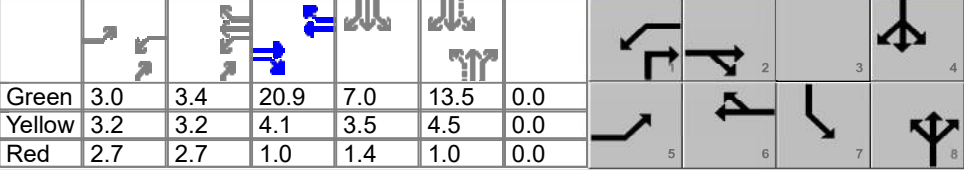
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	23.0	21.0	29.0		16.0	15.0	31.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (R_c), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (G_{min}), s	8	15	8	20		10	8	10
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90	
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	320	60	220	430	50	30	70	270	90	160	60

Signal Information																								
Cycle, s	75.0	Reference Phase	2	Green	3.0	3.4	20.9	7.0	13.5	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	8.9	26.0	18.1	35.3		19.0	11.9	30.9
Change Period, (Y+R _c), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3	4.1	4.3
Queue Clearance Time (g _s), s	2.9		12.1			13.4	5.1	9.8
Green Extension Time (g _e), s	0.0	0.0	0.3	0.0		0.0	0.1	2.3
Phase Call Probability	0.37		0.99			1.00	0.88	1.00
Max Out Probability	0.03		1.00			1.00	0.43	0.03

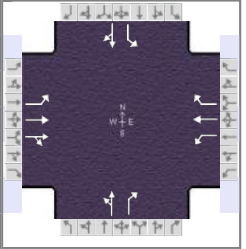
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	22	215	207	244	478	56		111	300	100	244		
Adjusted Saturation Flow Rate (s), veh/h/ln	1725	1811	1712	1767	1856	1572		1675	1598	1795	1797		
Queue Service Time (g _s), s	0.9	7.3	7.4	10.1	15.5	1.6		0.0	11.4	3.1	7.8		
Cycle Queue Clearance Time (g _c), s	0.9	7.3	7.4	10.1	15.5	1.6		3.9	11.4	3.1	7.8		
Green Ratio (g/C)	0.04	0.28	0.28	0.16	0.40	0.40		0.18	0.34	0.30	0.34		
Capacity (c), veh/h	68	504	477	289	746	633		363	548	434	608		
Volume-to-Capacity Ratio (X)	0.326	0.427	0.434	0.847	0.640	0.088		0.306	0.548	0.230	0.402		
Back of Queue (Q), ft/ln (95 th percentile)	20	155	150	229	286	27		77	185	56	140		
Back of Queue (Q), veh/ln (95 th percentile)	0.8	5.9	5.7	8.9	11.2	1.1		3.1	7.3	2.2	5.6		
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.48	0.46	0.51	0.32	0.13		0.07	1.23	0.21	0.37		
Uniform Delay (d ₁), s/veh	35.0	22.2	22.2	30.5	18.0	13.9		26.8	19.9	19.7	19.0		
Incremental Delay (d ₂), s/veh	2.7	2.6	2.9	14.3	4.2	0.3		0.5	1.1	0.3	0.4		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	37.8	24.8	25.1	44.7	22.2	14.2		27.3	21.1	20.0	19.4		
Level of Service (LOS)	D	C	C	D	C	B		C	C	B	B		
Approach Delay, s/veh / LOS	25.6		C	28.7		C		22.8		C	19.6		B
Intersection Delay, s/veh / LOS	25.2						C						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.90
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	05 2052 AM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

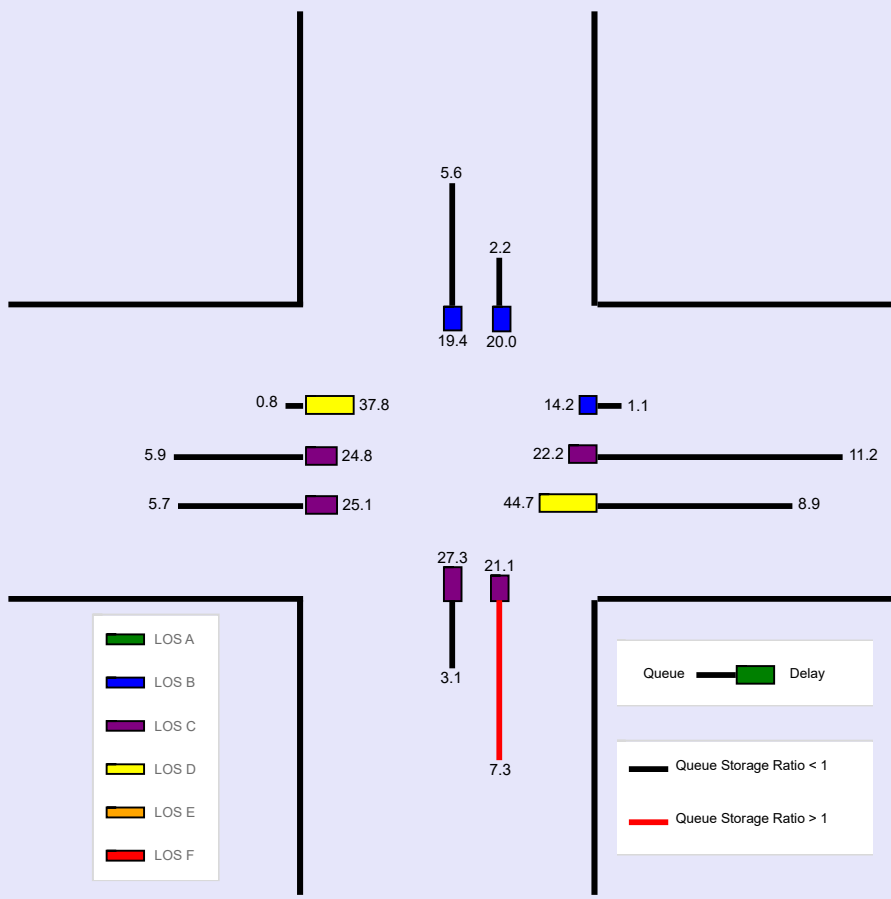
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	20	320	60	220	430	50	30	70	270	90	160	60

Signal Information

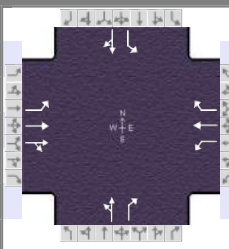
Cycle, s	75.0	Reference Phase	2																					
Offset, s	0	Reference Point	End	Green	3.0	3.4	20.9	7.0	13.5	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	20	155	150	229	286	27		77	185	56	140	
Back of Queue (Q), veh/ln (95 th percentile)	0.8	5.9	5.7	8.9	11.2	1.1		3.1	7.3	2.2	5.6	
Queue Storage Ratio (RQ) (95 th percentile)	0.07	0.48	0.46	0.51	0.32	0.13		0.07	1.23	0.21	0.37	
Control Delay (d), s/veh	37.8	24.8	25.1	44.7	22.2	14.2		27.3	21.1	20.0	19.4	
Level of Service (LOS)	D	C	C	D	C	B		C	C	B	B	
Approach Delay, s/veh / LOS	25.6		C	28.7		C		22.8	C	19.6		B
Intersection Delay, s/veh / LOS	25.2						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	260	550	70	330	560	160	40	150	290	240	260	190

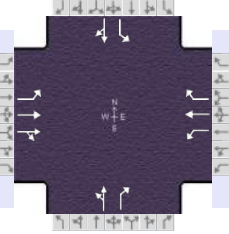
Signal Information															
Cycle, s	95.0	Reference Phase	2	Green	16.1	3.0	28.9	12.1	13.5	0.0	Green	2	3	4	
Offset, s	0	Reference Point	End	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	Green	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	0.0	1.0	1.4	1.0	0.0	Green	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On												

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (<i>v</i>), veh/h	260	550	70	330	560	160	40	150	290	240	260	190
Initial Queue (<i>Q_b</i>), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (<i>s₀</i>), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (<i>N_m</i>), man/h		None			None			None			None	
Heavy Vehicles (<i>P_{HV}</i>), %	1	1		1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (<i>N_b</i>), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (<i>AT</i>)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (<i>I</i>)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (<i>W</i>), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (<i>P_g</i>), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

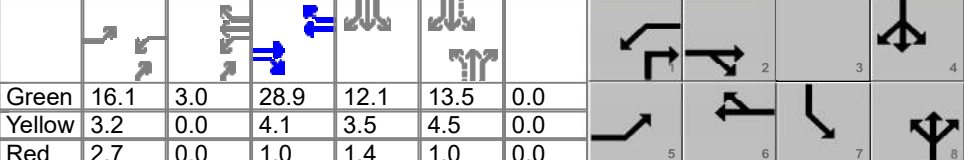
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (<i>G_{max}</i>) or Phase Split, s	25.0	34.0	25.0	34.0		19.0	17.0	36.0
Yellow Change Interval (<i>Y</i>), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (<i>R_c</i>), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (<i>G_{min}</i>), s	8	20	8	20		10	8	10
Start-Up Lost Time (<i>l_t</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (<i>e</i>), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (<i>PT</i>), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk (<i>Walk</i>), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (<i>PC</i>), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	260	550	70	330	560	160	40	150	290	240	260	190

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	16.1	3.0	28.9	12.1	13.5	0.0	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	Red	2.7	0.0	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	22.0	34.0	25.0	37.0		19.0	17.0	36.0
Change Period, (Y+R _c), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.3	4.1	4.3
Queue Clearance Time (g _s), s	15.8		19.7			15.5	12.8	25.2
Green Extension Time (g _e), s	0.3	0.0	0.0	0.0		0.0	0.0	2.0
Phase Call Probability	1.00		1.00			1.00	1.00	1.00
Max Out Probability	1.00		1.00			1.00	1.00	0.82

Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	268	325	314	340	577	165		196	299	247	464		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1810	1795	1885	1598		1286	1585	1795	1752		
Queue Service Time (g _s), s	13.8	13.8	13.9	17.7	27.9	7.3		7.3	13.5	10.8	23.2		
Cycle Queue Clearance Time (g _c), s	13.8	13.8	13.9	17.7	27.9	7.3		13.5	13.5	10.8	23.2		
Green Ratio (g/C)	0.17	0.30	0.30	0.20	0.34	0.34		0.14	0.34	0.29	0.32		
Capacity (c), veh/h	305	573	551	361	633	536		229	544	304	563		
Volume-to-Capacity Ratio (X)	0.880	0.567	0.570	0.942	0.913	0.308		0.857	0.550	0.813	0.825		
Back of Queue (Q), ft/ln (95 th percentile)	303	274	267	409	553	130		260	235	286	410		
Back of Queue (Q), veh/ln (95 th percentile)	12.0	10.9	10.6	16.2	21.9	5.2		10.3	9.2	11.3	16.3		
Queue Storage Ratio (RQ) (95 th percentile)	1.05	0.84	0.82	0.91	0.61	0.65		0.24	1.56	1.04	1.09		
Uniform Delay (d ₁), s/veh	38.5	27.8	27.8	37.4	30.2	23.4		41.4	25.3	29.0	29.8		
Incremental Delay (d ₂), s/veh	19.0	4.0	4.2	32.8	19.8	1.5		26.1	1.2	15.3	9.7		
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	57.5	31.8	32.1	70.2	50.0	24.9		67.5	26.4	44.3	39.5		
Level of Service (LOS)	E	C	C	E	D	C		E	C	D	D		
Approach Delay, s/veh / LOS	39.5		D	52.5		D		42.7		D	41.2		D
Intersection Delay, s/veh / LOS	44.8						D						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

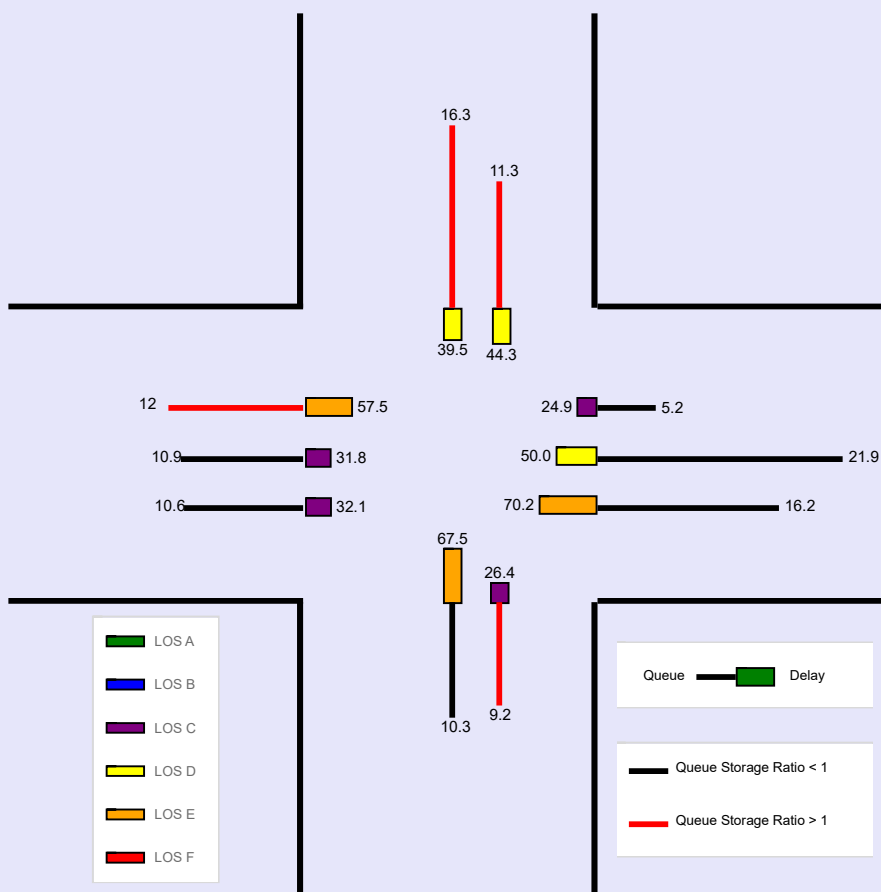
HCS Signalized Intersection Results Graphical Summary

General Information					Intersection Information			
Agency	GPD Group				Duration, h	0.250		
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024		Area Type	Other		
Jurisdiction	Madison Township	Time Period	PM Peak Hour		PHF	0.97		
Urban Street	US Route 42	Analysis Year	2052 'BA 1,2A,4'		Analysis Period	1 > 7:00		
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...					
Project Description	US 30 & US 42 Planning Study							

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	260	550	70	330	560	160	40	150	290	240	260	190

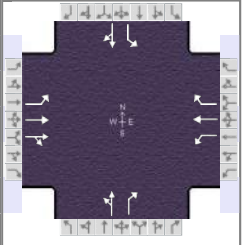
Signal Information													
Cycle, s	95.0	Reference Phase	2	Green	16.1	3.0	28.9	12.1	13.5	0.0	2	3	4
Offset, s	0	Reference Point	End	Yellow	3.2	0.0	4.1	3.5	4.5	0.0	5	6	7
Uncoordinated	No	Simult. Gap E/W	On	Red	2.7	0.0	1.0	1.4	1.0	0.0	8		
Force Mode	Fixed	Simult. Gap N/S	On										

Movement Group Results	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Back of Queue (Q), ft/ln (95 th percentile)	303	274	267	409	553	130		260	235	286	410		
Back of Queue (Q), veh/ln (95 th percentile)	12.0	10.9	10.6	16.2	21.9	5.2		10.3	9.2	11.3	16.3		
Queue Storage Ratio (RQ) (95 th percentile)	1.05	0.84	0.82	0.91	0.61	0.65		0.24	1.56	1.04	1.09		
Control Delay (d), s/veh	57.5	31.8	32.1	70.2	50.0	24.9		67.5	26.4	44.3	39.5		
Level of Service (LOS)	E	C	C	E	D	C		E	C	D	D		
Approach Delay, s/veh / LOS	39.5		D	52.5		D		42.7		D	41.2		D
Intersection Delay, s/veh / LOS	44.8						D						



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	690	70	330	630	150	40	150	290	180	260	110

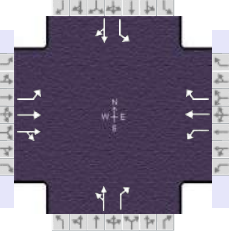
Signal Information				Signal Timing (s)								Signal Phases												
Cycle, s	95.0	Reference Phase	2	Green	8.3	4.9	28.9	9.8	15.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On																					

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	690	70	330	630	150	40	150	290	180	260	110
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	1	1		1	1	1		2	2	1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0		12.0	12.0	12.0		12.0	12.0	12.0	12.0	
Turn Bay Length, ft	290	325		450	900	200		1075	150	275	375	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	35	35	35	35	35	35	35	35	35

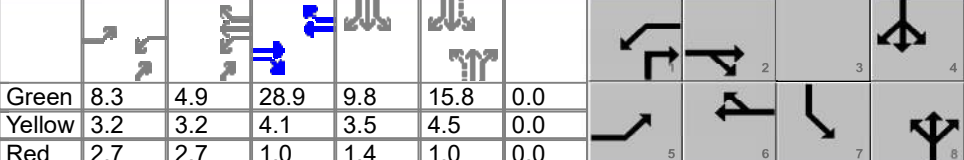
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	25.0	34.0	25.0	34.0		19.0	17.0	36.0
Yellow Change Interval (Y), s	3.2	4.1	3.2	4.1		4.5	3.5	4.5
Red Clearance Interval (R _c), s	2.7	1.0	2.7	1.0		1.0	1.4	1.0
Minimum Green (G _{min}), s	8	20	8	20		10	8	10
Start-Up Lost Time (lt), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	3.0	2.0	3.0	2.0		3.0	3.0	3.0
Recall Mode	Off	Min	Off	Min		Off	Off	Off
Dual Entry	No	Yes	No	Yes		Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking	No	0.50		No	0.50		No	0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97	
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00	
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	690	70	330	630	150	40	150	290	180	260	110

Signal Information																								
Cycle, s	95.0	Reference Phase	2	Green	8.3	4.9	28.9	9.8	15.8	0.0	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	Red	2.7	2.7	1.0	1.4	1.0	0.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2	1	6		8	7	4
Case Number	2.0	4.0	2.0	3.0		7.3	1.0	4.0
Phase Duration, s	14.2	34.0	25.0	44.8		21.3	14.7	36.0
Change Period, ($Y+R_c$), s	5.9	5.1	5.9	5.1		5.5	4.9	5.5
Max Allow Headway (MAH), s	4.1	0.0	4.1	0.0		4.2	4.1	4.2
Queue Clearance Time (g_s), s	8.4		19.7			16.0	9.8	19.5
Green Extension Time (g_e), s	0.2	0.0	0.0	0.0		0.0	0.1	2.8
Phase Call Probability	0.96		1.00			1.00	0.99	1.00
Max Out Probability	0.00		1.00			1.00	1.00	0.23

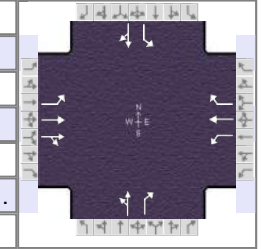
Movement Group Results	EB			WB			NB			SB			
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement	5	2	12	1	6	16	3	8	18	7	4	14	
Adjusted Flow Rate (v), veh/h	124	398	386	340	649	155		196	299	186	381		
Adjusted Saturation Flow Rate (s), veh/h/ln	1795	1885	1824	1795	1885	1598		1658	1585	1795	1789		
Queue Service Time (g_s), s	6.4	17.7	17.7	17.7	29.1	5.9		6.2	14.0	7.8	17.5		
Cycle Queue Clearance Time (g_c), s	6.4	17.7	17.7	17.7	29.1	5.9		10.3	14.0	7.8	17.5		
Green Ratio (g/C)	0.09	0.30	0.30	0.20	0.42	0.42		0.17	0.37	0.29	0.32		
Capacity (c), veh/h	157	573	555	361	787	667		321	582	332	574		
Volume-to-Capacity Ratio (X)	0.786	0.694	0.695	0.941	0.825	0.232		0.610	0.514	0.558	0.664		
Back of Queue (Q), ft/ln (95 th percentile)	143	344	336	408	515	102		202	224	152	307		
Back of Queue (Q), veh/ln (95 th percentile)	5.7	13.6	13.3	16.2	20.5	4.0		7.9	8.8	6.0	12.2		
Queue Storage Ratio (RQ) (95 th percentile)	0.49	1.06	1.03	0.91	0.57	0.51		0.19	1.50	0.55	0.82		
Uniform Delay (d_1), s/veh	42.5	29.2	29.2	37.4	24.6	17.8		37.2	23.4	27.6	27.8		
Incremental Delay (d_2), s/veh	8.4	6.8	7.0	32.5	9.6	0.8		3.3	0.8	1.5	2.9		
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
Control Delay (d), s/veh	50.8	36.0	36.2	69.9	34.2	18.6		40.5	24.2	29.1	30.7		
Level of Service (LOS)	D	D	D	E	C	B		D	C	C	C		
Approach Delay, s/veh / LOS	38.1		D	42.7		D		30.7		C	30.2		C
Intersection Delay, s/veh / LOS	37.2						D						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'BA 2'	Analysis Period	1 > 7:00
Intersection	Stewart Road	File Name	06 2052 PM Build Capacity Analysis 42 & Stewart...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

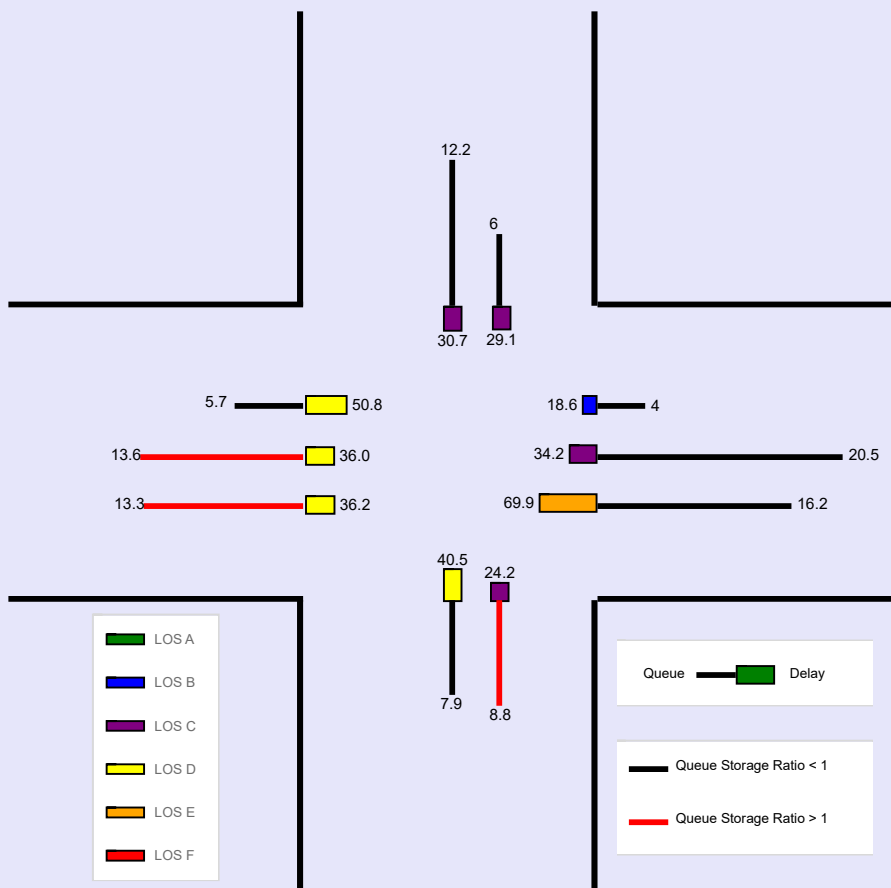
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	120	690	70	330	630	150	40	150	290	180	260	110

Signal Information

Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	8.3	4.9	28.9	9.8	15.8	0.0	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.2	3.2	4.1	3.5	4.5	0.0	5	6	7
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.7	2.7	1.0	1.4	1.0	0.0	8		

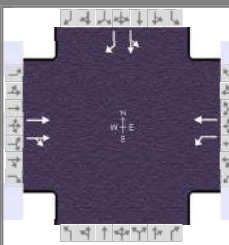
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	143	344	336	408	515	102		202	224	152	307	
Back of Queue (Q), veh/ln (95 th percentile)	5.7	13.6	13.3	16.2	20.5	4.0		7.9	8.8	6.0	12.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.49	1.06	1.03	0.91	0.57	0.51		0.19	1.50	0.55	0.82	
Control Delay (d), s/veh	50.8	36.0	36.2	69.9	34.2	18.6		40.5	24.2	29.1	30.7	
Level of Service (LOS)	D	D	D	E	C	B		D	C	C	C	
Approach Delay, s/veh / LOS	38.1			D			42.7			D		
Intersection Delay, s/veh / LOS	37.2						D					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	07 2052 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		610	110	30	530					220	10	120

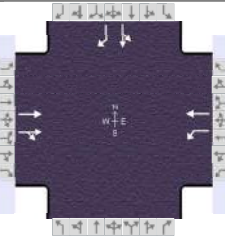
Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	52.4	12.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		610	110	30	530					220	10	120
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %		4		4	4					2	2	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0				0	0	0
Arrival Type (AT)		3	3	3	3					3	3	3
Upstream Filtering (I)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		975		100	650					600	325	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35

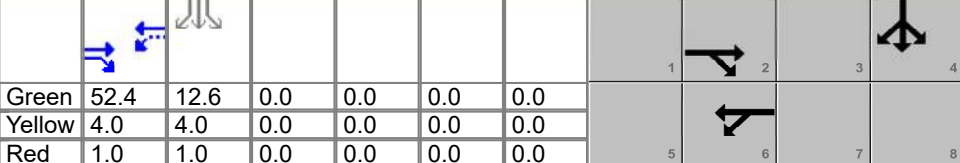
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		55.0		55.0				20.0
Yellow Change Interval (Y), s		4.0		4.0				4.0
Red Clearance Interval (R _c), s		1.0		1.0				1.0
Minimum Green (G _{min}), s		20		20				10
Start-Up Lost Time (l _t), s		2.0	2.0	2.0			2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0			2.0	2.0
Passage (P _T), s		2.0		2.0				3.0
Recall Mode		Min		Min				Off
Dual Entry		Yes		Yes				Yes
Walk (Walk), s				0.0		0.0		0.0
Pedestrian Clearance Time (P _C), s				0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0		No	0.0	0	No		0		0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0				12.0	5.0	2.0
Pedestrian Signal / Occupied Parking			0.50		No	0.50		No			No	0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	US 30 EB Ramps	File Name	07 2052 AM Build Capacity Analysis US42 & US...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		610	110	30	530					220	10	120

Signal Information														
Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	52.4	12.6	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		6.0				11.0
Phase Duration, s		57.4		57.4				17.6
Change Period, ($Y+R_c$), s		5.0		5.0				5.0
Max Allow Headway (MAH), s		0.0		0.0				4.2
Queue Clearance Time (g_s), s								12.2
Green Extension Time (g_e), s		0.0		0.0				0.4
Phase Call Probability								1.00
Max Out Probability								1.00

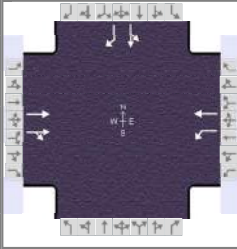
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7	4	14
Adjusted Flow Rate (v), veh/h		402	381	33	576						250	130
Adjusted Saturation Flow Rate (s), veh/h/ln		1841	1742	680	1841						1785	1585
Queue Service Time (g_s), s		6.9	6.3	1.5	10.3						10.2	5.6
Cycle Queue Clearance Time (g_c), s		6.9	6.3	8.4	10.3						10.2	5.6
Green Ratio (g/C)		0.70	0.70	0.70	0.70						0.17	0.17
Capacity (c), veh/h		1286	1218	508	1286						299	266
Volume-to-Capacity Ratio (X)		0.312	0.313	0.064	0.448						0.835	0.490
Back of Queue (Q), ft/ln (95 th percentile)		86	83	10	141						230	97
Back of Queue (Q), veh/ln (95 th percentile)		3.3	3.2	0.4	5.5						9.0	3.8
Queue Storage Ratio (RQ) (95 th percentile)		0.09	0.08	0.10	0.22						0.38	0.30
Uniform Delay (d_1), s/veh		4.3	4.4	6.1	4.9						30.2	28.3
Incremental Delay (d_2), s/veh		0.6	0.7	0.2	1.1						13.6	1.4
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0						0.0	0.0
Control Delay (d), s/veh		5.0	5.0	6.3	6.1						43.8	29.7
Level of Service (LOS)		A	A	A	A						D	C
Approach Delay, s/veh / LOS	5.0	A		6.1	A		0.0				39.0	D
Intersection Delay, s/veh / LOS	12.7						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.92
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	07 2052 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

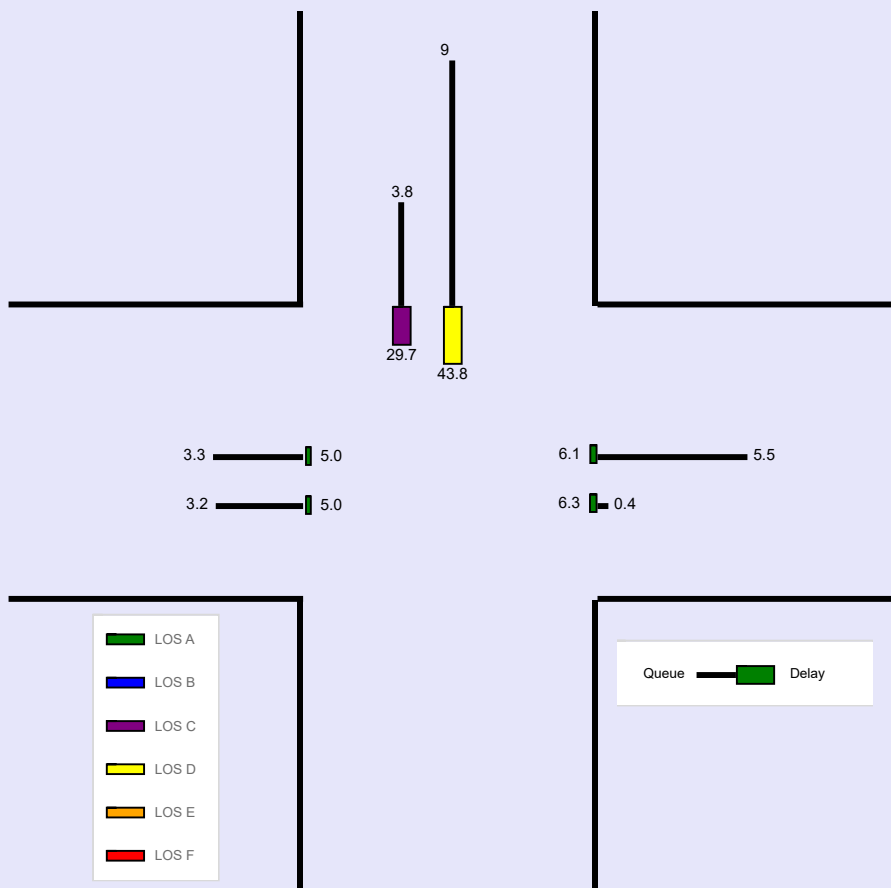
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		610	110	30	530					220	10	120

Signal Information

Cycle, s	75.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	52.4	12.6	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0	5		6		7		8	

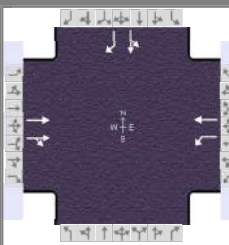
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		86	83	10	141						230	97
Back of Queue (Q), veh/ln (95 th percentile)		3.3	3.2	0.4	5.5						9.0	3.8
Queue Storage Ratio (RQ) (95 th percentile)		0.09	0.08	0.10	0.22						0.38	0.30
Control Delay (d), s/veh		5.0	5.0	6.3	6.1						43.8	29.7
Level of Service (LOS)		A	A	A	A						D	C
Approach Delay, s/veh / LOS	5.0	A		6.1	A		0.0				39.0	D
Intersection Delay, s/veh / LOS	12.7						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	08 2052 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		880	200	40	750					400	10	300

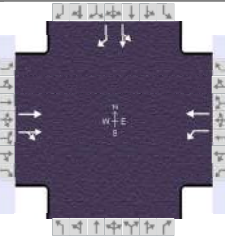
Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	58.8	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		880	200	40	750					400	10	300
Initial Queue (Q _b), veh/h		0	0	0	0					0	0	0
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900					1900	1900	1900
Parking (N _m), man/h		None			None						None	
Heavy Vehicles (P _{HV}), %		1		1	1					1	1	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0				0	0	0
Arrival Type (AT)		3	3	3	3					3	3	3
Upstream Filtering (I)		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Lane Width (W), ft		12.0		12.0	12.0					12.0	12.0	
Turn Bay Length, ft		975		100	650					600	325	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35					35	35	35

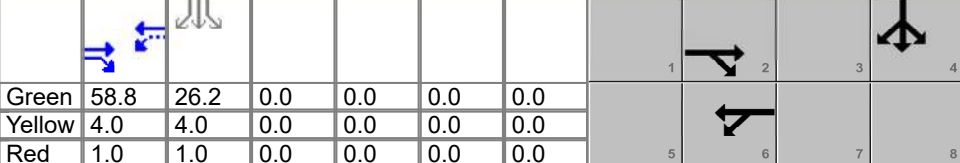
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		57.0		57.0				38.0
Yellow Change Interval (Y), s		4.0		4.0				4.0
Red Clearance Interval (R _c), s		1.0		1.0				1.0
Minimum Green (G _{min}), s		20		20				10
Start-Up Lost Time (lt), s		2.0	2.0	2.0			2.0	2.0
Extension of Effective Green (e), s		2.0	2.0	2.0			2.0	2.0
Passage (PT), s		2.0		2.0				3.0
Recall Mode		Min		Min				Off
Dual Entry		Yes		Yes				Yes
Walk (Walk), s				0.0		0.0		0.0
Pedestrian Clearance Time (PC), s				0.0		0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0		No	0.0	0	No		0		0.0	0	No
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0				12.0	5.0	2.0
Pedestrian Signal / Occupied Parking			0.50		No	0.50		No			No	0.50

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	US 30 EB Ramps	File Name	08 2052 PM Build Capacity Analysis US42 & US...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		880	200	40	750					400	10	300

Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	58.8	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

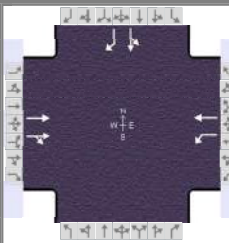
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6				4
Case Number		8.0		6.0				11.0
Phase Duration, s		63.8		63.8				31.2
Change Period, ($Y+R_c$), s		5.0		5.0				5.0
Max Allow Headway (MAH), s		0.0		0.0				4.2
Queue Clearance Time (g_s), s								24.0
Green Extension Time (g_e), s		0.0		0.0				2.2
Phase Call Probability								1.00
Max Out Probability								0.30

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6					7	4	14
Adjusted Flow Rate (v), veh/h		593	556	43	798					436	319	
Adjusted Saturation Flow Rate (s), veh/h/ln		1885	1764	493	1885					1797	1598	
Queue Service Time (g_s), s		19.5	16.7	5.3	26.6					22.0	17.2	
Cycle Queue Clearance Time (g_c), s		19.5	16.7	24.8	26.6					22.0	17.2	
Green Ratio (g/C)		0.62	0.62	0.62	0.62					0.28	0.28	
Capacity (c), veh/h		1166	1091	280	1166					496	441	
Volume-to-Capacity Ratio (X)		0.508	0.510	0.152	0.684					0.879	0.723	
Back of Queue (Q), ft/ln (95 th percentile)		271	268	30	405					408	279	
Back of Queue (Q), veh/ln (95 th percentile)		10.7	10.2	1.2	16.1					16.2	11.1	
Queue Storage Ratio (RQ) (95 th percentile)		0.28	0.26	0.30	0.62					0.68	0.86	
Uniform Delay (d_1), s/veh		10.1	10.1	17.9	12.0					32.9	31.1	
Incremental Delay (d_2), s/veh		1.6	1.7	1.2	3.3					11.5	3.5	
Initial Queue Delay (d_3), s/veh		0.0	0.0	0.0	0.0					0.0	0.0	
Control Delay (d), s/veh		11.7	11.8	19.1	15.2					44.3	34.6	
Level of Service (LOS)		B	B	B	B					D	C	
Approach Delay, s/veh / LOS	11.7	B		15.4	B		0.0			40.2	D	
Intersection Delay, s/veh / LOS	20.7						C					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

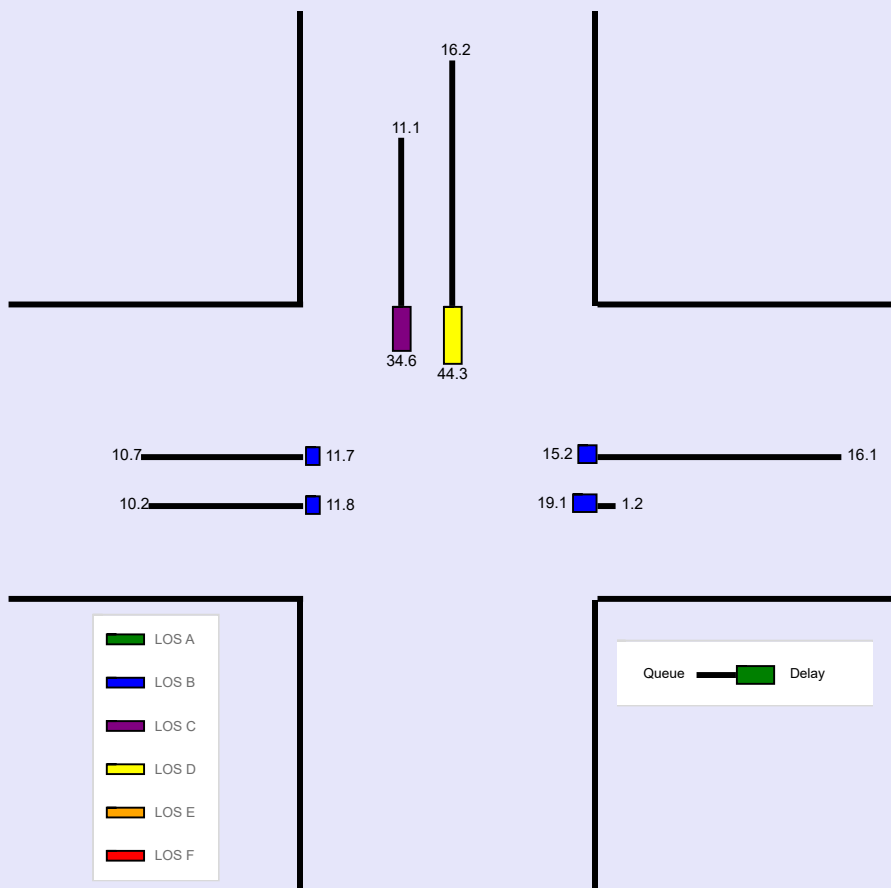
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.94
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 EB Ramps	File Name	08 2052 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		880	200	40	750					400	10	300

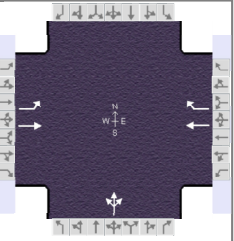
Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	58.8	26.2	0.0	0.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0		
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Back of Queue (Q), ft/ln (95 th percentile)		271	268	30	405					408	279	
Back of Queue (Q), veh/ln (95 th percentile)		10.7	10.2	1.2	16.1					16.2	11.1	
Queue Storage Ratio (RQ) (95 th percentile)		0.28	0.26	0.30	0.62					0.68	0.86	
Control Delay (d), s/veh		11.7	11.8	19.1	15.2					44.3	34.6	
Level of Service (LOS)		B	B	B	B					D	C	
Approach Delay, s/veh / LOS	11.7	B		15.4	B		0.0				40.2	D
Intersection Delay, s/veh / LOS	20.7						C					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 WB Ramps	File Name	09 2052 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	240	590			440	410	120	10	50			

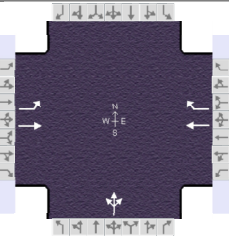
Signal Information				Signal Phases										
Cycle, s	75.0	Reference Phase	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Offset, s	0	Reference Point	End	Green	7.3	40.8	11.9	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	240	590			440	410	120	10	50			
Initial Queue (Q _b), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %	3	3			4	4		12				
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)	3	3			3	3	3	3	3			
Upstream Filtering (I)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Lane Width (W), ft	12.0	12.0			12.0	12.0		12.0				
Turn Bay Length, ft	200	650			999	400		600				
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

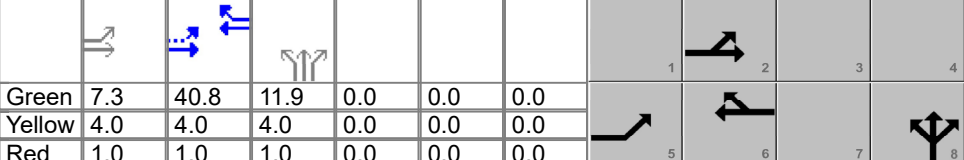
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	55.0		40.0		20.0		
Yellow Change Interval (Y), s	4.0	4.0		4.0		4.0		
Red Clearance Interval (R _c), s	1.0	1.0		1.0		1.0		
Minimum Green (G _{min}), s	7	20		20		10		
Start-Up Lost Time (l _t), s	2.0	2.0		2.0	2.0	2.0		
Extension of Effective Green (e), s	2.0	2.0		2.0	2.0	2.0		
Passage (PT), s	3.0	2.0		2.0		3.0		
Recall Mode	Off	Min		Min		Off		
Dual Entry	No	Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84	
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00	
Intersection	US 30 WB Ramps	File Name	09 2052 AM Build Capacity Analysis US42 & US...			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	240	590			440	410	120	10	50			

Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	7.3	40.8	11.9	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		7.3		12.0		
Phase Duration, s	12.3	58.1		45.8		16.9		
Change Period, ($Y+R_c$), s	5.0	5.0		5.0		5.0		
Max Allow Headway (MAH), s	4.1	0.0		0.0		4.2		
Queue Clearance Time (g_s), s	6.8					11.8		
Green Extension Time (g_e), s	0.5	0.0		0.0		0.2		
Phase Call Probability	1.00					0.99		
Max Out Probability	0.29					1.00		

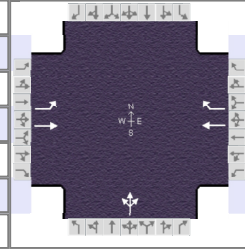
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	286	702			524	488		214				
Adjusted Saturation Flow Rate (s), veh/h/ln	1767	1856			1841	1560		1590				
Queue Service Time (g_s), s	4.8	13.3			13.6	15.6		9.8				
Cycle Queue Clearance Time (g_c), s	4.8	13.3			13.6	15.6		9.8				
Green Ratio (g/C)	0.67	0.71			0.54	0.54		0.16				
Capacity (c), veh/h	584	1314			1001	848		252				
Volume-to-Capacity Ratio (X)	0.489	0.535			0.523	0.576		0.849				
Back of Queue (Q), ft/ln (95 th percentile)	64	182			232	232		225				
Back of Queue (Q), veh/ln (95 th percentile)	2.5	7.1			9.0	9.0		8.2				
Queue Storage Ratio (RQ) (95 th percentile)	0.32	0.28			0.23	0.58		0.38				
Uniform Delay (d_1), s/veh	7.4	5.1			10.9	11.4		30.7				
Incremental Delay (d_2), s/veh	0.6	1.6			2.0	2.8		15.9				
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0		0.0				
Control Delay (d), s/veh	8.0	6.7			12.9	14.2		46.6				
Level of Service (LOS)	A	A			B	B		D				
Approach Delay, s/veh / LOS	7.1		A	13.5		B	46.6		D	0.0		
Intersection Delay, s/veh / LOS	13.8						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.84
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 WB Ramps	File Name	09 2052 AM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

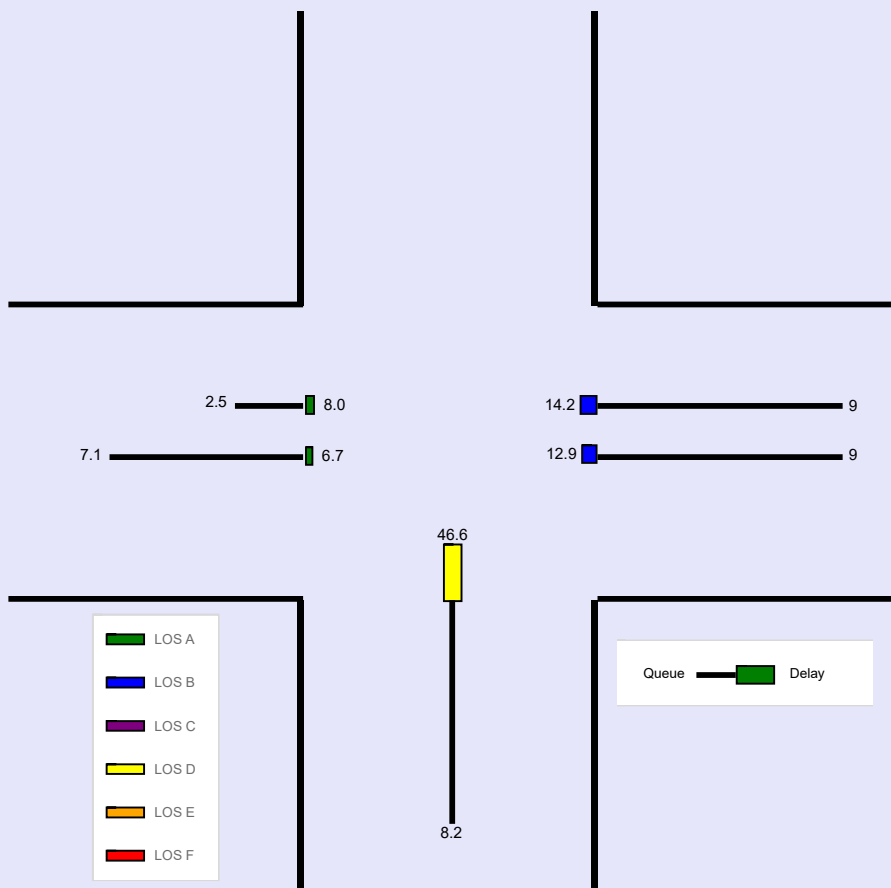
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	240	590			440	410	120	10	50			

Signal Information

Cycle, s	75.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	7.3	40.8	11.9	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

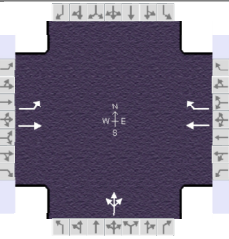
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	64	182			232	232		225				
Back of Queue (Q), veh/ln (95 th percentile)	2.5	7.1			9.0	9.0		8.2				
Queue Storage Ratio (RQ) (95 th percentile)	0.32	0.28			0.23	0.58		0.38				
Control Delay (d), s/veh	8.0	6.7			12.9	14.2		46.6				
Level of Service (LOS)	A	A			B	B		D				
Approach Delay, s/veh / LOS	7.1	A		13.5	B		46.6	D		0.0		
Intersection Delay, s/veh / LOS	13.8						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 WB Ramps	File Name	10 2052 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	170	1110			630	390	160	10	40			

Signal Information				Signal Phases										
Cycle, s	95.0	Reference Phase	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Offset, s	0	Reference Point	End	Green	6.9	58.7	14.4	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	↗	↖		↕
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0	↘	↙		↕

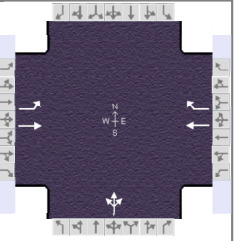
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	170	1110			630	390	160	10	40			
Initial Queue (Q _b), veh/h	0	0			0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h	1900	1900			1900	1900	1900	1900	1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %	2	2			3	3		8				
Ped / Bike / RTOR, /h	0	0		0	0	0	0	0	0	0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)	3	3			3	3	3	3	3			
Upstream Filtering (I)	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Lane Width (W), ft	12.0	12.0			12.0	12.0		12.0				
Turn Bay Length, ft	200	650			999	400		600				
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	35	35			35	35	35	35	35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	15.0	70.0		55.0		25.0		
Yellow Change Interval (Y), s	4.0	4.0		4.0		4.0		
Red Clearance Interval (R _c), s	1.0	1.0		1.0		1.0		
Minimum Green (G _{min}), s	7	20		20		10		
Start-Up Lost Time (l _t), s	2.0	2.0		2.0	2.0	2.0		
Extension of Effective Green (e), s	2.0	2.0		2.0	2.0	2.0		
Passage (PT), s	3.0	2.0		2.0		3.0		
Recall Mode	Off	Min		Min		Off		
Dual Entry	No	Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 WB Ramps	File Name	10 2052 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	170	1110			630	390	160	10	40			

Signal Information				Phase Diagram										
Cycle, s	95.0	Reference Phase	2	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	
Offset, s	0	Reference Point	End	Green	6.9	58.7	14.4	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	5	2		6		8		
Case Number	1.0	4.0		7.3		12.0		
Phase Duration, s	11.9	75.6		63.7		19.4		
Change Period, ($Y+R_c$), s	5.0	5.0		5.0		5.0		
Max Allow Headway (MAH), s	4.1	0.0		0.0		4.2		
Queue Clearance Time (g_s), s	5.0					14.1		
Green Extension Time (g_e), s	0.4	0.0		0.0		0.4		
Phase Call Probability	0.99					1.00		
Max Out Probability	0.01					0.31		

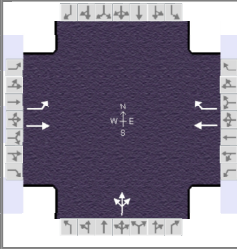
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	5	2			6	16	3	8	18			
Adjusted Flow Rate (v), veh/h	175	1144			649	402		216				
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870			1856	1572		1661				
Queue Service Time (g_s), s	3.0	38.4			19.6	12.5		12.1				
Cycle Queue Clearance Time (g_c), s	3.0	38.4			19.6	12.5		12.1				
Green Ratio (g/C)	0.71	0.74			0.62	0.62		0.15				
Capacity (c), veh/h	528	1390			1146	971		252				
Volume-to-Capacity Ratio (X)	0.332	0.823			0.567	0.414		0.860				
Back of Queue (Q), ft/ln (95 th percentile)	42	480			311	190		260				
Back of Queue (Q), veh/ln (95 th percentile)	1.7	18.9			12.2	7.4		9.8				
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.74			0.31	0.48		0.43				
Uniform Delay (d_1), s/veh	7.5	8.1			10.7	9.3		39.3				
Incremental Delay (d_2), s/veh	0.4	5.6			2.0	1.3		14.4				
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0	0.0		0.0				
Control Delay (d), s/veh	7.9	13.7			12.7	10.6		53.8				
Level of Service (LOS)	A	B			B	B		D				
Approach Delay, s/veh / LOS	12.9	B		11.9	B		53.8	D		0.0		
Intersection Delay, s/veh / LOS	15.9						B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.97
Urban Street	US Route 42	Analysis Year	2052 'Build'	Analysis Period	1 > 7:00
Intersection	US 30 WB Ramps	File Name	10 2052 PM Build Capacity Analysis US42 & US...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

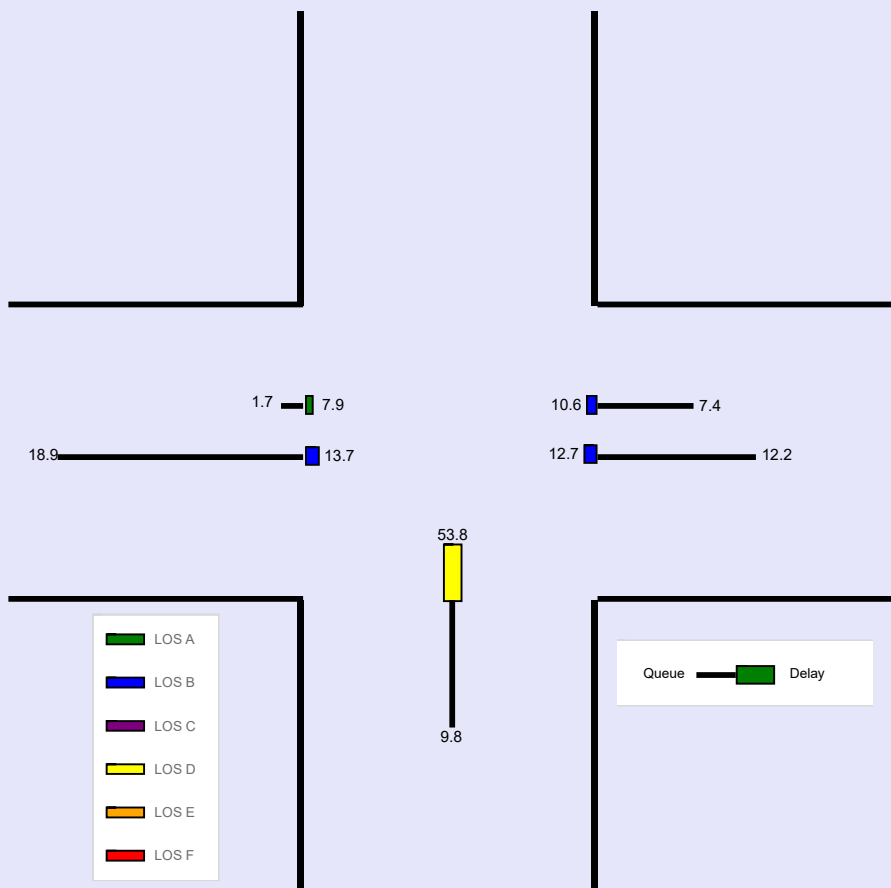
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	170	1110			630	390	160	10	40			

Signal Information

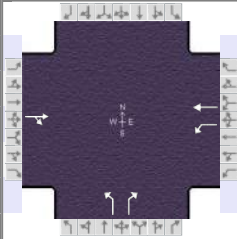
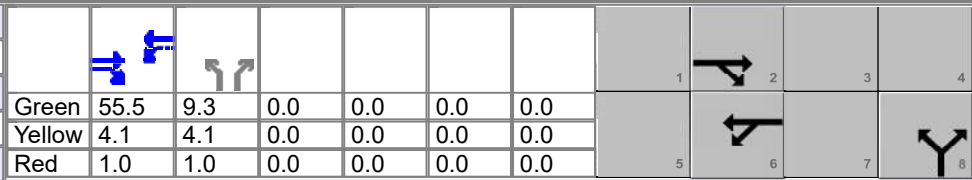
Cycle, s	95.0	Reference Phase	2											
Offset, s	0	Reference Point	End	Green	6.9	58.7	14.4	0.0	0.0	0.0	1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	4.0	4.0	0.0	0.0	0.0	5	6	7	8
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	1.0	0.0	0.0	0.0				

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)	42	480			311	190		260				
Back of Queue (Q), veh/ln (95 th percentile)	1.7	18.9			12.2	7.4		9.8				
Queue Storage Ratio (RQ) (95 th percentile)	0.21	0.74			0.31	0.48		0.43				
Control Delay (d), s/veh	7.9	13.7			12.7	10.6		53.8				
Level of Service (LOS)	A	B			B	B		D				
Approach Delay, s/veh / LOS	12.9	B		11.9	B		53.8	D		0.0		
Intersection Delay, s/veh / LOS	15.9						B					

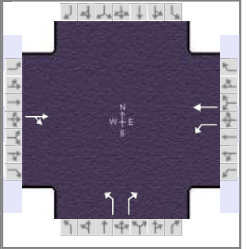


HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	GPD Group			Duration, h	0.250										
Analyst	Ryan Barco		Analysis Date	Nov 8, 2024		Area Type	Other								
Jurisdiction	Madison Township		Time Period	AM Peak Hour		PHF	0.80								
Urban Street	US Route 42		Analysis Year	2052 'BA 1,4'		Analysis Period	1 > 7:00								
Intersection	McElroy Road		File Name	11 2052 AM Build Capacity Analysis US42 & McEl...											
Project Description	US 30 & US 42 Planning Study														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					510	170	200	760		130		110			
Signal Information															
Cycle, s	75.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	55.5	9.3	0.0	0.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0				
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					510	170	200	760		130		110			
Initial Queue (Q_0), veh/h					0	0	0	0		0		0			
Base Saturation Flow Rate (s_0), veh/h					1900	1900	1900	1900		1900		1900			
Parking (N_m), man/h					None			None			None				
Heavy Vehicles (P_{HV}), %					4		4	4		4		4			
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	
Buses (N_b), buses/h				0	0	0	0	0	0	0	0	0	0	0	
Arrival Type (AT)					3	3	3	3		3		3			
Upstream Filtering (I)					1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft					12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft					1430		75	1530		50		875			
Grade (P_g), %					0			0			0			0	
Speed Limit, mi/h					35	35	35	35		35		35			
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G_{max}) or Phase Split, s					54.0		54.0		21.0						
Yellow Change Interval (Y), s					4.1		4.1		4.1						
Red Clearance Interval (R_c), s					1.0		1.0		1.0						
Minimum Green (G_{min}), s					20		20		8						
Start-Up Lost Time (l_t), s					2.0	2.0	2.0	2.0							
Extension of Effective Green (e), s					2.0	2.0	2.0	2.0							
Passage (PT), s					2.0		2.0		3.0						
Recall Mode					Min		Min		Off						
Dual Entry					Yes		Yes		Yes						
Walk ($Walk$), s					0.0				0.0			0.0			
Pedestrian Clearance Time (PC), s					0.0				0.0			0.0			
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking				No	0.50			0.50		No	0.50		No		

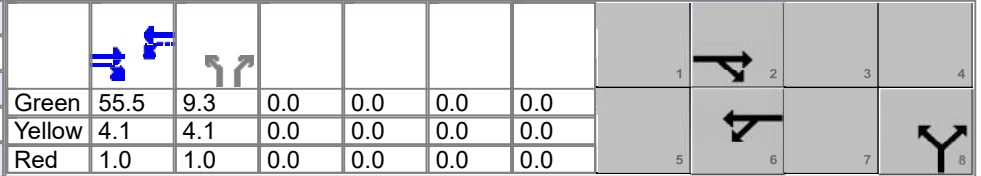
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM Build Capacity Analysis US42 & McEl...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



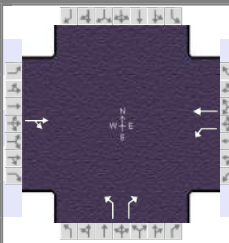
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		60.6		60.6		14.4		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.6		
Phase Call Probability						1.00		
Max Out Probability						0.20		

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		850		250	950		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1761		638	1841		1753		1560			
Queue Service Time (g _s), s		18.2		24.3	20.8		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		18.2		42.5	20.8		6.7		6.3			
Green Ratio (g/C)		0.74		0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1303		413	1362		218		194			
Volume-to-Capacity Ratio (X)		0.652		0.605	0.698		0.746		0.709			
Back of Queue (Q), ft/ln (95 th percentile)		215		175	248		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		8.3		6.8	9.6		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.15		2.34	0.16		2.80		0.13			
Uniform Delay (d ₁), s/veh		4.9		15.6	5.3		31.7		31.5			
Incremental Delay (d ₂), s/veh		2.6		6.4	3.0		5.0		4.7			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		7.5		22.0	8.2		36.7		36.2			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	7.5	A		11.1	B		36.5	D		0.0		
Intersection Delay, s/veh / LOS				13.0						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

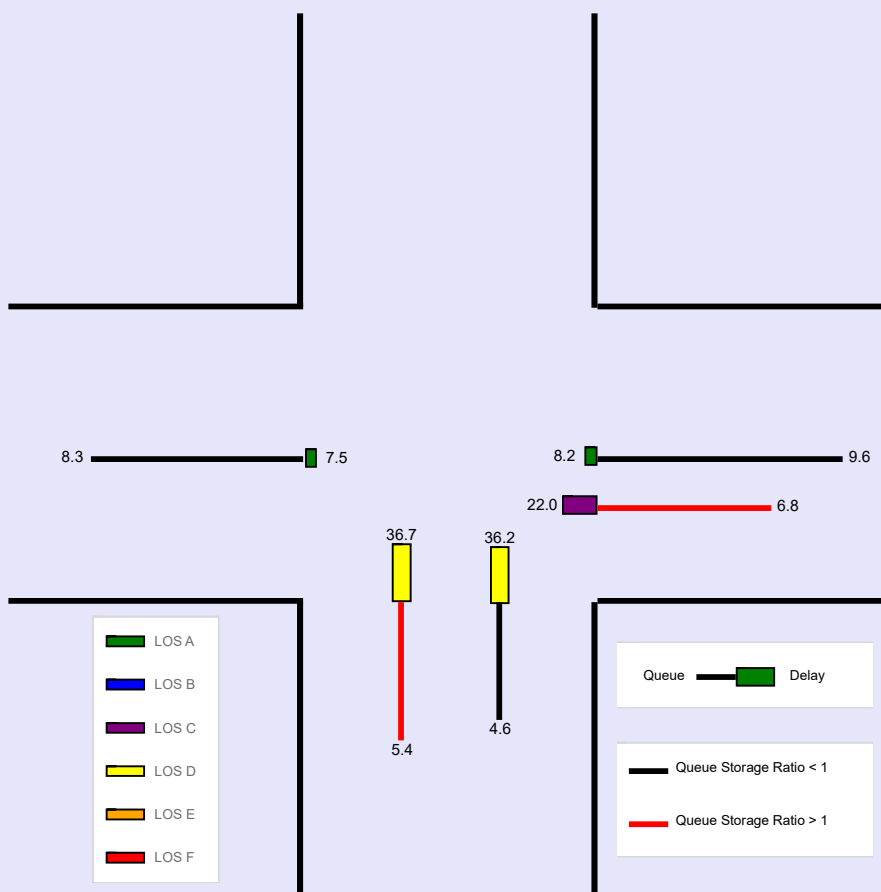
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM Build Capacity Analysis US42 & McEl...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

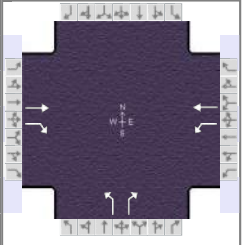
Signal Information															
Cycle, s	75.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On	Green	55.5	9.3	0.0	0.0	0.0	0.0	1 → 2		3	4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	← 5		6	7	8
				Red	1.0	1.0	0.0	0.0	0.0	0.0					

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		215		175	248		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		8.3		6.8	9.6		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.15		2.34	0.16		2.80		0.13			
Control Delay (d), s/veh		7.5		22.0	8.2		36.7		36.2			
Level of Service (LOS)		A		C	A		D		D			
Approach Delay, s/veh / LOS	7.5		A	11.1		B	36.5		D			0.0
Intersection Delay, s/veh / LOS	13.0						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A"	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM Build US42 & McElroy.xus		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		510	170	200	760		130		110			

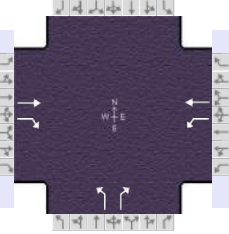
Signal Information												
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	55.5	9.3	0.0	0.0	0.0	0.0				
		Yellow	4.1	4.1	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		510	170	200	760		130		110			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		4	0	4	4		4		4			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0	12.0	12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430	1430	75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

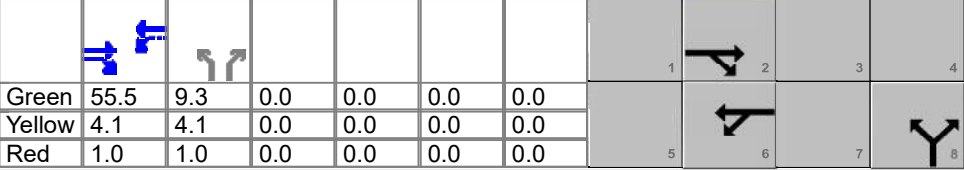
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		54.0		54.0		21.0		
Yellow Change Interval (Y), s		4.1		4.1		4.1		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80	
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A"	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	11 2052 AM Build US42 & McElroy.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		510	170	200	760		130		110			

Signal Information													
Cycle, s	75.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	55.5	9.3	0.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.0	1.0	0.0	0.0	0.0	0.0			

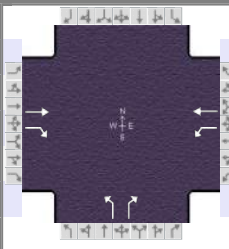
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		7.0		6.0		9.0		
Phase Duration, s		60.6		60.6		14.4		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.2		
Queue Clearance Time (g _s), s						8.7		
Green Extension Time (g _e), s		0.0		0.0		0.6		
Phase Call Probability						1.00		
Max Out Probability						0.20		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		638	213	250	950		163		138			
Adjusted Saturation Flow Rate (s), veh/h/ln		1841	1610	778	1841		1753		1560			
Queue Service Time (g _s), s		10.3	3.0	14.1	20.8		6.7		6.3			
Cycle Queue Clearance Time (g _c), s		10.3	3.0	24.5	20.8		6.7		6.3			
Green Ratio (g/C)		0.74	0.74	0.74	0.74		0.12		0.12			
Capacity (c), veh/h		1362	1191	564	1362		218		194			
Volume-to-Capacity Ratio (X)		0.468	0.178	0.443	0.698		0.746		0.709			
Back of Queue (Q), ft/ln (95 th percentile)		126	30	107	248		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		4.9	1.2	4.1	9.6		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.09	0.02	1.43	0.16		2.80		0.13			
Uniform Delay (d ₁), s/veh		3.9	2.9	8.8	5.3		31.7		31.5			
Incremental Delay (d ₂), s/veh		1.2	0.3	2.5	3.0		5.0		4.7			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		5.0	3.3	11.3	8.2		36.7		36.2			
Level of Service (LOS)		A	A	B	A		D		D			
Approach Delay, s/veh / LOS	4.6		A	8.9		A	36.5		D	0.0		
Intersection Delay, s/veh / LOS		10.9				B						

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

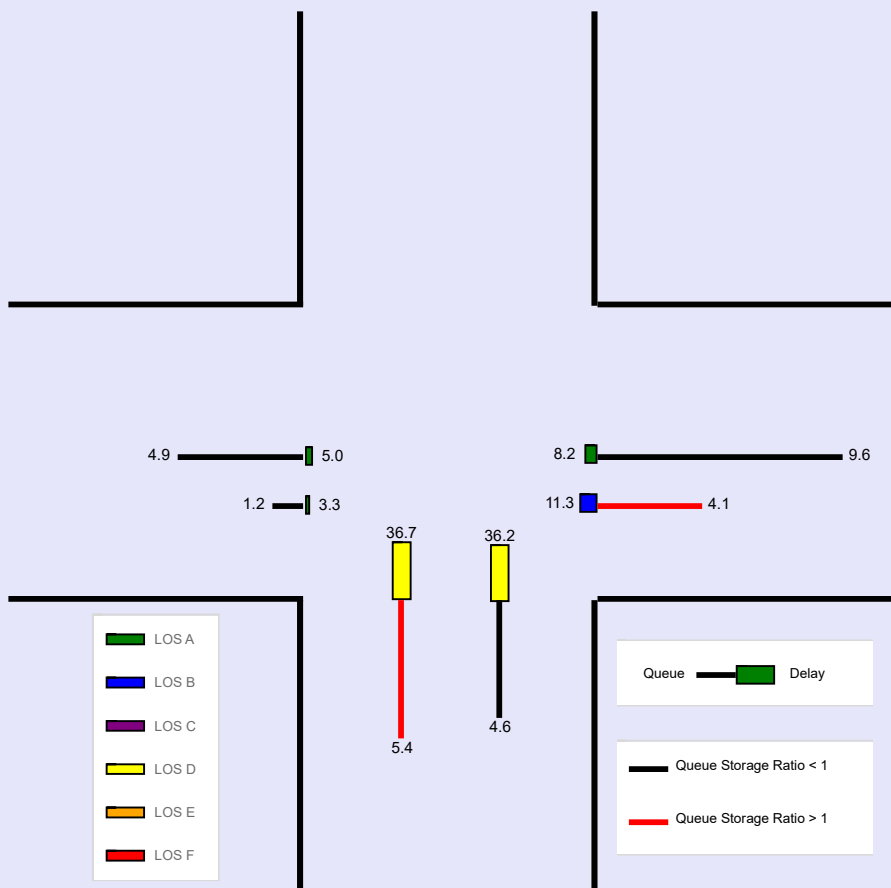
General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	AM Peak Hour	PHF	0.80
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A"	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	11 2052 AM Build US42 & McElroy.xus		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		510	170	200	760		130		110			

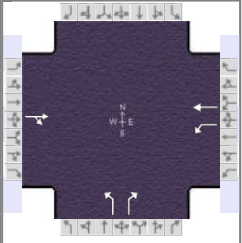
Signal Information				Phase Diagram								
Cycle, s	75.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	55.5	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		126	30	107	248		140		118			
Back of Queue (Q), veh/ln (95 th percentile)		4.9	1.2	4.1	9.6		5.4		4.6			
Queue Storage Ratio (RQ) (95 th percentile)		0.09	0.02	1.43	0.16		2.80		0.13			
Control Delay (d), s/veh		5.0	3.3	11.3	8.2		36.7		36.2			
Level of Service (LOS)		A	A	B	A		D		D			
Approach Delay, s/veh / LOS	4.6	A		8.9	A		36.5	D		0.0		
Intersection Delay, s/veh / LOS	10.9						B					



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM Build Capacity Analysis US42 & McE...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information																		
Cycle, s	95.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0	1		2		3		4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	5		6		7		8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0								

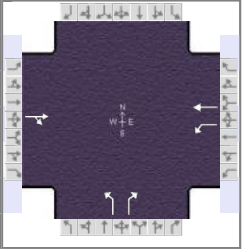
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2		3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0		12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430		75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.1		4.1		4.1		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM Build Capacity Analysis US42 & McE...		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information													
Cycle, s	95.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0			
				Red	1.0	1.0	0.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		8.0		6.0		9.0		
Phase Duration, s		78.3		78.3		16.7		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.7		
Green Extension Time (g _e), s		0.0		0.0		0.8		
Phase Call Probability						1.00		
Max Out Probability						0.00		

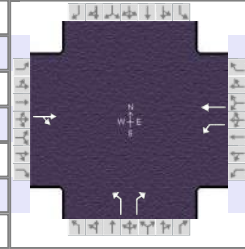
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		1192		192	929		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1829		466	1856		1795		1598			
Queue Service Time (g _s), s		40.8		32.4	21.8		5.0		8.7			
Cycle Queue Clearance Time (g _c), s		40.8		73.2	21.8		5.0		8.7			
Green Ratio (g/C)		0.77		0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1409		235	1430		219		195			
Volume-to-Capacity Ratio (X)		0.846		0.817	0.650		0.462		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		467		262	270		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		18.4		10.2	10.5		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.33		3.49	0.18		2.03		0.19			
Uniform Delay (d ₁), s/veh		7.2		34.1	5.0		38.8		40.5			
Incremental Delay (d ₂), s/veh		6.4		26.0	2.3		1.5		6.6			
Initial Queue Delay (d ₃), s/veh		0.0		0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		13.6		60.0	7.3		40.3		47.1			
Level of Service (LOS)		B		E	A		D		D			
Approach Delay, s/veh / LOS	13.6	B		16.3	B		44.4	D		0.0		
Intersection Delay, s/veh / LOS				17.8						B		

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'BA 1,4'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM Build Capacity Analysis US42 & McE...		
Project Description	US 30 & US 42 Planning Study				



Demand Information

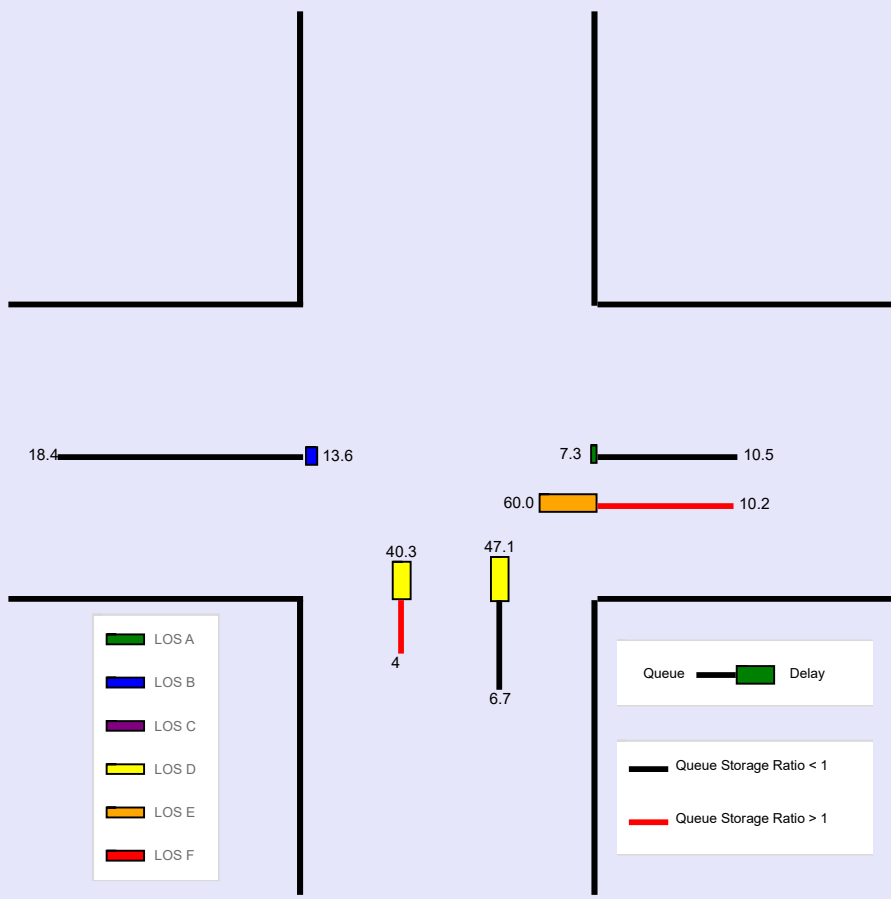
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

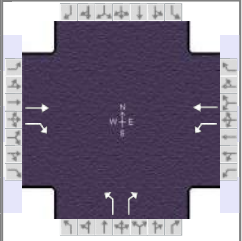
Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		467		262	270		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		18.4		10.2	10.5		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.33		3.49	0.18		2.03		0.19			
Control Delay (d), s/veh		13.6		60.0	7.3		40.3		47.1			
Level of Service (LOS)		B		E	A		D		D			
Approach Delay, s/veh / LOS	13.6		B	16.3		B	44.4		D			0.0
Intersection Delay, s/veh / LOS				17.8						B		



HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	GPD Group			Duration, h	0.250
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A'	Analysis Period	1 > 7:00
Intersection	McElroy Road	File Name	12 2052 PM Build US42 & McElroy.xus		
Project Description	US 30 & US 42 Planning Study				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			

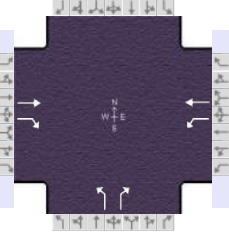
Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.2	11.6	0.0	0.0	0.0	0.0				
		Yellow	4.1	4.1	0.0	0.0	0.0	0.0				
		Red	1.0	1.0	0.0	0.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			
Initial Queue (Q _b), veh/h		0	0	0	0		0		0			
Base Saturation Flow Rate (s ₀), veh/h		1900	1900	1900	1900		1900		1900			
Parking (N _m), man/h		None			None			None				
Heavy Vehicles (P _{HV}), %		2	0	3	3		1		1			
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)		3	3	3	3		3		3			
Upstream Filtering (I)		1.00	1.00	1.00	1.00		1.00		1.00			
Lane Width (W), ft		12.0	12.0	12.0	12.0		12.0		12.0			
Turn Bay Length, ft		1430	1430	75	1530		50		875			
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h		35	35	35	35		35		35			

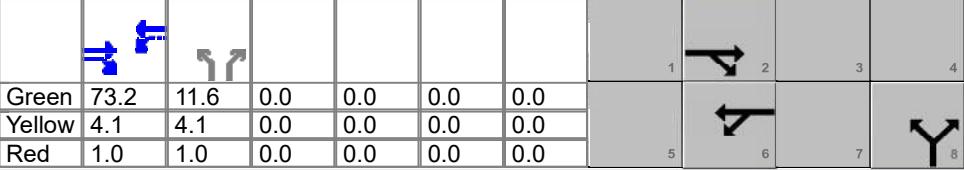
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		60.0		60.0		35.0		
Yellow Change Interval (Y), s		4.1		4.1		4.1		
Red Clearance Interval (R _c), s		1.0		1.0		1.0		
Minimum Green (G _{min}), s		20		20		8		
Start-Up Lost Time (l _t), s		2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s		2.0	2.0	2.0	2.0			
Passage (PT), s		2.0		2.0		3.0		
Recall Mode		Min		Min		Off		
Dual Entry		Yes		Yes		Yes		
Walk (Walk), s		0.0				0.0		0.0
Pedestrian Clearance Time (PC), s		0.0				0.0		0.0

Multimodal Information	EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius	0.0	No	25.0				0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft	9.0	12.0	0.0				9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft	0.0	0	No	0.0		No	0.0	0	No		0	
Width Outside / Bike Lane / Shoulder, ft	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0			
Pedestrian Signal / Occupied Parking	No		0.50			0.50	No		0.50	No		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	GPD Group			Duration, h	0.250	
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024	Area Type	Other	
Jurisdiction	Madison Township	Time Period	PM Peak Hour	PHF	0.99	
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A'	Analysis Period	1 > 7:00	
Intersection	McElroy Road	File Name	12 2052 PM Build US42 & McElroy.xus			
Project Description	US 30 & US 42 Planning Study					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information												
Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	73.2	11.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Yellow	4.1	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
		Red	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		2		6		8		
Case Number		7.0		6.0		9.0		
Phase Duration, s		78.3		78.3		16.7		
Change Period, (Y+R _c), s		5.1		5.1		5.1		
Max Allow Headway (MAH), s		0.0		0.0		4.3		
Queue Clearance Time (g _s), s						10.7		
Green Extension Time (g _e), s		0.0		0.0		0.8		
Phase Call Probability						1.00		
Max Out Probability						0.00		

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement		2	12	1	6		3		18			
Adjusted Flow Rate (v), veh/h		1040	152	192	929		101		152			
Adjusted Saturation Flow Rate (s), veh/h/ln		1870	1610	538	1856		1795		1598			
Queue Service Time (g _s), s		27.3	2.3	27.2	21.8		5.0		8.7			
Cycle Queue Clearance Time (g _c), s		27.3	2.3	54.5	21.8		5.0		8.7			
Green Ratio (g/C)		0.77	0.77	0.77	0.77		0.12		0.12			
Capacity (c), veh/h		1442	1241	336	1430		219		195			
Volume-to-Capacity Ratio (X)		0.722	0.122	0.572	0.650		0.462		0.778			
Back of Queue (Q), ft/ln (95 th percentile)		326	25	174	270		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.8	1.0	6.8	10.5		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.23	0.02	2.32	0.18		2.03		0.19			
Uniform Delay (d ₁), s/veh		5.6	2.8	19.7	5.0		38.8		40.5			
Incremental Delay (d ₂), s/veh		3.2	0.2	6.9	2.3		1.5		6.6			
Initial Queue Delay (d ₃), s/veh		0.0	0.0	0.0	0.0		0.0		0.0			
Control Delay (d), s/veh		8.8	3.0	26.6	7.3		40.3		47.1			
Level of Service (LOS)		A	A	C	A		D		D			
Approach Delay, s/veh / LOS	8.0		A	10.6		B	44.4		D	0.0		
Intersection Delay, s/veh / LOS		12.7					B					

Multimodal Results	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

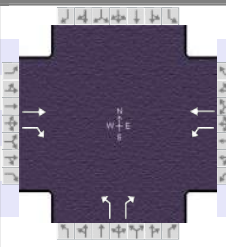
HCS Signalized Intersection Results Graphical Summary

General Information

Agency	GPD Group		
Analyst	Ryan Barco	Analysis Date	Nov 8, 2024
Jurisdiction	Madison Township	Time Period	PM Peak Hour
Urban Street	US Route 42	Analysis Year	2052 'BA 2,2A'
Intersection	McElroy Road	File Name	12 2052 PM Build US42 & McElroy.xus
Project Description	US 30 & US 42 Planning Study		

Intersection Information

Duration, h	0.250
Area Type	Other
PHF	0.99
Analysis Period	1 > 7:00



Demand Information

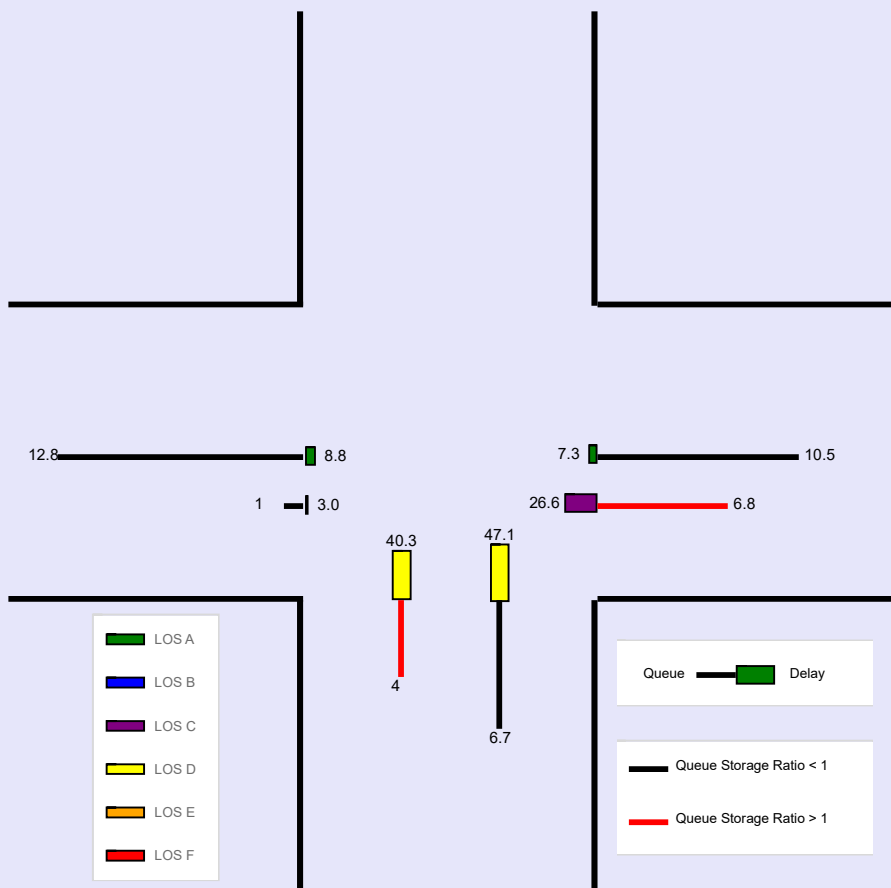
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h		1030	150	190	920		100		150			

Signal Information

Cycle, s	95.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	73.2	11.6	0.0	0.0	0.0	0.0	1 2 3 4	
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.1	4.1	0.0	0.0	0.0	0.0	5 6 7 8	
				Red	1.0	1.0	0.0	0.0	0.0	0.0		

Movement Group Results

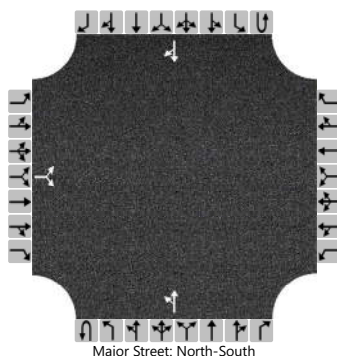
Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Back of Queue (Q), ft/ln (95 th percentile)		326	25	174	270		102		168			
Back of Queue (Q), veh/ln (95 th percentile)		12.8	1.0	6.8	10.5		4.0		6.7			
Queue Storage Ratio (RQ) (95 th percentile)		0.23	0.02	2.32	0.18		2.03		0.19			
Control Delay (d), s/veh		8.8	3.0	26.6	7.3		40.3		47.1			
Level of Service (LOS)		A	A	C	A		D		D			
Approach Delay, s/veh / LOS	8.0	A		10.6	B		44.4	D		0.0		
Intersection Delay, s/veh / LOS	12.7						B					



HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2052			North/South Street	Beal Road		
Time Analyzed	AM Peak Hour 'Build'			Peak Hour Factor	0.80		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		40		10						10	10				10	120
Percent Heavy Vehicles (%)		6		6						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.46		6.26						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.55		3.35						2.24						

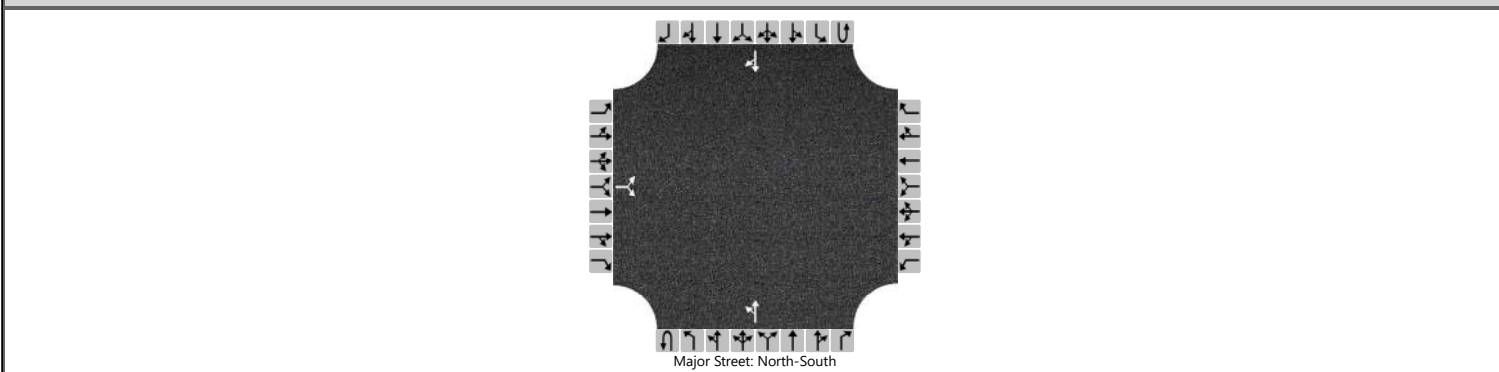
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			63							13						
Capacity, c (veh/h)			872							1404						
v/c Ratio			0.07							0.01						
95% Queue Length, Q ₉₅ (veh)			0.2							0.0						
95% Queue Length, Q ₉₅ (ft)			5.2							0.0						
Control Delay (s/veh)			9.4							7.6	0.1					
Level of Service (LOS)			A							A	A					
Approach Delay (s/veh)	9.4								3.8							
Approach LOS	A								A							

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Beal Road / Rayfield Drive		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Rayfield Drive		
Analysis Year	2052			North/South Street	Beal Road		
Time Analyzed	PM Peak Hour 'Build'			Peak Hour Factor	0.93		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		170		30						10	10				10	130
Percent Heavy Vehicles (%)		0		0						4						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.40		6.20						4.14						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.50		3.30						2.24						

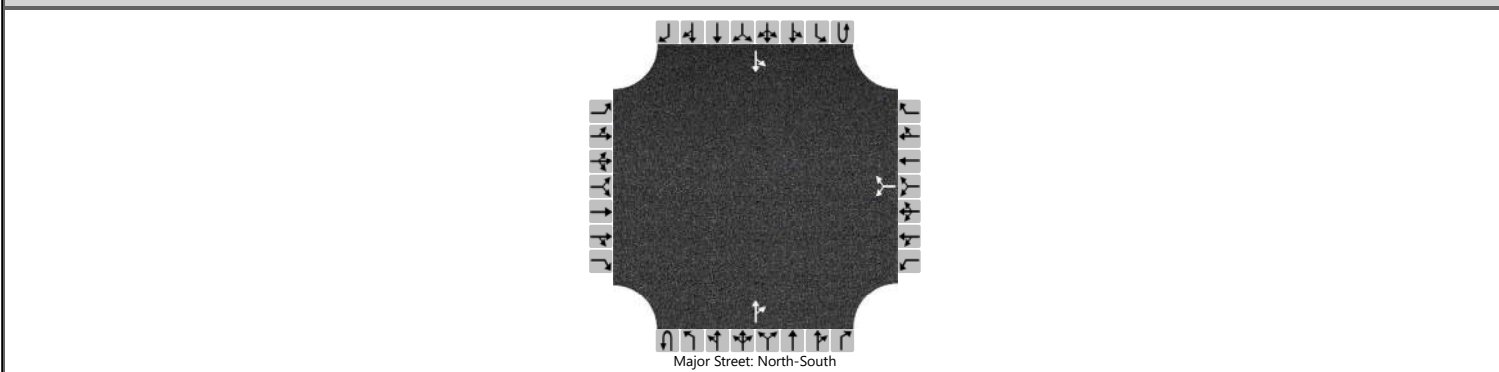
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			215							11						
Capacity, c (veh/h)			896							1418						
v/c Ratio			0.24							0.01						
95% Queue Length, Q ₉₅ (veh)			0.9							0.0						
95% Queue Length, Q ₉₅ (ft)			22.5							0.0						
Control Delay (s/veh)			10.3							7.6	0.1					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	10.3								3.8							
Approach LOS	B								A							

HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive
Agency/Co.	GPD Group	Jurisdiction	Madison Township
Date Performed	11/8/2024	East/West Street	Rayfield Drive
Analysis Year	2052	North/South Street	Expressview Drive
Time Analyzed	AM Peak Hour 'Build'	Peak Hour Factor	0.80
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	US 30 & US 42 Planning Study		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0	0	0	1	0	0	0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						120		10			10	50		10	10	
Percent Heavy Vehicles (%)						0		0						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2							4.1		
Critical Headway (sec)						6.40		6.20							4.10		
Base Follow-Up Headway (sec)						3.5		3.3							2.2		
Follow-Up Headway (sec)						3.50		3.30							2.20		

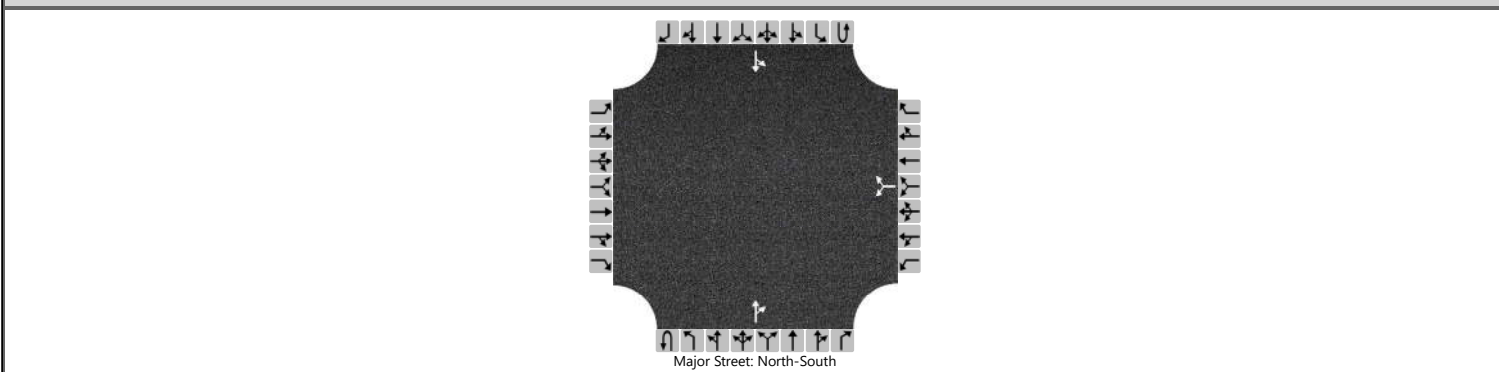
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						163									13		
Capacity, c (veh/h)						926									1537		
v/c Ratio						0.18									0.01		
95% Queue Length, Q ₉₅ (veh)						0.6									0.0		
95% Queue Length, Q ₉₅ (ft)						15.0									0.0		
Control Delay (s/veh)						9.7									7.4	0.1	
Level of Service (LOS)						A									A	A	
Approach Delay (s/veh)					9.7								3.7				
Approach LOS					A								A				

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco	Intersection	Expressview Drive / Rayfield Drive				
Agency/Co.	GPD Group	Jurisdiction	Madison Township				
Date Performed	11/8/2024	East/West Street	Rayfield Drive				
Analysis Year	2052	North/South Street	Expressview Drive				
Time Analyzed	PM Peak Hour 'Build'	Peak Hour Factor	0.83				
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25				
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		0	1	0		0	1	0		0	1	0
Configuration							LR					TR		LT		
Volume (veh/h)						130		10			10	210		10	20	
Percent Heavy Vehicles (%)						9		9						0		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.1		6.2						4.1		
Critical Headway (sec)						6.49		6.29						4.10		
Base Follow-Up Headway (sec)						3.5		3.3						2.2		
Follow-Up Headway (sec)						3.58		3.38						2.20		

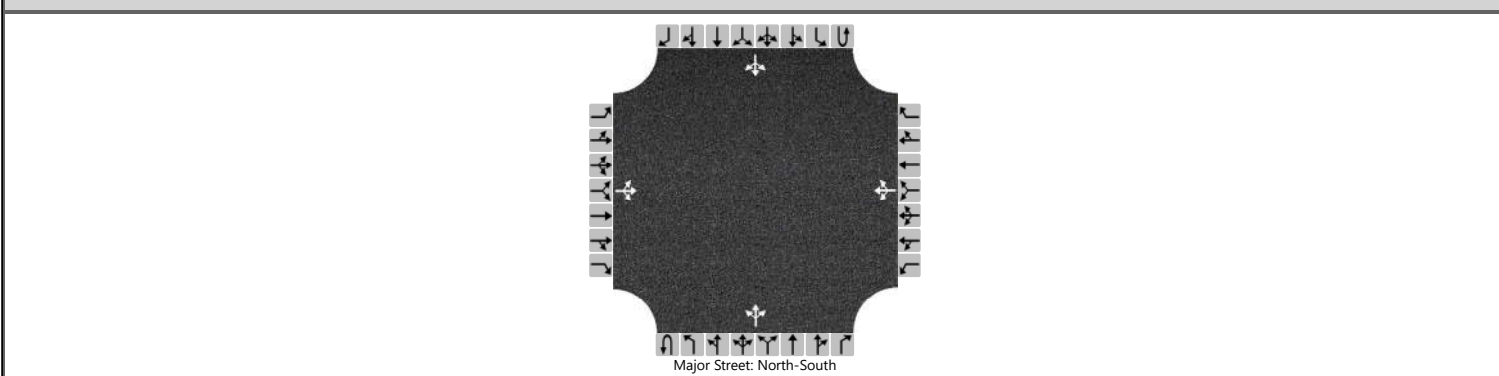
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						169								12		
Capacity, c (veh/h)						786								1311		
v/c Ratio						0.21								0.01		
95% Queue Length, Q ₉₅ (veh)						0.8								0.0		
95% Queue Length, Q ₉₅ (ft)						21.4								0.0		
Control Delay (s/veh)						10.8								7.8	0.1	
Level of Service (LOS)						B								A	A	
Approach Delay (s/veh)					10.8								2.6			
Approach LOS					B								A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2052			North/South Street	Stewart Road		
Time Analyzed	AM Peak Hour 'Build'			Peak Hour Factor	0.84		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	40		140	10	10		10	80	40		10	170	10
Percent Heavy Vehicles (%)		0	0	0		0	0	0		3				1		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.10	6.50	6.20		7.10	6.50	6.20		4.13				4.11		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.50	4.00	3.30		3.50	4.00	3.30		2.23				2.21		

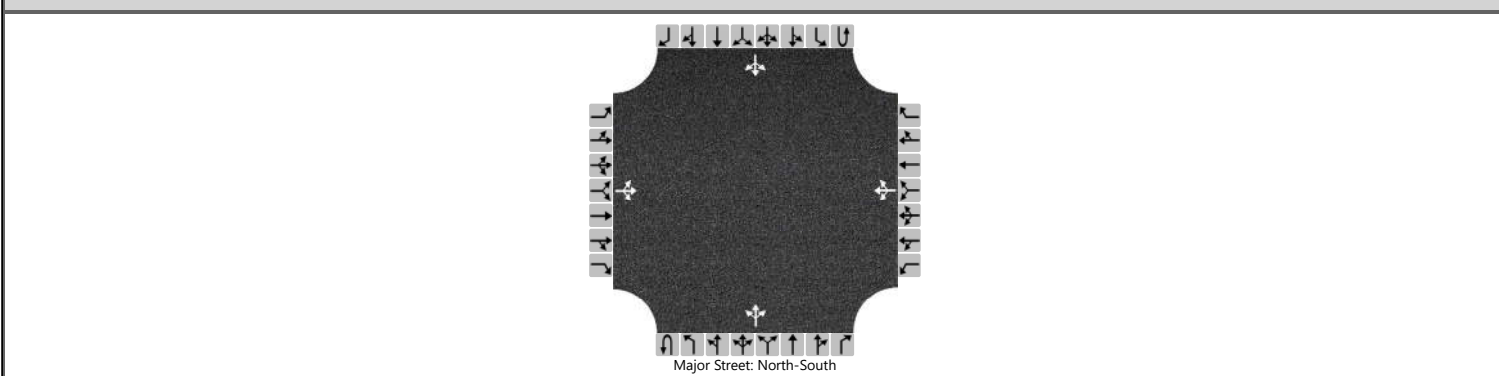
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			71				190				12				12	
Capacity, c (veh/h)			707				524				1350				1446	
v/c Ratio			0.10				0.36				0.01				0.01	
95% Queue Length, Q ₉₅ (veh)			0.3				1.6				0.0				0.0	
95% Queue Length, Q ₉₅ (ft)			7.5				40.0									
Control Delay (s/veh)			10.7				15.7			7.7	0.1	0.1		7.5	0.1	0.1
Level of Service (LOS)			B				C			A	A	A		A	A	A
Approach Delay (s/veh)	10.7				15.7				0.7				0.5			
Approach LOS	B				C				A				A			

HCS Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Ryan Barco			Intersection	Stewart Rd / Expressview Dr / Yale Ave		
Agency/Co.	GPD Group			Jurisdiction	Madison Township		
Date Performed	11/8/2024			East/West Street	Expressview Drive/ Yale Avenue		
Analysis Year	2052			North/South Street	Stewart Road		
Time Analyzed	PM Peak Hour 'Build'			Peak Hour Factor	0.94		
Intersection Orientation	North-South			Analysis Time Period (hrs)	0.25		
Project Description	US 30 & US 42 Planning Study						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	1	0	0	0	1	0	0	0	1	0
Configuration			LTR				LTR				LTR				LTR	
Volume (veh/h)		10	10	50		150	10	10		50	240	180		10	220	10
Percent Heavy Vehicles (%)		3	3	3		10	10	10		2				2		
Proportion Time Blocked																
Percent Grade (%)	0				0											
Right Turn Channelized																
Median Type Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1	6.5	6.2		7.1	6.5	6.2		4.1				4.1		
Critical Headway (sec)		7.13	6.53	6.23		7.20	6.60	6.30		4.12				4.12		
Base Follow-Up Headway (sec)		3.5	4.0	3.3		3.5	4.0	3.3		2.2				2.2		
Follow-Up Headway (sec)		3.53	4.03	3.33		3.59	4.09	3.39		2.22				2.22		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			74				181				53				11	
Capacity, c (veh/h)			537				280				1321				1113	
v/c Ratio			0.14				0.65				0.04				0.01	
95% Queue Length, Q ₉₅ (veh)			0.5				4.1				0.1				0.0	
95% Queue Length, Q ₉₅ (ft)			12.8				110.7									
Control Delay (s/veh)			12.8				38.5				7.8	0.4	0.4		8.3	0.1
Level of Service (LOS)			B				E				A	A	A		A	A
Approach Delay (s/veh)	12.8				38.5				1.2				0.4			
Approach LOS	B				E				A				A			

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD: Lane ID 272038				
1	257.0	0.30	4.0	A
2	271.0	0.30	4.1	A
3	271.0	0.30	4.2	A
4	265.0	0.30	4.3	A
5	263.0	0.30	4.4	A
6	270.0	0.30	4.6	A
7	261.0	0.30	4.0	A
8	261.0	0.30	4.4	A
9	255.0	0.30	4.3	A
10	271.0	0.30	4.0	A
Average:	264.0	0.30	4.2	A

EB T on ASHLAND RD: Lane ID 272039

1	528.0	0.60	4.1	A
2	520.0	0.70	4.6	A
3	514.0	0.60	4.2	A
4	522.0	0.60	4.4	A
5	521.0	0.60	4.2	A
6	511.0	0.60	4.6	A
7	521.0	0.60	4.4	A
8	520.0	0.60	4.2	A
9	522.0	0.60	4.1	A
10	509.0	0.60	4.1	A
Average:	518.0	0.61	4.3	A

SB R on US 30 EB EXIT RAMP: Lane ID 272214

1	130.0	0.40	11.7	B
2	129.0	0.40	11.4	B
3	131.0	0.40	10.1	B
4	130.0	0.40	11.1	B
5	133.0	0.50	13.9	B
6	130.0	0.40	9.8	A
7	129.0	0.40	11.8	B
8	129.0	0.40	11.8	B
9	133.0	0.30	9.1	A
10	131.0	0.40	11.2	B

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
Average:	130.0	0.40	11.2	B

SB T on US 30 EB EXIT RAMP: Lane ID 272208

1	251.0	0.60	8.8	A
2	249.0	0.60	8.8	A
3	246.0	0.50	7.3	A
4	253.0	0.70	9.4	A
5	249.0	0.60	8.7	A
6	252.0	0.60	8.2	A
7	251.0	0.60	9.0	A
8	252.0	0.60	8.6	A
9	252.0	0.60	8.4	A
10	251.0	0.60	8.8	A
Average:	250.0	0.60	8.6	A

WB T on ASHLAND RD (SB): Lane ID 272130

1	581.0	0.40	2.8	A
2	570.0	0.40	2.6	A
3	533.0	0.40	2.5	A
4	543.0	0.40	2.6	A
5	552.0	0.40	2.5	A
6	556.0	0.40	2.6	A
7	554.0	0.40	2.5	A
8	549.0	0.40	2.6	A
9	563.0	0.40	2.6	A
10	540.0	0.40	2.5	A
Average:	554.0	0.40	2.6	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
-----	--------------------	--------------------------	-----------------------------	------------------

EB T on ASHLAND RD (NB): Lane ID 272127

1	421.0	0.20	2.0	A
2	426.0	0.20	2.1	A
3	442.0	0.30	2.1	A
4	424.0	0.20	2.1	A
5	449.0	0.30	2.1	A
6	435.0	0.30	2.1	A
7	435.0	0.20	2.0	A
8	436.0	0.20	2.1	A
9	429.0	0.20	2.1	A
10	427.0	0.20	2.1	A
Average:	432.0	0.23	2.1	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD (NB): Lane ID 272128				
1	492.0	0.00	0.1	A
2	484.0	0.00	0.1	A
3	469.0	0.00	0.0	A
4	496.0	0.00	0.1	A
5	462.0	0.00	0.1	A
6	476.0	0.00	0.1	A
7	476.0	0.00	0.1	A
8	479.0	0.00	0.0	A
9	478.0	0.00	0.0	A
10	485.0	0.00	0.1	A
Average:	479.0	0.00	0.1	A

NB T on US 30 WB EXIT RAMP: Lane ID 272200

1	211.0	0.70	11.6	B
2	205.0	0.60	10.5	B
3	206.0	0.60	9.6	A
4	204.0	0.60	11.5	B
5	208.0	0.50	9.2	A
6	208.0	0.50	9.1	A
7	208.0	0.70	11.6	B
8	203.0	0.70	11.6	B
9	209.0	0.60	10.8	B
10	203.0	0.50	9.5	A
Average:	206.0	0.60	10.5	B

SB T on BEAL RD: Lane ID 272070

1	33.0	0.10	10.0	A
2	36.0	0.10	7.0	A
3	33.0	0.10	8.9	A
4	33.0	0.10	12.8	B
5	34.0	0.10	8.0	A
6	35.0	0.10	8.6	A
7	33.0	0.10	12.3	B
8	33.0	0.10	12.4	B
9	33.0	0.10	12.0	B
10	33.0	0.10	10.8	B
Average:	33.0	0.10	10.3	B

WB T on ASHLAND RD: Lane ID 272140

1	480.0	0.70	5.3	A
2	477.0	0.70	5.3	A
3	477.0	0.70	5.1	A

**ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL
RD -- ROUNDABOUT**

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
4	481.0	0.90	6.7	A
5	475.0	0.60	4.6	A
6	480.0	0.80	6.1	A
7	477.0	0.60	4.8	A
8	473.0	0.70	5.6	A
9	478.0	0.80	6.0	A
10	474.0	0.60	4.7	A
Average:	477.0	0.71	5.4	A

WB T on ASHLAND RD: Lane ID 272141

1	458.0	0.50	3.7	A
2	454.0	0.50	3.6	A
3	462.0	0.50	3.9	A
4	460.0	0.60	4.6	A
5	455.0	0.50	4.0	A
6	455.0	0.50	4.0	A
7	459.0	0.50	3.6	A
8	462.0	0.60	4.6	A
9	457.0	0.50	3.6	A
10	457.0	0.50	3.9	A
Average:	457.0	0.52	3.9	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Total Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.3	0.0	0.3	0.3	10
EB T	272039	ASHLAND RD	0.6	0.0	0.6	0.7	10
WB T	272130	ASHLAND RD (SB)	0.4	0.0	0.4	0.4	10
SB T	272208	US 30 EB EXIT RAMP	0.6	0.0	0.5	0.7	10
SB R	272214	US 30 EB EXIT RAMP	0.4	0.0	0.3	0.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.1	0.1	10
EB T	272127	ASHLAND RD (NB)	0.2	0.0	0.2	0.3	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
WB T	272140	ASHLAND RD	0.7	0.1	0.6	0.9	10
WB T	272141	ASHLAND RD	0.5	0.0	0.5	0.6	10
NB T	272200	US 30 WB EXIT RAMP	0.6	0.1	0.5	0.7	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Avg Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	4.2	0.2	4.0	4.6	10
EB T	272039	ASHLAND RD	4.3	0.2	4.1	4.6	10
WB T	272130	ASHLAND RD (SB)	2.6	0.1	2.5	2.8	10
SB T	272208	US 30 EB EXIT RAMP	8.6	0.6	7.3	9.4	10
SB R	272214	US 30 EB EXIT RAMP	11.2	1.3	9.1	13.9	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	10.3	2.1	7.0	12.8	10
EB T	272127	ASHLAND RD (NB)	2.1	0.0	2.0	2.1	10
EB T	272128	ASHLAND RD (NB)	0.1	0.0	0.0	0.1	10
WB T	272140	ASHLAND RD	5.4	0.7	4.6	6.7	10
WB T	272141	ASHLAND RD	3.9	0.4	3.6	4.6	10
NB T	272200	US 30 WB EXIT RAMP	10.5	1.1	9.1	11.6	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	1,747.0	2.40	4.9	A
2	1,739.0	2.40	5.0	A
3	1,695.0	2.20	4.6	A
4	1,713.0	2.40	5.0	A
5	1,718.0	2.40	5.1	A
6	1,719.0	2.30	4.9	A
7	1,716.0	2.40	4.9	A
8	1,711.0	2.30	4.9	A
9	1,725.0	2.20	4.6	A
10	1,702.0	2.30	4.8	A
Average:	1,718.5	2.33	4.9	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,095.0	2.20	3.8	A
2	2,082.0	2.10	3.6	A
3	2,089.0	2.10	3.6	A
4	2,098.0	2.50	4.3	A
5	2,083.0	2.00	3.4	A
6	2,089.0	2.20	3.8	A
7	2,088.0	2.10	3.7	A
8	2,086.0	2.30	4.1	A
9	2,084.0	2.20	3.9	A
10	2,079.0	2.00	3.5	A
Average:	2,087.3	2.17	3.7	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	2.3	0.1	2.2	2.4	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	2.2	0.1	2.0	2.5	10

Project: US.30_US.42_Study_Roundabout Option
Scenario: DY 2052 AM Peak - Roundabout Option
Run(s): Batch (10 runs)
Simulated: Various
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: Roundabout

Roundabout Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	4.9	0.2	4.6	5.1	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	3.7	0.3	3.4	4.3	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection

- Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD - Lane ID 272038						
1	119.0	3.1	0.1	18.6	1.0	0.0%
2	119.0	1.9	0.1	17.1	1.0	0.0%
3	119.0	1.4	0.1	16.0	1.0	0.0%
4	119.0	3.0	0.1	18.3	1.0	0.0%
5	119.0	2.8	0.1	16.9	1.0	0.0%
6	119.0	3.8	0.2	20.5	1.0	0.0%
7	119.0	2.5	0.1	17.8	1.0	0.0%
8	119.0	2.1	0.1	15.6	1.0	0.0%
9	119.0	3.6	0.2	21.3	1.0	0.0%
10	119.0	2.8	0.1	17.1	1.0	0.0%
Average:	119.0	2.7	0.1	17.9	1.0	0.0%

EB T on ASHLAND RD - Lane ID 272039

1	119.0	5.3	0.2	30.1	1.0	0.0%
2	119.0	4.1	0.2	29.6	1.0	0.0%
3	119.0	3.7	0.2	27.0	1.1	0.0%
4	119.0	6.2	0.3	49.4	2.0	0.0%
5	119.0	5.1	0.2	27.3	1.0	0.0%
6	119.0	6.5	0.3	45.6	1.1	0.0%
7	119.0	5.0	0.2	23.6	1.1	0.0%
8	119.0	4.6	0.2	40.6	2.0	0.0%
9	119.0	4.6	0.2	34.3	1.0	0.0%
10	119.0	5.1	0.2	36.3	2.0	0.0%
Average:	119.0	5.0	0.2	34.4	1.3	0.0%

SB R on US 30 EB EXIT RAMP - Lane ID 272214

1	119.0	5.0	0.3	26.2	1.0	0.0%
2	119.0	5.2	0.2	35.0	1.1	0.0%
3	119.0	4.3	0.2	42.3	1.1	0.0%
4	119.0	5.1	0.3	42.5	2.0	0.0%
5	119.0	7.5	0.3	45.9	2.0	0.0%
6	119.0	3.9	0.2	21.7	1.0	0.0%
7	119.0	6.3	0.3	29.3	1.1	0.0%
8	119.0	5.0	0.2	22.9	1.0	0.0%
9	119.0	3.8	0.2	19.3	1.0	0.0%

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB R on US 30 EB EXIT RAMP - Lane ID 272214						
10	119.0	5.3	0.2	36.9	2.0	0.0%
Average:	119.0	5.1	0.2	32.2	1.3	0.0%

SB T on US 30 EB EXIT RAMP - Lane ID 272208

1	119.0	10.3	0.4	63.7	3.0	0.0%
2	119.0	8.1	0.4	45.8	2.0	0.0%
3	119.0	4.7	0.2	39.7	1.1	0.0%
4	119.0	7.8	0.4	44.3	2.0	0.0%
5	119.0	7.3	0.4	46.2	2.0	0.0%
6	119.0	5.9	0.3	37.8	2.0	0.0%
7	119.0	9.1	0.4	61.9	2.1	0.0%
8	119.0	7.5	0.3	46.0	2.0	0.0%
9	119.0	7.3	0.3	49.0	2.0	0.0%
10	119.0	8.2	0.4	53.7	2.0	0.0%
Average:	119.0	7.6	0.4	48.8	2.0	0.0%

WB T on ASHLAND RD (SB) - Lane ID 272130

1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
EB T on ASHLAND RD (NB) - Lane ID 272128						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
NB T on US 30 WB EXIT RAMP - Lane ID 272200						
1	119.0	11.2	0.5	66.5	2.1	0.0%
2	119.0	11.5	0.5	67.0	2.0	0.0%
3	119.0	5.9	0.3	30.4	1.0	0.0%
4	119.0	9.1	0.4	46.4	2.0	0.0%
5	119.0	9.2	0.4	57.7	2.1	0.0%
6	119.0	5.2	0.3	25.2	1.0	0.0%
7	119.0	12.6	0.5	61.0	2.0	0.0%
8	119.0	10.3	0.4	82.0	3.0	0.0%
9	119.0	8.3	0.4	44.2	2.0	0.0%
10	119.0	6.4	0.3	33.6	1.1	0.0%
Average:	119.0	9.0	0.4	51.4	1.8	0.0%
SB T on BEAL RD - Lane ID 272070						
1	119.0	1.0	0.1	1.5	0.1	0.0%
2	119.0	1.0	0.1	0.0	0.0	0.0%
3	119.0	1.0	0.1	0.8	0.1	0.0%
4	119.0	1.8	0.1	1.6	0.1	0.0%
5	119.0	0.6	0.0	0.0	0.0	0.0%
6	119.0	1.1	0.1	14.7	1.0	0.0%
7	119.0	2.8	0.1	18.7	1.0	0.0%
8	119.0	1.7	0.1	9.1	1.0	0.0%
9	119.0	2.1	0.1	15.7	1.0	0.0%
10	119.0	1.5	0.1	9.7	1.0	0.0%
Average:	119.0	1.5	0.1	7.2	0.5	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
-----	--------------	-----------------------	---------------------	-----------------------------	----------------------------	--------------------

SB T on BEAL RD - Lane ID 272070

WB T on ASHLAND RD - Lane ID 272140

1	119.0	7.7	0.3	45.7	2.0	0.0%
2	119.0	9.8	0.4	58.2	2.1	0.0%
3	119.0	6.4	0.3	46.2	2.0	0.0%
4	119.0	14.1	0.5	84.4	3.0	0.0%
5	119.0	6.5	0.3	43.4	2.0	0.0%
6	119.0	9.3	0.3	56.2	2.0	0.0%
7	119.0	8.7	0.3	75.2	3.0	0.0%
8	119.0	7.4	0.3	48.6	2.0	0.0%
9	119.0	13.6	0.5	101.6	3.0	0.0%
10	119.0	5.3	0.2	24.1	1.0	0.0%
Average:	119.0	8.9	0.3	58.4	2.2	0.0%

WB T on ASHLAND RD - Lane ID 272141

1	119.0	4.0	0.2	28.2	1.0	0.0%
2	119.0	4.4	0.2	38.8	2.0	0.0%
3	119.0	3.1	0.1	23.9	1.0	0.0%
4	119.0	8.6	0.3	67.5	2.0	0.0%
5	119.0	5.0	0.2	42.5	2.0	0.0%
6	119.0	2.3	0.1	18.0	1.0	0.0%
7	119.0	3.4	0.2	18.7	1.0	0.0%
8	119.0	6.9	0.2	43.1	1.1	0.0%
9	119.0	3.4	0.2	19.3	1.0	0.0%
10	119.0	3.6	0.1	26.8	1.0	0.0%
Average:	119.0	4.5	0.2	32.7	1.3	0.0%

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	2.7	0.7	1.4	3.8	10
EB T	272039	ASHLAND RD	5.0	0.9	3.7	6.5	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	7.6	1.6	4.7	10.3	10
SB R	272214	US 30 EB EXIT RAMP	5.1	1.1	3.8	7.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	8.9	3.0	5.3	14.1	10
WB T	272141	ASHLAND RD	4.5	1.9	2.3	8.6	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	1.5	0.7	0.6	2.8	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	9.0	2.5	5.2	12.6	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.1	0.0	0.1	0.2	10
EB T	272039	ASHLAND RD	0.2	0.0	0.2	0.3	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.4	0.1	0.2	0.4	10
SB R	272214	US 30 EB EXIT RAMP	0.2	0.1	0.2	0.3	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.3	0.1	0.2	0.5	10
WB T	272141	ASHLAND RD	0.2	0.1	0.1	0.3	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.4	0.1	0.3	0.5	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	17.9	1.8	15.6	21.3	10
EB T	272039	ASHLAND RD	34.4	8.5	23.6	49.4	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	48.8	8.6	37.8	63.7	10
SB R	272214	US 30 EB EXIT RAMP	32.2	9.6	19.3	45.9	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	58.4	22.7	24.1	101.6	10
WB T	272141	ASHLAND RD	32.7	15.6	18.0	67.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	7.2	7.3	0.0	18.7	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	51.4	18.4	25.2	82.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	1.0	0.0	1.0	1.0	10
EB T	272039	ASHLAND RD	1.3	0.5	1.0	2.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	2.0	0.4	1.1	3.0	10
SB R	272214	US 30 EB EXIT RAMP	1.3	0.5	1.0	2.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	2.2	0.6	1.0	3.0	10
WB T	272141	ASHLAND RD	1.3	0.5	1.0	2.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.5	0.5	0.0	1.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	1.8	0.6	1.0	3.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 AM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 07:00:00 - 08:00:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Spillback Rate

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.0	0.0	0.0	0.0	10
EB T	272039	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SB R	272214	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.0	0.0	0.0	0.0	10
WB T	272141	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD: Lane ID 272038				
1	325.0	0.90	10.0	A
2	355.0	0.90	9.3	A
3	340.0	0.90	9.0	A
4	393.0	1.20	11.2	B
5	340.0	0.90	9.9	A
6	351.0	0.80	8.3	A
7	346.0	0.80	8.7	A
8	363.0	1.00	9.7	A
9	406.0	1.00	9.1	A
10	365.0	0.90	8.4	A
Average:	358.0	0.93	9.4	A

EB T on ASHLAND RD: Lane ID 272039

1	636.0	2.20	12.4	B
2	646.0	2.10	11.9	B
3	660.0	2.10	11.4	B
4	685.0	2.80	14.6	B
5	634.0	2.00	11.6	B
6	713.0	2.20	11.1	B
7	655.0	2.20	12.2	B
8	688.0	2.30	12.3	B
9	688.0	2.50	13.0	B
10	672.0	2.10	11.3	B
Average:	667.0	2.25	12.2	B

SB R on US 30 EB EXIT RAMP: Lane ID 272214

1	321.0	4.40	49.2	E
2	323.0	3.00	33.9	D
3	327.0	3.30	36.5	E
4	322.0	2.70	30.3	D
5	327.0	2.70	29.5	D
6	315.0	2.50	28.9	D
7	328.0	4.50	49.9	E
8	326.0	3.10	34.3	D
9	321.0	3.30	36.5	E
10	329.0	2.50	27.5	D

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
Average:	323.0	3.20	35.6	E

SB T on US 30 EB EXIT RAMP: Lane ID 272208

1	448.0	5.10	41.2	E
2	443.0	3.60	29.1	D
3	445.0	4.00	32.1	D
4	443.0	3.70	30.1	D
5	449.0	3.50	28.4	D
6	440.0	3.20	26.5	D
7	448.0	5.40	43.7	E
8	453.0	4.90	38.7	E
9	444.0	4.50	36.6	E
10	447.0	3.20	25.9	D
Average:	446.0	4.11	33.2	D

WB T on ASHLAND RD (SB): Lane ID 272130

1	803.0	0.70	2.9	A
2	777.0	0.70	3.1	A
3	789.0	0.70	3.1	A
4	786.0	0.70	3.1	A
5	795.0	0.70	3.1	A
6	775.0	0.70	3.1	A
7	790.0	0.70	3.2	A
8	782.0	0.60	2.9	A
9	786.0	0.70	3.1	A
10	786.0	0.70	3.1	A
Average:	786.0	0.69	3.1	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
-----	--------------------	--------------------------	-----------------------------	------------------

EB T on ASHLAND RD (NB): Lane ID 272127

1	542.0	0.30	2.2	A
2	579.0	0.40	2.3	A
3	569.0	0.40	2.3	A
4	595.0	0.40	2.4	A
5	554.0	0.30	2.3	A
6	575.0	0.30	2.2	A
7	551.0	0.30	2.2	A
8	594.0	0.40	2.2	A
9	623.0	0.40	2.3	A
10	598.0	0.40	2.3	A
Average:	578.0	0.36	2.3	A

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB T on ASHLAND RD (NB): Lane ID 272128				
1	683.0	0.00	0.1	A
2	674.0	0.00	0.2	A
3	687.0	0.00	0.2	A
4	730.0	0.00	0.1	A
5	692.0	0.00	0.1	A
6	732.0	0.00	0.1	A
7	709.0	0.00	0.2	A
8	719.0	0.00	0.1	A
9	710.0	0.00	0.1	A
10	695.0	0.00	0.1	A
Average:	703.0	0.00	0.1	A
NB T on US 30 WB EXIT RAMP: Lane ID 272200				
1	235.0	2.00	30.8	D
2	235.0	2.00	31.4	D
3	243.0	2.30	34.1	D
4	239.0	2.60	39.5	E
5	238.0	2.10	32.2	D
6	242.0	2.30	33.7	D
7	241.0	2.50	37.2	E
8	238.0	3.00	45.0	E
9	239.0	3.20	48.1	E
10	237.0	2.40	37.1	E
Average:	238.0	2.44	36.9	E
SB T on BEAL RD: Lane ID 272070				
1	35.0	0.10	9.4	A
2	31.0	0.10	7.1	A
3	34.0	0.10	6.5	A
4	33.0	0.10	7.2	A
5	32.0	0.10	8.2	A
6	34.0	0.10	6.1	A
7	31.0	0.10	9.7	A
8	33.0	0.10	8.2	A
9	31.0	0.10	7.6	A
10	31.0	0.00	4.6	A
Average:	32.0	0.09	7.4	A
WB T on ASHLAND RD: Lane ID 272140				
1	691.0	1.00	5.2	A
2	682.0	1.10	5.8	A
3	686.0	0.90	4.8	A

**ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL
RD -- ROUNDABOUT**

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
4	683.0	1.10	5.7	A
5	689.0	1.10	5.8	A
6	682.0	1.10	5.7	A
7	685.0	1.10	5.6	A
8	679.0	1.00	5.6	A
9	685.0	1.00	5.5	A
10	681.0	1.20	6.5	A
Average:	684.0	1.06	5.6	A

WB T on ASHLAND RD: Lane ID 272141

1	436.0	0.40	3.2	A
2	435.0	0.40	3.3	A
3	437.0	0.40	3.1	A
4	437.0	0.40	3.6	A
5	434.0	0.40	3.4	A
6	435.0	0.40	3.3	A
7	438.0	0.40	3.3	A
8	435.0	0.40	3.4	A
9	436.0	0.40	3.4	A
10	433.0	0.40	3.6	A
Average:	435.0	0.40	3.3	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Total Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.9	0.1	0.8	1.2	10
EB T	272039	ASHLAND RD	2.3	0.2	2.0	2.8	10
WB T	272130	ASHLAND RD (SB)	0.7	0.0	0.6	0.7	10
SB T	272208	US 30 EB EXIT RAMP	4.1	0.8	3.2	5.4	10
SB R	272214	US 30 EB EXIT RAMP	3.2	0.7	2.5	4.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.0	0.0	0.1	10
EB T	272127	ASHLAND RD (NB)	0.4	0.1	0.3	0.4	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
WB T	272140	ASHLAND RD	1.1	0.1	0.9	1.2	10
WB T	272141	ASHLAND RD	0.4	0.0	0.4	0.4	10
NB T	272200	US 30 WB EXIT RAMP	2.4	0.4	2.0	3.2	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service by Lane - Avg Control Delay

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	9.4	0.9	8.3	11.2	10
EB T	272039	ASHLAND RD	12.2	1.0	11.1	14.6	10
WB T	272130	ASHLAND RD (SB)	3.1	0.1	2.9	3.2	10
SB T	272208	US 30 EB EXIT RAMP	33.2	6.4	25.9	43.7	10
SB R	272214	US 30 EB EXIT RAMP	35.6	8.0	27.5	49.9	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Lane	Lane ID	Street Name	Average	Std Dev	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	7.4	1.5	4.6	9.7	10
EB T	272127	ASHLAND RD (NB)	2.3	0.1	2.2	2.4	10
EB T	272128	ASHLAND RD (NB)	0.1	0.0	0.1	0.2	10
WB T	272140	ASHLAND RD	5.6	0.4	4.8	6.5	10
WB T	272141	ASHLAND RD	3.3	0.2	3.1	3.6	10
NB T	272200	US 30 WB EXIT RAMP	36.9	5.8	30.8	48.1	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP -- ROUNDABOUT

NODE: 5

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,533.0	13.30	18.9	C
2	2,544.0	10.30	14.6	B
3	2,561.0	10.90	15.3	C
4	2,629.0	11.10	15.2	C
5	2,545.0	9.90	14.0	B
6	2,594.0	9.40	13.1	B
7	2,567.0	13.70	19.3	C
8	2,612.0	11.90	16.5	C
9	2,645.0	12.00	16.3	C
10	2,599.0	9.40	13.0	B
Average:	2,582.9	11.19	15.6	C

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD -- ROUNDABOUT

NODE: 8

Run	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
1	2,622.0	3.90	5.3	A
2	2,636.0	4.00	5.5	A
3	2,656.0	4.00	5.5	A
4	2,717.0	4.60	6.1	A
5	2,639.0	4.10	5.6	A
6	2,700.0	4.20	5.6	A
7	2,655.0	4.40	6.0	A
8	2,698.0	4.90	6.5	A
9	2,724.0	5.10	6.8	A
10	2,675.0	4.60	6.1	A
Average:	2,672.2	4.38	5.9	A

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Roundabout Level of Service - Total Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	11.2	1.5	9.4	13.7	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	4.4	0.4	3.9	5.1	10

Project: US.30_US.42_Study_Roundabout Option
Scenario: DY 2052 PM Peak - Roundabout Option
Run(s): Batch (10 runs)
Simulated: Various
Time: 15:15:00 - 16:15:00
Interval: Summary
Selection: Roundabout

Roundabout Level of Service - Avg Control Delay

Node ID	Intersection	Control Type	Average	Std Dev	Minimum	Maximum	# Samples
5	ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP	Roundabout	15.6	2.2	13.0	19.3	10
8	ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD	Roundabout	5.9	0.5	5.3	6.8	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection

- Overview

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD - Lane ID 272038						
1	119.0	12.8	0.5	93.5	3.0	0.0%
2	119.0	10.7	0.4	61.8	2.1	0.0%
3	119.0	17.3	0.6	82.7	3.1	0.0%
4	119.0	15.8	0.6	100.7	4.0	0.0%
5	119.0	15.8	0.6	104.9	3.1	0.0%
6	119.0	13.7	0.5	78.9	3.0	0.0%
7	119.0	9.3	0.4	66.6	2.1	0.0%
8	119.0	13.8	0.5	103.0	4.0	0.0%
9	119.0	11.3	0.4	70.1	3.0	0.0%
10	119.0	11.8	0.5	71.7	3.0	0.0%
Average:	119.0	13.2	0.5	83.4	3.0	0.0%

EB T on ASHLAND RD - Lane ID 272039

1	119.0	28.2	1.1	128.9	5.1	0.0%
2	119.0	29.6	1.1	148.0	5.0	0.0%
3	119.0	30.5	1.1	154.4	5.0	0.0%
4	119.0	36.7	1.3	178.4	6.1	0.0%
5	119.0	32.8	1.2	145.0	5.1	0.0%
6	119.0	32.2	1.2	163.8	5.1	0.0%
7	119.0	26.2	1.0	138.0	5.1	0.0%
8	119.0	32.6	1.2	133.5	5.0	0.0%
9	119.0	33.6	1.2	168.5	6.0	0.0%
10	119.0	28.7	1.1	158.4	6.0	0.0%
Average:	119.0	31.1	1.2	151.7	5.4	0.0%

SB R on US 30 EB EXIT RAMP - Lane ID 272214

1	119.0	101.0	3.8	271.1	10.0	0.0%
2	119.0	60.8	2.3	222.8	7.1	0.0%
3	119.0	60.8	2.3	184.7	7.0	0.0%
4	119.0	54.0	2.1	159.2	6.0	0.0%
5	119.0	51.1	2.0	179.9	6.0	0.0%
6	119.0	54.5	2.0	181.1	6.0	0.0%
7	119.0	87.9	3.4	253.4	9.0	0.0%
8	119.0	58.3	2.3	180.9	7.0	0.0%
9	119.0	68.5	2.6	203.3	7.0	0.0%

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
SB R on US 30 EB EXIT RAMP - Lane ID 272214						
10	119.0	49.1	2.0	181.4	6.1	0.0%
Average:	119.0	64.6	2.5	201.8	7.1	0.0%

SB T on US 30 EB EXIT RAMP - Lane ID 272208

1	119.0	91.7	3.5	279.7	10.0	0.0%
2	119.0	65.2	2.5	225.6	8.1	0.0%
3	119.0	68.5	2.6	228.9	9.0	0.0%
4	119.0	67.9	2.6	240.6	9.0	0.0%
5	119.0	66.6	2.6	210.7	8.0	0.0%
6	119.0	63.1	2.4	221.6	8.0	0.0%
7	119.0	111.4	4.1	393.3	13.2	0.0%
8	119.0	87.9	3.3	345.5	12.0	0.0%
9	119.0	80.5	3.0	233.4	9.0	0.0%
10	119.0	55.4	2.2	182.1	7.0	0.0%
Average:	119.0	75.8	2.9	256.1	9.3	0.0%

WB T on ASHLAND RD (SB) - Lane ID 272130

1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
EB T on ASHLAND RD (NB) - Lane ID 272127						
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
EB T on ASHLAND RD (NB) - Lane ID 272128						
1	119.0	0.0	0.0	0.0	0.0	0.0%
2	119.0	0.0	0.0	0.0	0.0	0.0%
3	119.0	0.0	0.0	0.0	0.0	0.0%
4	119.0	0.0	0.0	0.0	0.0	0.0%
5	119.0	0.0	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	0.0	0.0	0.0	0.0	0.0%
8	119.0	0.0	0.0	0.0	0.0	0.0%
9	119.0	0.0	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.0	0.0	0.0	0.0	0.0%
NB T on US 30 WB EXIT RAMP - Lane ID 272200						
1	119.0	38.1	1.4	143.2	5.0	0.0%
2	119.0	45.3	1.8	166.2	6.0	0.0%
3	119.0	44.7	1.8	145.2	6.0	0.0%
4	119.0	54.9	2.2	165.6	6.0	0.0%
5	119.0	42.0	1.6	197.2	6.1	0.0%
6	119.0	49.1	2.0	149.7	6.0	0.0%
7	119.0	46.0	1.8	221.2	9.0	0.0%
8	119.0	61.7	2.4	244.7	9.1	0.0%
9	119.0	63.7	2.5	224.8	8.1	0.0%
10	119.0	55.1	2.2	216.8	8.0	0.0%
Average:	119.0	50.1	2.0	187.5	6.9	0.0%
SB T on BEAL RD - Lane ID 272070						
1	119.0	1.0	0.1	0.0	0.0	0.0%
2	119.0	0.6	0.0	0.0	0.0	0.0%
3	119.0	0.4	0.0	0.0	0.0	0.0%
4	119.0	0.6	0.0	0.0	0.0	0.0%
5	119.0	0.4	0.0	0.0	0.0	0.0%
6	119.0	0.0	0.0	0.0	0.0	0.0%
7	119.0	1.2	0.1	1.4	0.1	0.0%
8	119.0	1.4	0.1	0.0	0.0	0.0%
9	119.0	0.5	0.0	0.0	0.0	0.0%
10	119.0	0.0	0.0	0.0	0.0	0.0%
Average:	119.0	0.6	0.0	0.1	0.0	0.0%

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Run	Observations	Avg Queue Length (ft)	Avg Vehicles Queued	95th Percentile Length (ft)	95th Percentile Num Queued	Spillback Rate (%)
-----	--------------	-----------------------	---------------------	-----------------------------	----------------------------	--------------------

SB T on BEAL RD - Lane ID 272070

WB T on ASHLAND RD - Lane ID 272140

1	119.0	7.4	0.3	54.9	2.0	0.0%
2	119.0	10.4	0.4	85.3	3.0	0.0%
3	119.0	8.6	0.3	46.2	2.0	0.0%
4	119.0	10.9	0.4	80.3	2.1	0.0%
5	119.0	10.5	0.4	53.5	2.1	0.0%
6	119.0	6.6	0.3	43.8	2.0	0.0%
7	119.0	7.2	0.3	53.0	2.0	0.0%
8	119.0	6.5	0.3	43.4	2.0	0.0%
9	119.0	7.7	0.3	51.0	2.0	0.0%
10	119.0	14.4	0.5	92.8	3.0	0.0%
Average:	119.0	9.0	0.4	60.4	2.2	0.0%

WB T on ASHLAND RD - Lane ID 272141

1	119.0	2.3	0.1	16.3	1.0	0.0%
2	119.0	2.2	0.1	6.5	1.0	0.0%
3	119.0	2.4	0.1	16.1	1.0	0.0%
4	119.0	3.1	0.1	19.5	1.0	0.0%
5	119.0	1.6	0.1	15.0	1.0	0.0%
6	119.0	1.3	0.1	0.0	0.0	0.0%
7	119.0	1.6	0.1	1.8	0.1	0.0%
8	119.0	2.2	0.1	16.6	1.0	0.0%
9	119.0	1.5	0.1	0.0	0.0	0.0%
10	119.0	3.5	0.1	18.9	1.0	0.0%
Average:	119.0	2.2	0.1	11.1	0.7	0.0%

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	13.2	2.5	9.3	17.3	10
EB T	272039	ASHLAND RD	31.1	3.1	26.2	36.7	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	75.8	16.9	55.4	111.4	10
SB R	272214	US 30 EB EXIT RAMP	64.6	17.0	49.1	101.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	9.0	2.5	6.5	14.4	10
WB T	272141	ASHLAND RD	2.2	0.7	1.3	3.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.6	0.5	0.0	1.4	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	50.1	8.5	38.1	63.7	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Avg Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.5	0.1	0.4	0.6	10
EB T	272039	ASHLAND RD	1.2	0.1	1.0	1.3	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	2.9	0.6	2.2	4.1	10
SB R	272214	US 30 EB EXIT RAMP	2.5	0.6	2.0	3.8	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.4	0.1	0.3	0.5	10
WB T	272141	ASHLAND RD	0.1	0.0	0.1	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	2.0	0.4	1.4	2.5	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Queue

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	83.4	16.1	61.8	104.9	10
EB T	272039	ASHLAND RD	151.7	16.0	128.9	178.4	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	256.1	65.4	182.1	393.3	10
SB R	272214	US 30 EB EXIT RAMP	201.8	36.2	159.2	271.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	60.4	18.4	43.4	92.8	10
WB T	272141	ASHLAND RD	11.1	8.0	0.0	19.5	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.1	0.4	0.0	1.4	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	187.5	37.8	143.2	244.7	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Percentile Num Queued

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	3.0	0.6	2.1	4.0	10
EB T	272039	ASHLAND RD	5.4	0.5	5.0	6.1	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	9.3	1.9	7.0	13.2	10
SB R	272214	US 30 EB EXIT RAMP	7.1	1.4	6.0	10.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	2.2	0.4	2.0	3.0	10
WB T	272141	ASHLAND RD	0.7	0.5	0.0	1.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.1	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	6.9	1.5	5.0	9.1	10

Project: US.30_US.42_Study_Roundabout Option
 Scenario: DY 2052 PM Peak - Roundabout Option
 Run(s): Batch (10 runs)
 Simulated: Various
 Time: 15:15:00 - 16:15:00
 Interval: Summary
 Selection: Roundabout

Lane Queue by Intersection - Spillback Rate

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272038	ASHLAND RD	0.0	0.0	0.0	0.0	10
EB T	272039	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272130	ASHLAND RD (SB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB) & US 30 EB ENTRANCE RAMP

NODE: 5

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272208	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10
SB R	272214	US 30 EB EXIT RAMP	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
WB T	272140	ASHLAND RD	0.0	0.0	0.0	0.0	10
WB T	272141	ASHLAND RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
EB T	272127	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10
EB T	272128	ASHLAND RD (NB)	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
SB T	272070	BEAL RD	0.0	0.0	0.0	0.0	10

ASHLAND RD (NB), US 30 WB EXIT RAMP, US 30 WB ENTRANCE RAMP & BEAL RD

NODE: 8

Movements	Lane ID	Street Name	Average	Std Deviation	Minimum	Maximum	# Samples
NB T	272200	US 30 WB EXIT RAMP	0.0	0.0	0.0	0.0	10

**ATTACHMENT C
FREEWAY CAPACITY ANALYSIS**

OPENING YEAR 2032 'NO-BUILD' CONDITIONS

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 WB US 42 Off Ramp	1500	2
7	Diverge	Diverge	EB US 30 EB US 42 Off Ramp	1500	2
8	Basic	Basic	EB US 30 MM 14.1	825	2
9	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	EB US 30 MM 15.0	1520	2
11	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
12	Basic	Basic	EB US 30 @ Laver Road	1650	2
13	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
14	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1410	4586	0.31	59.3	11.9	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.847	1410	126	4500	1900	0.31	0.07	49.5	49.5	14.2	14.6	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1277	4586	0.28	58.5	10.8	A

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	1313	36	4500	1900	0.29	0.02	54.1	54.1	12.1	11.4	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1359		4586		0.30		58.9		11.5		B
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1359	129	4500	2000	0.30	0.06	51.7	51.7	13.1	10.4	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.980	1194	239	4500	1900	0.27	0.13	50.4	50.4	11.8	12.3	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		892		4586		0.19		57.9		7.5		A
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	998	106	4500	2000	0.22	0.05	54.7	54.7	9.1	7.5	A
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1030		4586		0.22		58.9		8.7		A
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1030	64	4500	1900	0.23	0.03	50.7	50.7	10.2	8.2	A
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		947		4586		0.21		58.6		8.0		A
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	1.000	990	43	4500	2000	0.22	0.02	54.7	54.7	9.0	7.3	A
---	------	------	-------	-------	-----	----	------	------	------	------	------	------	-----	-----	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	964	4586	0.21	58.5	8.1	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	812	766	1.15	28.69	54.7	10.6	8.3	3.90	A

Facility Overall Results

Space Mean Speed, mi/h	54.7	Average Density, veh/mi/ln	8.3
Average Travel Time, min	3.90	Average Density, pc/mi/ln	10.6
Total VMT, veh-mi/AP	812	Total VHD, veh-h	1.15
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	28.69

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 WB US 42 Off Ramp	1500	2
7	Diverge	Diverge	EB US 30 EB US 42 Off Ramp	1500	2
8	Basic	Basic	EB US 30 MM 14.1	825	2
9	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	EB US 30 MM 15.0	1520	2
11	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
12	Basic	Basic	EB US 30 @ Laver Road	1650	2
13	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
14	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2460	4586	0.54	59.3	20.7	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.847	2460	214	4500	1900	0.55	0.11	49.3	49.3	24.9	23.6	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2234	4586	0.49	58.4	18.8	C

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	2307	73	4500	1900	0.51	0.04	53.7	53.7	21.5	19.1	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		2388		4586		0.52		58.9		20.1		C
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2388	322	4500	2000	0.53	0.16	51.4	51.4	23.2	19.3	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.980	1977	434	4500	1900	0.44	0.23	50.1	50.1	19.7	19.0	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1428		4586		0.31		57.9		12.0		B
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1619	191	4500	2000	0.36	0.10	54.5	54.5	14.9	12.4	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1675		4586		0.37		58.9		14.1		B
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1675	193	4500	1900	0.37	0.10	50.5	50.5	16.6	13.7	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1428		4586		0.31		58.6		12.0		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	1.000	1460	32	4500	2000	0.32	0.02	54.6	54.6	13.4	11.0	B
---	------	------	-------	-------	------	----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1412	4586	0.31	58.5	11.9	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1355	1278	2.01	50.25	54.5	17.7	13.8	3.90	B

Facility Overall Results

Space Mean Speed, mi/h	54.5	Average Density, veh/mi/ln	13.8
Average Travel Time, min	3.90	Average Density, pc/mi/ln	17.7
Total VMT, veh-mi/AP	1355	Total VHD, veh-h	2.01
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	50.25

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 EB US 42 Off Ramp	1500	2
7	Diverge	Diverge	WB US 30 WB US 42 Off Ramp	1500	2
8	Basic	Basic	WB US 30 MM 14.0	840	2
9	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	WB US 30 MM 13.5	1200	2
11	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
12	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
13	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
14	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1096	4592	0.24	59.6	9.2	A

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1096	11	4500	2000	0.24	0.01	52.0	52.0	10.5	9.4	A

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1082	4592	0.24	59.0	9.1	A

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1220	138	4500	2000	0.27	0.07	54.8	54.8	11.1	9.4	A
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1304		4592		0.28		59.2		10.9		A
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1304	48	4500	2000	0.29	0.02	52.0	52.0	12.5	11.7	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1249	107	4500	2000	0.28	0.05	51.9	51.9	12.0	12.8	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1112		4592		0.24		58.4		9.3		A
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	1782	670	4500	2000	0.40	0.34	54.6	54.6	16.3	13.7	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1935		4592		0.42		59.0		16.2		B
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	1935	85	4500	2000	0.43	0.04	51.9	51.9	18.6	15.9	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1867		4592		0.41		59.2		15.7		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	0.847	1993	126	4500	2000	0.44	0.06	54.1	54.1	18.4	17.6	B
---	------	------	-------	-------	------	-----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1941	4592	0.42	58.3	16.3	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1082	1028	1.28	31.90	55.7	13.2	10.4	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	55.7	Average Density, veh/mi/ln	10.4
Average Travel Time, min	4.00	Average Density, pc/mi/ln	13.2
Total VMT, veh-mi/AP	1082	Total VHD, veh-h	1.28
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	31.90

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 EB US 42 Off Ramp	1500	2
7	Diverge	Diverge	WB US 30 WB US 42 Off Ramp	1500	2
8	Basic	Basic	WB US 30 MM 14.0	840	2
9	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	WB US 30 MM 13.5	1200	2
11	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
12	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
13	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
14	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1162	4592	0.25	59.6	9.7	A

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1162	46	4500	2000	0.26	0.02	52.0	52.0	11.2	10.0	A

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1109	4592	0.24	59.0	9.3	A

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1226	117	4500	2000	0.27	0.06	54.8	54.8	11.2	9.4	A
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1304		4592		0.28		59.2		10.9		A
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1304	48	4500	2000	0.29	0.02	52.0	52.0	12.5	11.7	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1249	129	4500	2000	0.28	0.06	51.9	51.9	12.0	12.8	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1084		4592		0.24		58.4		9.1		A
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	1676	592	4500	2000	0.37	0.30	54.7	54.7	15.3	12.9	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1812		4592		0.39		59.0		15.2		B
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	1812	68	4500	2000	0.40	0.03	52.0	52.0	17.4	14.9	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1757		4592		0.38		59.2		14.7		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	0.847	1933	176	4500	2000	0.43	0.09	54.2	54.2	17.8	17.1	B
---	------	------	-------	-------	------	-----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1888	4592	0.41	58.3	15.8	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1061	1006	1.24	31.03	55.7	13.0	10.1	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	55.7	Average Density, veh/mi/ln	10.1
Average Travel Time, min	4.00	Average Density, pc/mi/ln	13.0
Total VMT, veh-mi/AP	1061	Total VHD, veh-h	1.24
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	31.03

OPENING YEAR 2032 'BUILD' CONDITIONS

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	EB US 30 MM 14.0	2325	2
8	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	EB US 30 MM 15.0	1520	2
10	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
11	Basic	Basic	EB US 30 @ Laver Road	1650	2
12	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
13	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1410	4600	0.31	60.0	11.8	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.962	1410	111	4600	1900	0.31	0.06	49.8	49.8	14.2	14.6	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1277	4600	0.28	59.1	10.6	A

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	1313	36	4600	1900	0.29	0.02	54.6	54.6	12.0	11.4	B

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1359	4600	0.30	59.6	11.3	B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1359	365	4600	2000	0.30	0.18	51.7	51.7	13.1	10.4	B

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	892	4600	0.19	59.6	7.4	A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1009	117	4600	2000	0.22	0.06	55.2	55.2	9.1	7.6	A

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1043	4600	0.23	59.6	8.7	A

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1043	64	4600	1900	0.23	0.03	51.0	51.0	10.2	8.3	A

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	961	4600	0.21	59.3	8.0	A

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1004	43	4600	2000	0.22	0.02	55.2	55.2	9.1	7.4	A

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	977	4600	0.21	59.2	8.1	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	799	754	0.99	24.63	55.9	10.2	8.0	3.80	A

Facility Overall Results

Space Mean Speed, mi/h	55.9	Average Density, veh/mi/ln	8.0
Average Travel Time, min	3.80	Average Density, pc/mi/ln	10.2
Total VMT, veh-mi/AP	799	Total VHD, veh-h	0.99
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	24.63

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	EB US 30 MM 14.0	2325	2
8	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	EB US 30 MM 15.0	1520	2
10	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
11	Basic	Basic	EB US 30 @ Laver Road	1650	2
12	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
13	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2447	4600	0.53	60.0	20.4	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.962	2447	188	4600	1900	0.53	0.10	49.6	49.6	24.7	23.5	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2221	4600	0.48	59.1	18.5	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	2294	73	4600	1900	0.50	0.04	54.2	54.2	21.2	19.0	B

Segment 5: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		2375		4600		0.52		59.6		19.8		C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2375	763	4600	2000	0.52	0.38	51.1	51.1	23.2	19.1	B

Segment 7: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1400		4600		0.30		59.6		11.7		B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1602	202	4600	2000	0.35	0.10	55.0	55.0	14.6	12.2	B

Segment 9: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1661		4600		0.36		59.6		13.8		B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1661	193	4600	1900	0.36	0.10	50.8	50.8	16.3	13.6	B

Segment 11: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1414		4600		0.31		59.3		11.8		B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1446	32	4600	2000	0.31	0.02	55.1	55.1	13.1	10.9	B

Segment 13: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.806		1399		4600		0.30		59.1		11.7		B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1314	1239	1.73	43.14	55.6	16.8	13.2	3.90	B

Facility Overall Results

Space Mean Speed, mi/h	55.6	Average Density, veh/mi/ln	13.2
Average Travel Time, min	3.90	Average Density, pc/mi/ln	16.8
Total VMT, veh-mi/AP	1314	Total VHD, veh-h	1.73
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	43.14

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	WB US 30 MM 14.0	2340	2
8	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	WB US 30 MM 13.5	1200	2
10	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
11	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
12	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
13	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1162	4604	0.25	60.2	9.7	A

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1162	11	4600	2000	0.25	0.01	52.4	52.4	11.1	10.0	A

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1148	4604	0.25	59.6	9.5	A

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1286	138	4600	2000	0.28	0.07	55.2	55.2	11.6	9.9	A

Segment 5: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1373		4604		0.30		59.8		11.4		B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1373	143	4600	2000	0.30	0.07	52.2	52.2	13.2	13.9	B

Segment 7: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1208		4604		0.26		59.8		10.0		A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	1901	693	4600	2000	0.41	0.35	55.0	55.0	17.3	14.6	B

Segment 9: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		2059		4604		0.45		59.6		17.1		B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	2059	85	4600	2000	0.45	0.04	52.3	52.3	19.7	17.0	B

Segment 11: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1990		4604		0.43		59.8		16.5		B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.847	2116	126	4600	2000	0.46	0.06	54.5	54.5	19.4	18.5	B

Segment 13: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.800		2061		4604		0.45		58.8		17.1		B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1143	1085	1.19	29.78	56.7	13.7	10.8	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	56.7	Average Density, veh/mi/ln	10.8
Average Travel Time, min	4.00	Average Density, pc/mi/ln	13.7
Total VMT, veh-mi/AP	1143	Total VHD, veh-h	1.19
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	29.78

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2032 'Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	WB US 30 MM 14.0	2340	2
8	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	WB US 30 MM 13.5	1200	2
10	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
11	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
12	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
13	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1227	4604	0.27	60.2	10.2	A

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1227	46	4600	2000	0.27	0.02	52.3	52.3	11.7	10.5	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1175	4604	0.26	59.5	9.8	A

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1292	117	4600	2000	0.28	0.06	55.2	55.2	11.7	9.9	A

Segment 5: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1373		4604		0.30		59.8		11.4		B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1373	191	4600	2000	0.30	0.10	52.1	52.1	13.2	13.9	B

Segment 7: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1153		4604		0.25		59.8		9.6		A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	1768	615	4600	2000	0.38	0.31	55.0	55.0	16.1	13.6	B

Segment 9: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1908		4604		0.41		59.6		15.8		B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	1908	68	4600	2000	0.41	0.03	52.3	52.3	18.2	15.7	B

Segment 11: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1853		4604		0.40		59.8		15.4		B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.847	2029	176	4600	2000	0.44	0.09	54.5	54.5	18.6	17.8	B

Segment 13: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.800		1981		4604		0.43		58.8		16.4		B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1109	1052	1.16	29.07	56.6	13.3	10.4	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	56.6	Average Density, veh/mi/ln	10.4
Average Travel Time, min	4.00	Average Density, pc/mi/ln	13.3
Total VMT, veh-mi/AP	1109	Total VHD, veh-h	1.16
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	29.07

DESIGN YEAR 2052 'NO-BUILD' CONDITIONS

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 WB US 42 Off Ramp	1500	2
7	Diverge	Diverge	EB US 30 EB US 42 Off Ramp	1500	2
8	Basic	Basic	EB US 30 MM 14.1	825	2
9	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	EB US 30 MM 15.0	1520	2
11	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
12	Basic	Basic	EB US 30 @ Laver Road	1650	2
13	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
14	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1609	4586	0.35	59.3	13.6	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.847	1609	151	4500	1900	0.36	0.08	49.4	49.4	16.3	16.3	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1449	4586	0.32	58.4	12.2	B

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	1498	49	4500	1900	0.33	0.03	54.1	54.1	13.8	12.8	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1551		4586		0.34		58.9		13.1		B
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1551	129	4500	2000	0.34	0.06	51.7	51.7	15.0	12.1	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.980	1386	239	4500	1900	0.31	0.13	50.4	50.4	13.8	13.9	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1084		4586		0.24		57.9		9.1		A
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1233	149	4500	2000	0.27	0.07	54.6	54.6	11.3	9.4	A
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1277		4586		0.28		58.9		10.8		A
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1277	86	4500	1900	0.28	0.05	50.6	50.6	12.6	10.3	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1167		4586		0.25		58.6		9.8		A
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	1.000	1220	53	4500	2000	0.27	0.03	54.7	54.7	11.2	9.1	A
---	------	------	-------	-------	------	----	------	------	------	------	------	------	------	-----	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1188	4586	0.26	58.5	10.0	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	958	904	1.36	33.90	54.7	12.5	9.8	3.90	B

Facility Overall Results

Space Mean Speed, mi/h	54.7	Average Density, veh/mi/ln	9.8
Average Travel Time, min	3.90	Average Density, pc/mi/ln	12.5
Total VMT, veh-mi/AP	958	Total VHD, veh-h	1.36
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	33.90

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 WB US 42 Off Ramp	1500	2
7	Diverge	Diverge	EB US 30 EB US 42 Off Ramp	1500	2
8	Basic	Basic	EB US 30 MM 14.1	825	2
9	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	EB US 30 MM 15.0	1520	2
11	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
12	Basic	Basic	EB US 30 @ Laver Road	1650	2
13	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
14	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2926	4586	0.64	59.3	24.7	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.847	2926	251	4500	1900	0.65	0.13	49.2	49.2	29.7	27.6	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2660	4586	0.58	58.4	22.4	C

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	2745	85	4500	1900	0.61	0.04	53.3	53.3	25.8	22.5	C
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		2841		4586		0.62		58.9		23.9		C
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2841	322	4500	2000	0.63	0.16	51.4	51.4	27.6	23.1	C
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.980	2430	434	4500	1900	0.54	0.23	50.1	50.1	24.3	22.9	C
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1881		4586		0.41		57.9		15.9		B
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	2136	255	4500	2000	0.47	0.13	54.3	54.3	19.7	16.4	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		2210		4586		0.48		58.9		18.6		C
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2210	258	4500	1900	0.49	0.14	50.4	50.4	21.9	18.3	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1881		4586		0.41		58.6		15.9		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	1.000	1924	43	4500	2000	0.43	0.02	54.4	54.4	17.7	14.6	B
---	------	------	-------	-------	------	----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1861	4586	0.41	58.4	15.7	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1684	1587	2.53	63.25	54.5	22.0	17.2	3.90	C

Facility Overall Results

Space Mean Speed, mi/h	54.5	Average Density, veh/mi/ln	17.2
Average Travel Time, min	3.90	Average Density, pc/mi/ln	22.0
Total VMT, veh-mi/AP	1684	Total VHD, veh-h	2.53
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	63.25

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 EB US 42 Off Ramp	1500	2
7	Diverge	Diverge	WB US 30 WB US 42 Off Ramp	1500	2
8	Basic	Basic	WB US 30 MM 14.0	840	2
9	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	WB US 30 MM 13.5	1200	2
11	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
12	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
13	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
14	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1333	4592	0.29	59.6	11.2	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1333	11	4500	2000	0.30	0.01	52.0	52.0	12.8	11.4	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1320	4592	0.29	59.0	11.1	B

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1501	181	4500	2000	0.33	0.09	54.8	54.8	13.7	11.5	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1606		4592		0.35		59.2		13.5		B
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1606	60	4500	2000	0.36	0.03	52.0	52.0	15.4	14.3	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1537	129	4500	2000	0.34	0.06	51.9	51.9	14.8	15.3	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1373		4592		0.30		58.4		11.5		B
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	2055	682	4500	2000	0.46	0.34	54.5	54.5	18.9	15.8	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		2210		4592		0.48		59.0		18.5		C
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	2210	101	4500	2000	0.49	0.05	51.9	51.9	21.3	18.3	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		2128		4592		0.46		59.2		17.9		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	0.847	2279	151	4500	2000	0.51	0.08	54.0	54.0	21.1	19.8	B
---	------	------	-------	-------	------	-----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2221	4592	0.48	58.3	18.6	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1280	1215	1.52	38.04	55.7	15.7	12.3	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	55.7	Average Density, veh/mi/ln	12.3
Average Travel Time, min	4.00	Average Density, pc/mi/ln	15.7
Total VMT, veh-mi/AP	1281	Total VHD, veh-h	1.52
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	38.04

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'No-Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	14
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 EB US 42 Off Ramp	1500	2
7	Diverge	Diverge	WB US 30 WB US 42 Off Ramp	1500	2
8	Basic	Basic	WB US 30 MM 14.0	840	2
9	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
10	Basic	Basic	WB US 30 MM 13.5	1200	2
11	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
12	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
13	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
14	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1346	4592	0.29	59.6	11.3	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1346	57	4500	2000	0.30	0.03	52.0	52.0	12.9	11.6	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1280	4592	0.28	59.0	10.7	A

Segment 4: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1440	160	4500	2000	0.32	0.08	54.8	54.8	13.1	11.1	B
Segment 5: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1537		4592		0.33		59.2		12.9		B
Segment 6: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1537	60	4500	2000	0.34	0.03	52.0	52.0	14.8	13.7	B
Segment 7: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1469	172	4500	2000	0.33	0.09	51.8	51.8	14.2	14.7	B
Segment 8: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1249		4592		0.27		58.4		10.5		A
Segment 9: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	1841	592	4500	2000	0.41	0.30	54.6	54.6	16.9	14.1	B
Segment 10: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1977		4592		0.43		59.0		16.6		B
Segment 11: Diverge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	1977	68	4500	2000	0.44	0.03	52.0	52.0	19.0	16.3	B
Segment 12: Basic															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94		0.775		1922		4592		0.42		59.2		16.1		B
Segment 13: Merge															
AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	

1	0.94	0.94	0.775	0.847	2123	201	4500	2000	0.47	0.10	54.1	54.1	19.6	18.6	B
---	------	------	-------	-------	------	-----	------	------	------	------	------	------	------	------	---

Segment 14: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2074	4592	0.45	58.3	17.4	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1199	1138	1.42	35.48	55.7	14.7	11.5	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	55.7	Average Density, veh/mi/ln	11.5
Average Travel Time, min	4.00	Average Density, pc/mi/ln	14.7
Total VMT, veh-mi/AP	1199	Total VHD, veh-h	1.42
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	35.48

DESIGN YEAR 2052 'BUILD' CONDITIONS

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	EB US 30 MM 14.0	2325	2
8	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	EB US 30 MM 15.0	1520	2
10	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
11	Basic	Basic	EB US 30 @ Laver Road	1650	2
12	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
13	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1676	4600	0.36	60.0	14.0	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.962	1676	144	4600	1900	0.36	0.08	49.7	49.7	16.9	16.9	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	1503	4600	0.33	59.1	12.5	B

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	1552	49	4600	1900	0.34	0.03	54.5	54.5	14.2	13.2	B

Segment 5: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1606		4600		0.35		59.6		13.4		B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1606	376	4600	2000	0.35	0.19	51.7	51.7	15.5	12.5	B

Segment 7: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1126		4600		0.24		59.6		9.4		A

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1286	160	4600	2000	0.28	0.08	55.1	55.1	11.7	9.8	A

Segment 9: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1332		4600		0.29		59.6		11.1		B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	1332	86	4600	1900	0.29	0.05	51.0	51.0	13.1	10.8	B

Segment 11: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.775		1222		4600		0.27		59.3		10.2		A

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1275	53	4600	2000	0.28	0.03	55.2	55.2	11.5	9.5	A

Segment 13: Basic

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
1	0.94		0.806		1241		4600		0.27		59.2		10.3		A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	980	924	1.21	30.24	55.9	12.5	9.8	3.80	B

Facility Overall Results

Space Mean Speed, mi/h	55.9	Average Density, veh/mi/ln	9.8
Average Travel Time, min	3.80	Average Density, pc/mi/ln	12.5
Total VMT, veh-mi/AP	980	Total VHD, veh-h	1.21
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	30.24

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	EB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.57		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	EB US 30 MM 12.5	375	2
2	Diverge	Diverge	EB US 30 5th Avenue Off Ramp	1500	2
3	Basic	Basic	EB US 30 @ 5th Avenue	1530	2
4	Merge	Merge	EB US 30 5th Avenue On Ramp	1500	2
5	Basic	Basic	EB US 30 MM 13.5	1830	2
6	Diverge	Diverge	EB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	EB US 30 MM 14.0	2325	2
8	Merge	Merge	EB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	EB US 30 MM 15.0	1520	2
10	Diverge	Diverge	EB US 30 Laver Road Off Ramp	1500	2
11	Basic	Basic	EB US 30 @ Laver Road	1650	2
12	Merge	Merge	EB US 30 Laver Road On Ramp	1500	2
13	Basic	Basic	EB US 30 MM 16.0	640	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2859	4600	0.62	60.0	23.8	C

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.962	2859	243	4600	1900	0.62	0.13	49.6	49.6	28.8	27.0	C

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2566	4600	0.56	59.1	21.4	C

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.800	0.877	2663	97	4600	1900	0.58	0.05	53.8	53.8	24.7	21.9	C

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2759	4600	0.60	59.6	23.0	C

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2759	763	4600	2000	0.60	0.38	51.1	51.1	27.0	22.4	C

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1784	4600	0.39	59.6	14.9	B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	2050	266	4600	2000	0.45	0.13	54.8	54.8	18.7	15.7	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2128	4600	0.46	59.5	17.7	B

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.990	2128	258	4600	1900	0.46	0.14	50.7	50.7	21.0	17.6	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1798	4600	0.39	59.3	15.0	B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	1.000	1841	43	4600	2000	0.40	0.02	55.0	55.0	16.7	13.9	B

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1782	4600	0.39	59.1	14.8	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1595	1504	2.11	52.83	55.6	20.4	16.0	3.90	C

Facility Overall Results

Space Mean Speed, mi/h	55.6	Average Density, veh/mi/ln	16.0
Average Travel Time, min	3.90	Average Density, pc/mi/ln	20.4
Total VMT, veh-mi/AP	1595	Total VHD, veh-h	2.11
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	52.83

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'Build'
Jurisdiction	Madison Township	Time Analyzed	AM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.75		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1575	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1580	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	WB US 30 MM 14.0	2340	2
8	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	WB US 30 MM 13.5	1200	2
10	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
11	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
12	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
13	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1505	4604	0.33	60.2	12.5	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1505	11	4600	2000	0.33	0.01	52.4	52.4	14.4	12.9	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1491	4604	0.32	59.6	12.4	B

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1672	181	4600	2000	0.36	0.09	55.1	55.1	15.2	12.9	B

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1784	4604	0.39	59.8	14.8	B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1784	214	4600	2000	0.39	0.11	52.1	52.1	17.1	17.4	B

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1537	4604	0.33	59.8	12.8	B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	2275	738	4600	2000	0.49	0.37	54.8	54.8	20.8	17.5	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2443	4604	0.53	59.6	20.3	C

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	2443	101	4600	2000	0.53	0.05	52.2	52.2	23.4	20.3	C

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2361	4604	0.51	59.8	19.6	C

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.847	2524	163	4600	2000	0.55	0.08	54.2	54.2	23.3	21.7	C

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2460	4604	0.53	58.8	20.4	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1421	1347	1.51	37.87	56.6	17.0	13.4	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	56.6	Average Density, veh/mi/ln	13.4
Average Travel Time, min	4.00	Average Density, pc/mi/ln	17.0
Total VMT, veh-mi/AP	1421	Total VHD, veh-h	1.51
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	37.87

HCS Freeway Facilities Report

Project Information

Analyst	Ryan Barco	Date	11/8/2024
Agency	GPD Group	Analysis Year	2052 'Build'
Jurisdiction	Madison Township	Time Analyzed	PM Peak Hour
Facility Name	WB US Route 30	Units	U.S. Customary
Project Description	US 30 & US 42 Planning Study		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45
Queue Discharge Capacity Drop, %	7	Total Segments	13
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	3.74		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	WB US 30 MM 16.0	1605	2
2	Diverge	Diverge	WB US 30 Laver Road Off Ramp	1500	2
3	Basic	Basic	WB US 30 @ Laver Road	1580	2
4	Merge	Merge	WB US 30 Laver Road On Ramp	1500	2
5	Basic	Basic	WB US 30 MM 15.0	1575	2
6	Diverge	Diverge	WB US 30 US 42 Off Ramp	1500	2
7	Basic	Basic	WB US 30 MM 14.0	2340	2
8	Merge	Merge	WB US 30 US 42 On Ramp	1500	2
9	Basic	Basic	WB US 30 MM 13.5	1200	2
10	Diverge	Diverge	WB US 30 5th Avenue Off Ramp	1500	2
11	Basic	Basic	WB US 30 @ 5th Avenue	2165	2
12	Merge	Merge	WB US 30 5th Avenue On Ramp	1500	2
13	Basic	Basic	WB US 30 MM 12.5	265	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1544	4604	0.34	60.2	12.8	B

Segment 2: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	0.935	1544	57	4600	2000	0.34	0.03	52.3	52.3	14.8	13.3	B

Segment 3: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.806	1478	4604	0.32	59.5	12.3	B

Segment 4: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.806	1.000	1638	160	4600	2000	0.36	0.08	55.1	55.1	14.9	12.6	B

Segment 5: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1743	4604	0.38	59.8	14.5	B

Segment 6: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.893	1743	250	4600	2000	0.38	0.13	52.0	52.0	16.8	17.1	B

Segment 7: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	1455	4604	0.32	59.8	12.1	B

Segment 8: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.952	2092	637	4600	2000	0.45	0.32	54.9	54.9	19.1	16.1	B

Segment 9: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2237	4604	0.49	59.6	18.6	C

Segment 10: Diverge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.629	2237	85	4600	2000	0.49	0.04	52.3	52.3	21.4	18.5	B

Segment 11: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.775	2169	4604	0.47	59.8	18.0	B

Segment 12: Merge

AP	PHF		fHV		Volume Served (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.775	0.847	2395	226	4600	2000	0.52	0.11	54.3	54.3	22.1	20.7	C

Segment 13: Basic

AP	PHF	fHV	Volume Served (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.800	2340	4604	0.51	58.8	19.4	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost \$/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	1352	1282	1.43	35.86	56.6	16.3	12.8	4.00	B

Facility Overall Results

Space Mean Speed, mi/h	56.6	Average Density, veh/mi/ln	12.8
Average Travel Time, min	4.00	Average Density, pc/mi/ln	16.3
Total VMT, veh-mi/AP	1352	Total VHD, veh-h	1.43
Vehicle Value of Time (VOT), \$/h	25.00	Total Delay Cost, \$	35.86

Appendix H: Utility Response Report



UTILITY RESPONSE REPORT

**Prepared by GPD Group for:
Ohio Department of Transportation**

District 3
906 Clark Avenue
Ashland, Ohio 44805

RIC-30/42 STUDY (PID 119315)

US 30 and US 42 Interchange Study
September 2025



Introduction

As part of the scope of work, Glaus, Pyle, Schomer, Burns and Dehaven, Inc. dba GPD Group ("GPD") conducted a study of four (4) feasible alternatives for constructing a new interchange on SR-30 at SR-42.

In accordance with the ASCE/UESI/CI Manual 38-22 and the attached specifications of performance, GPD coordinated with utility owners to obtain available record information and incorporated this data into an electronic basemap for review purposes. All utilities depicted are classified as Quality Level D, representing the lowest confidence level in utility location accuracy. GPD relied exclusively on publicly available OHIO811 services for underground utility mapping. The Client acknowledges that this method may result in incomplete or inaccurate data due to limitations inherent in third-party record-based systems.

GPD expressly disclaims any and all liability for inaccuracies, omissions, delays, or damages arising from reliance on third-party records, incomplete responses from facility owners, or unforeseen site conditions. The Client assumes full responsibility for any decisions made based on this data and agrees to indemnify and hold GPD harmless from any resulting claims or losses.

Should the Client require higher accuracy, GPD recommends its Private Utility Location service. Any concerns regarding utility data must be promptly communicated to GPD to allow for further investigation and validation.

OHIO811

Design Request tickets were submitted to OHIO811 on March 6, 2024, in support of the utility coordination efforts for the proposed interchange alternatives at SR-30 and SR-42. These tickets initiated formal outreach to utility owners and operators for the purpose of obtaining existing record information. No field verification or subsurface utility engineering (SUE) was performed as part of this coordination. The compiled responses received from OHIO811, and participating facility owners have been incorporated into the electronic basemap developed by GPD. This mapping reflects known utility locations based on third-party records and is intended for preliminary review purposes only. Sizes and materials are not known unless indicated on records provided.

Utility Owners

The following utility owners were identified in OHIO811 Ticket A406602517-00A and their responses.

Utility Owner	Response Type
Brightspeed (USIC)	008 Design Notification (DSGN)
Columbia Gas of Ohio – Mansfield	008 Design Notification (DSGN)
City of Mansfield (Electric)	001 No Conflict
City of Mansfield (Sewer)	001 No Conflict
City of Mansfield (Water)	001 No Conflict
Madison Water District	008 Design Notification (DSGN)
Aqua Ohio – Mansfield	001 No Conflict
ODOT District 3 Traffic	008 Design Notification (DSGN)
Ohio Edison (USIC)	999 No Response (LATE)
Everstream Solutions / Northern	001 No Conflict
Richland County Wastewater	008 Design Notification (DSGN)
Charter Communications (Spectrum / Time Warner)	001 No Conflict
Zayo Fiber Solutions (Stake Center)	001 No Conflict

Provided Record Infrastructure

Brightspeed

Brightspeed owns buried fiber along the west edge of Stewart Rd north of US 42, the south edge of Expressview Dr, and along the northern edge of Ashland Rd/US 42. Buried copper and aerial copper also exist along the northern edge of Ashland Rd/US 42 north of the interchange with US 30. Buried copper is also along the east edge of Stewart Rd. from Expressview Dr. traveling south out of the study limits. Depths are unknown.

Columbia Gas

Columbia Gas owns steel distribution lines north of US 30 and both plastic and steel distribution lines south of US 30 within the study limits along primary and secondary roads. There are no indications of buried lines along the on/off ramps of the interchange, or along the edge of US 30. Distribution lines and services lines vary in size from 1/2inch to 5 inches. Pipe sizes are based on records and not field-verified

First Energy

Primary and secondary electricity is distributed aerially, with minimal direct buried services lines present to feed equipment at the interchange exist within the study limits. Streetlighting, signals and other elements such as transformers will be serviced by direct bury lines. Underground transmission lines and aerial towers are present south of US 30 near Lincoln Terrace Dr traveling east towards Ashland Rd/US 42 and cross north over US 30 near McElroy Rd before continuing east out of the study limits.

Madison Water District

Water distribution facilities exist along the eastern edge of Stewart Rd traveling north/south through the study limits, as well as facilities along the southern edge of Expressview Dr. This water line travels north to service the commercial buildings before traveling southeast under the US30 westbound onramp to the northern edge of US42 before traveling north and out of the study limits.

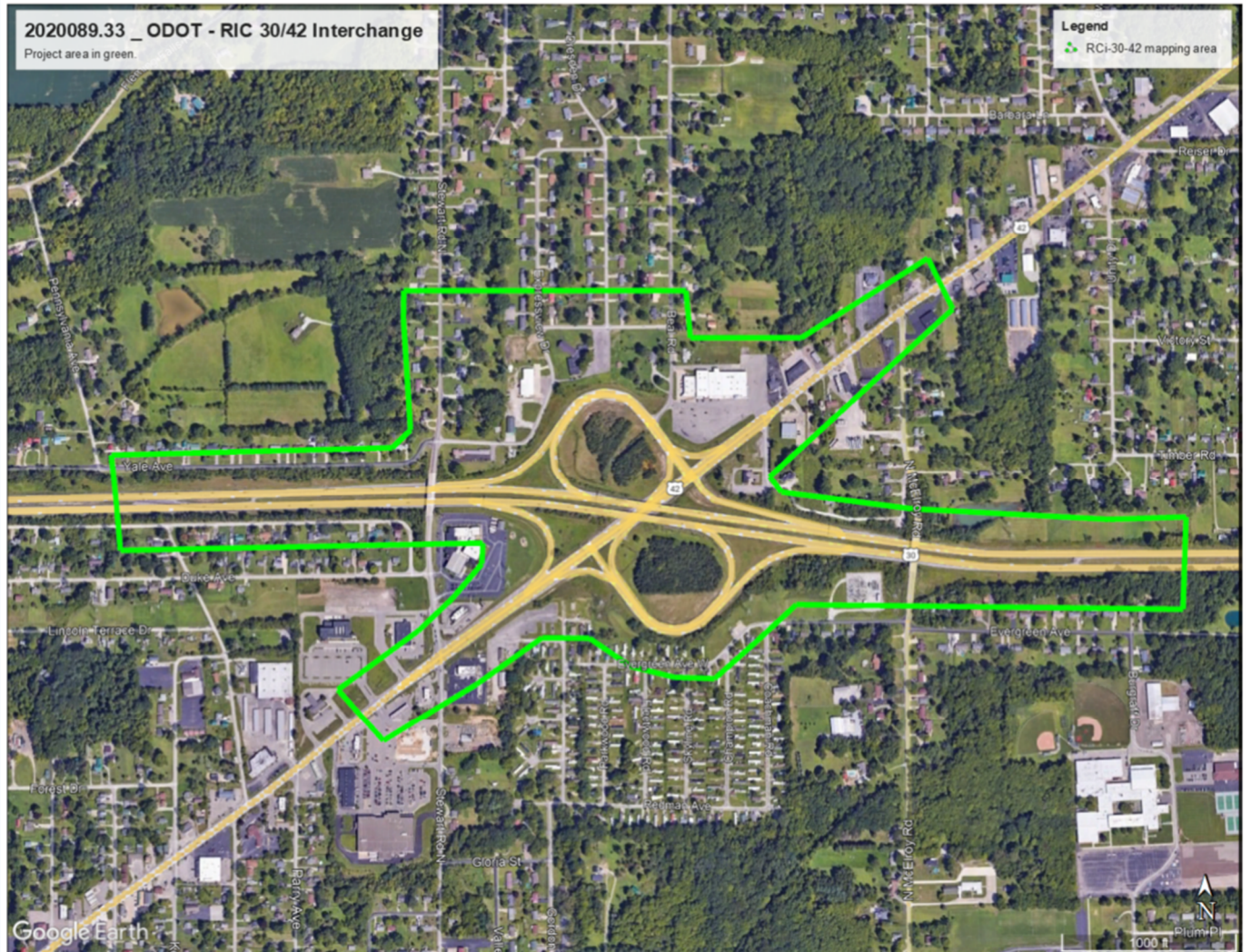
ODOT

Existing 3in conduit exists along the northern and southern edges of US42 within the US30 interchange to service the streetlighting. Service is provided by First Energy to the conduit. Abandoned lines are noted to be within the interchange based on the provided record.

Richland County Wastewater

One 6in sanitary line was indicated along the northern edge of Ashland Rd./US 42 east of Stewart Rd. and terminates before the interchange. Records also indicate an active 12in sanitary and an abandoned in place 12in line along the northern edge of US 42 between the interchange and McElroy Rd. 6in sanitary lines travel along the northern edge of Expressview Dr. and Rayfield Dr., and along the eastern edge of Stewart Rd.

Utility Records



OHIO811 Response Email

From: newtin@oups.org
Sent: Wednesday, March 20, 2024 1:20 PM
To: 811 Utility
Subject: OUPS + response for Ticket A406602517-00A

This Message originated outside your organization

EMLCFM 05957 OUPSa 03/20/24 13:20:04 A406602517-00A ROUT RESP POLY DSGN

Thank you for calling Ohio Utilities Protection Service!


This is an automatically generated correspondence listing the utilities who received your notice of excavation, and their responses. For your safety, please respect and protect the marks, and excavate carefully around the marked utility lines.

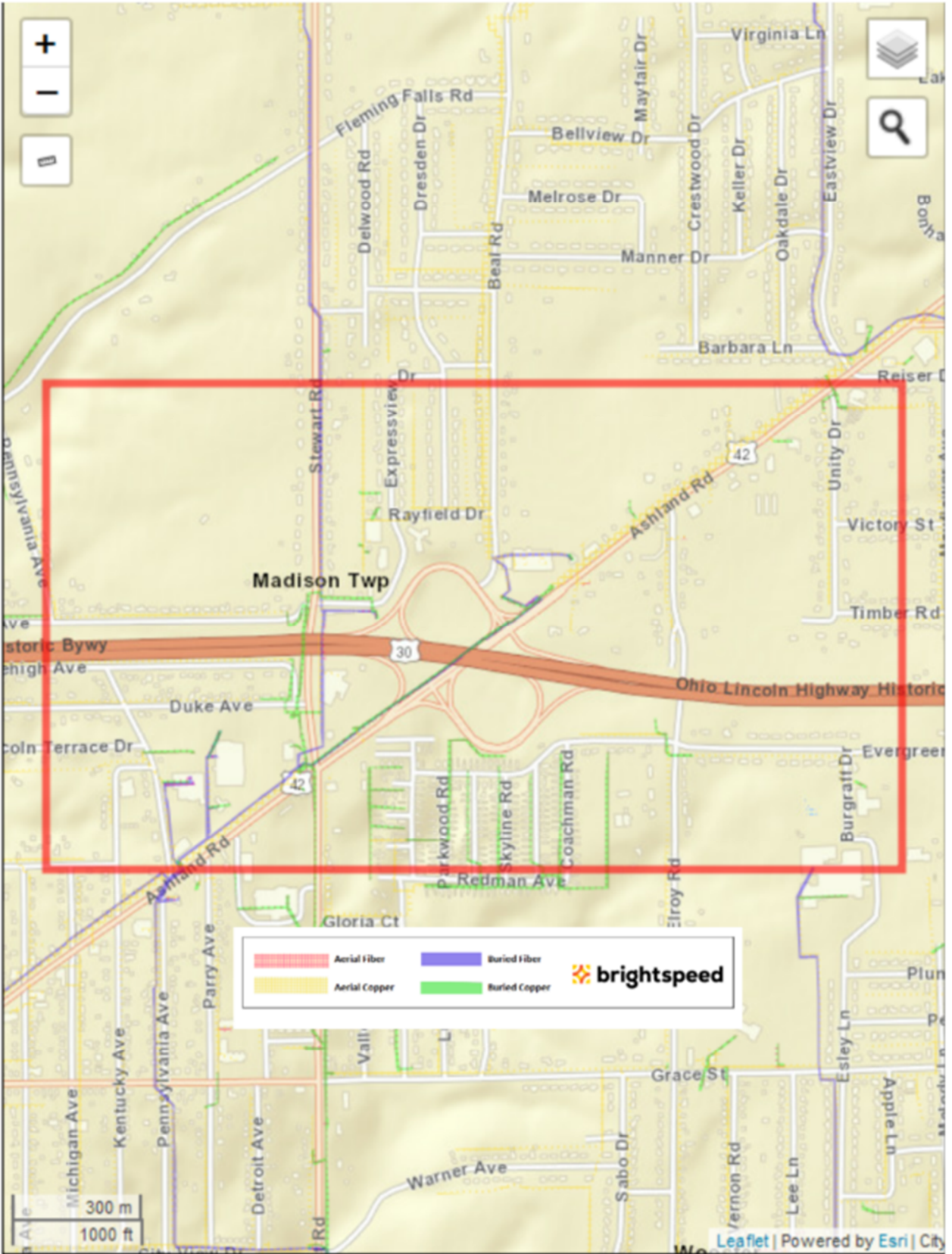
This email comes from an automated program that is NOT MONITORED, DO NOT REPLY.

Ticket: A406602517 Rev: 00A Taken: 03/06/24 01:20 PM

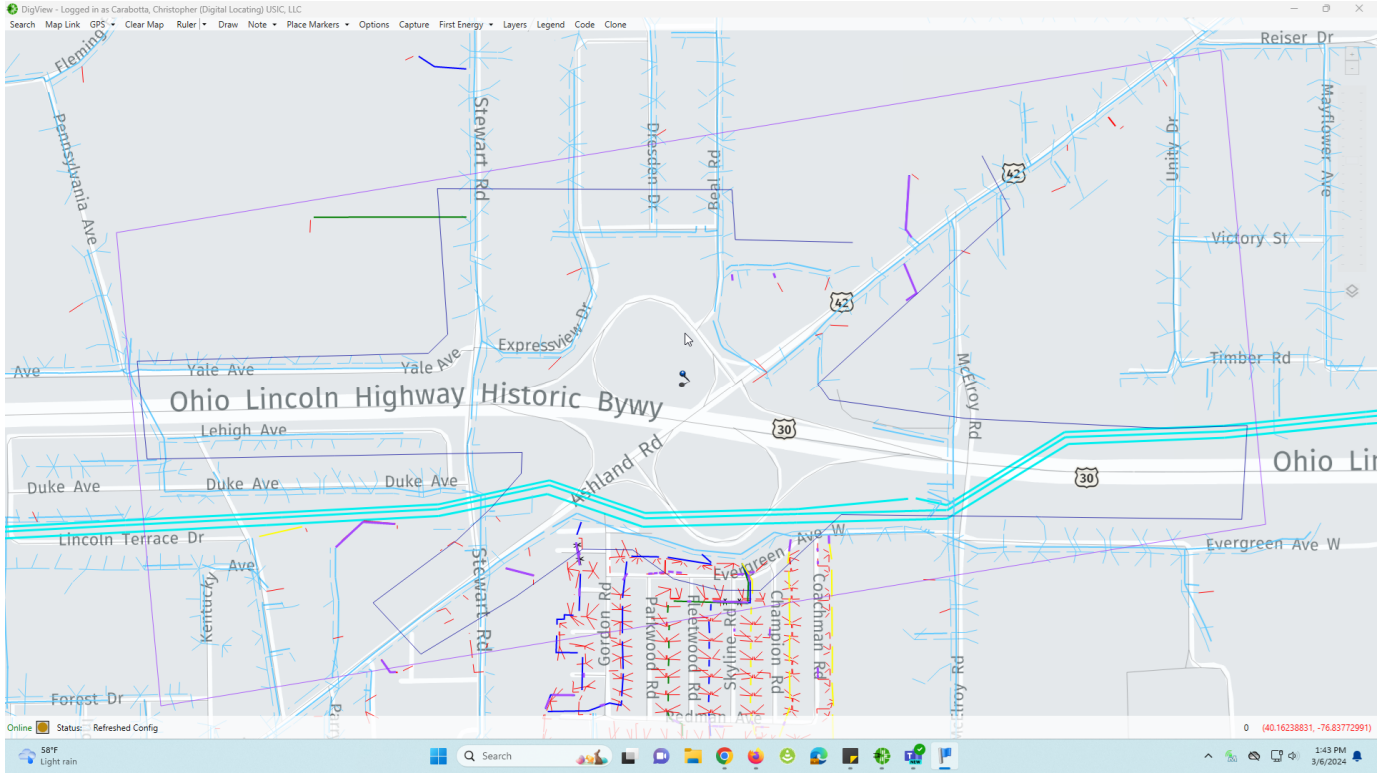
State: OH County: RICHLAND Place: MANSFIELD
State: OH County: RICHLAND Place: MADISON TWP
Address : ASHLAND RD

Utility	Description	Response
BSDP	BRIGHTSPEED (USIC)	03/06/24 01:21 PM 008 Design Notification (DSGN) - Facility Owner or Operator has completed the design request in accordance with ORC 3781.27 (C) or 153.64 (B) (2).
CGLP	COLUMBIA GAS OF OHIO-MANSFIELD	03/07/24 04:54 PM 008 Design Notification (DSGN) - Facility Owner or Operator has completed the design request in accordance with ORC 3781.27 (C) or 153.64 (B) (2).
MANE	MANSFIELD - CITY OF (ELECTRIC)	03/06/24 02:23 PM 001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
MANS	MANSFIELD - CITY OF (SEWER)	03/19/24 12:56 PM 001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
MANW	MANSFIELD - CITY OF (WATER)	03/06/24 01:22 PM 001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
MDWP	MADISON WATER DISTRICT	03/07/24 08:20 AM 008 Design Notification (DSGN) - Facility Owner or Operator has completed the design request in accordance with ORC 3781.27 (C) or 153.64 (B) (2).
OASP	AQUA OHIO - MANSFIELD	03/08/24 06:55 AM 001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
ODT3	ODOT 3 TRAFFIC (DISTRICT 3)	03/06/24 03:07 PM

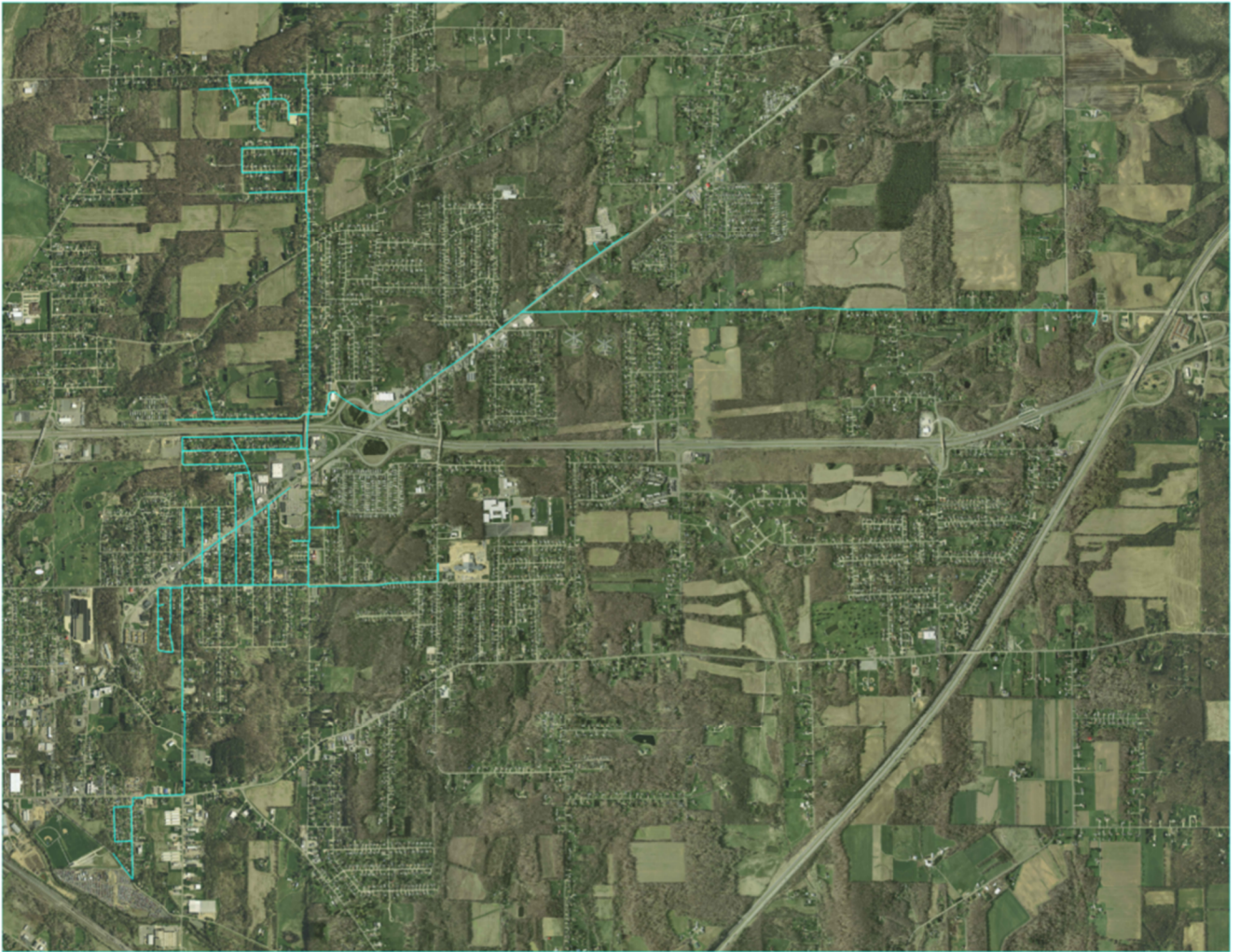
- 
- 008 Design Notification (DSGN) - Facility Owner or Operator has completed the design request in accordance with ORC 3781.27 (C) or 153.64 (B) (2).
- OED OHIO EDISON - (USIC) 03/20/24 01:20 PM
999 No Response (LATE) - The Facility Owner or Operator or its representatives has not posted a Positive Response prior to the legal start
- ONCP EVERSTREAM SOLUTIONS/NORTHERN 03/07/24 03:20 PM
001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
- RCN RICHLAND COUNTY WASTEWATER 03/18/24 08:05 AM
008 Design Notification (DSGN) - Facility Owner or Operator has completed the design request in accordance with ORC 3781.27 (C) or 153.64 (B) (2).
- WNOP CHARTER COMM(SPECTRUM/TIME WAR 03/20/24 09:28 AM
001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.
- ZAYP ZAYO FIBER SOLUTIONS (STAKECEN 03/06/24 04:39 PM
001 No Conflict - Underground facilities operated by this member are not in conflict based on information provided in the Excavation Request.

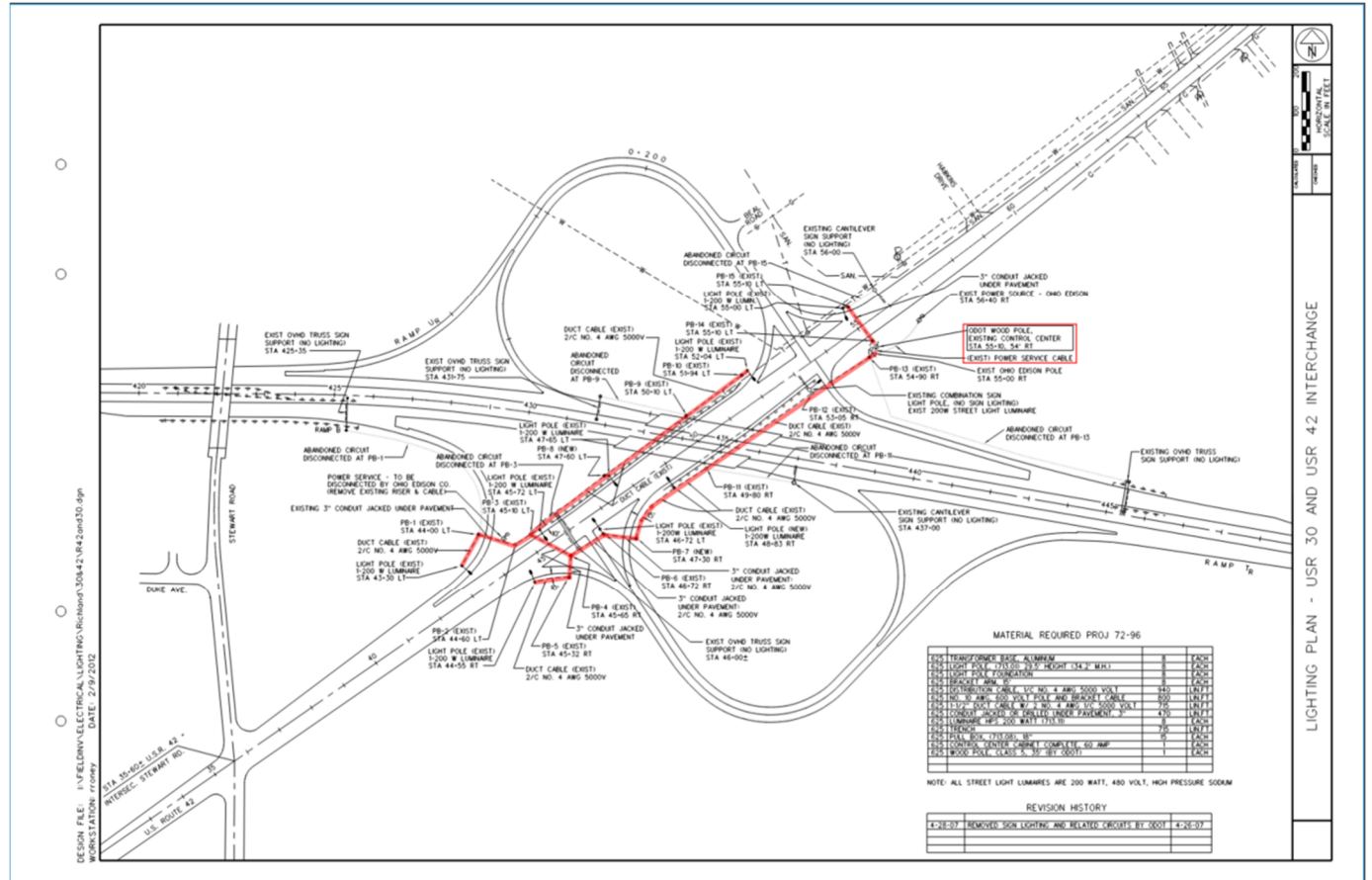


First Energy

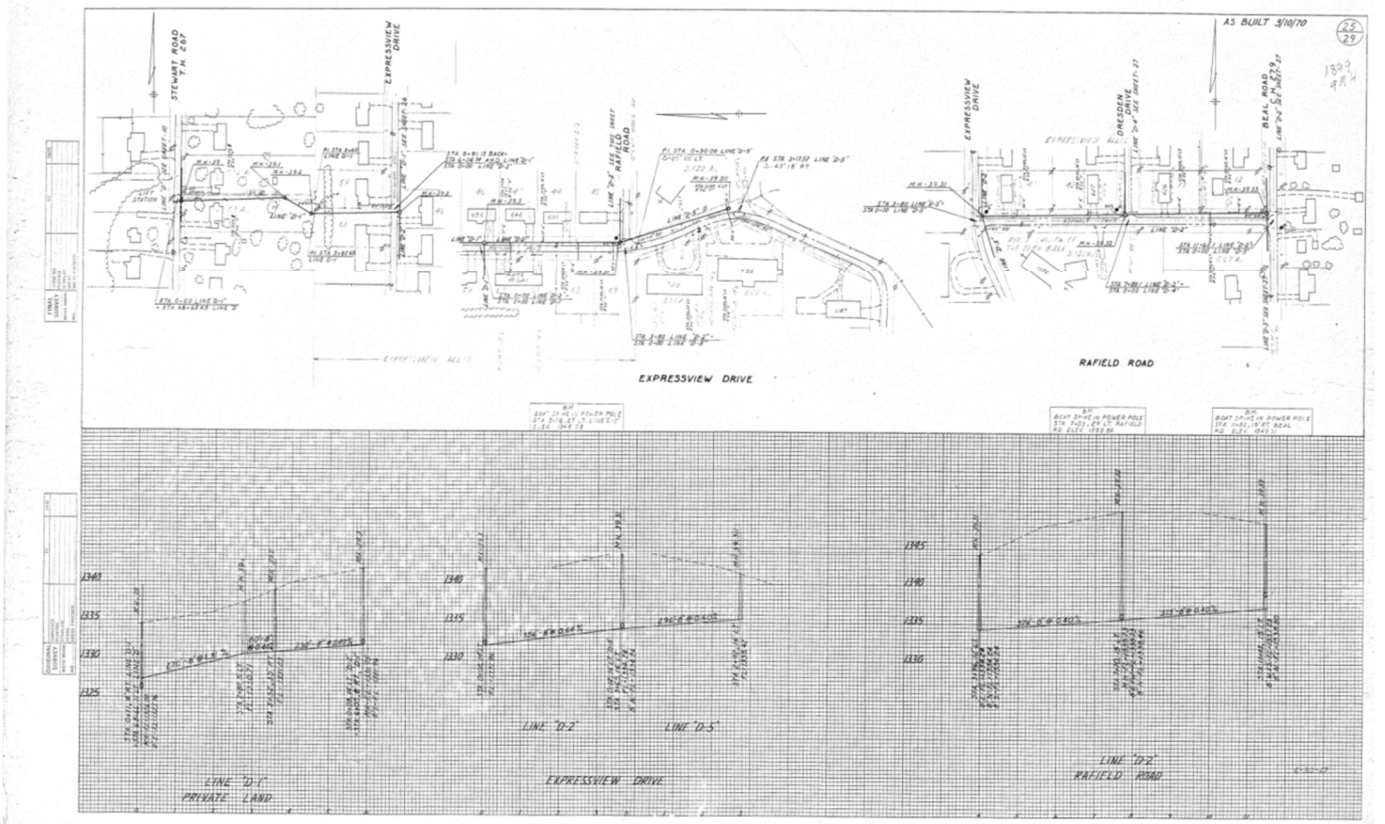
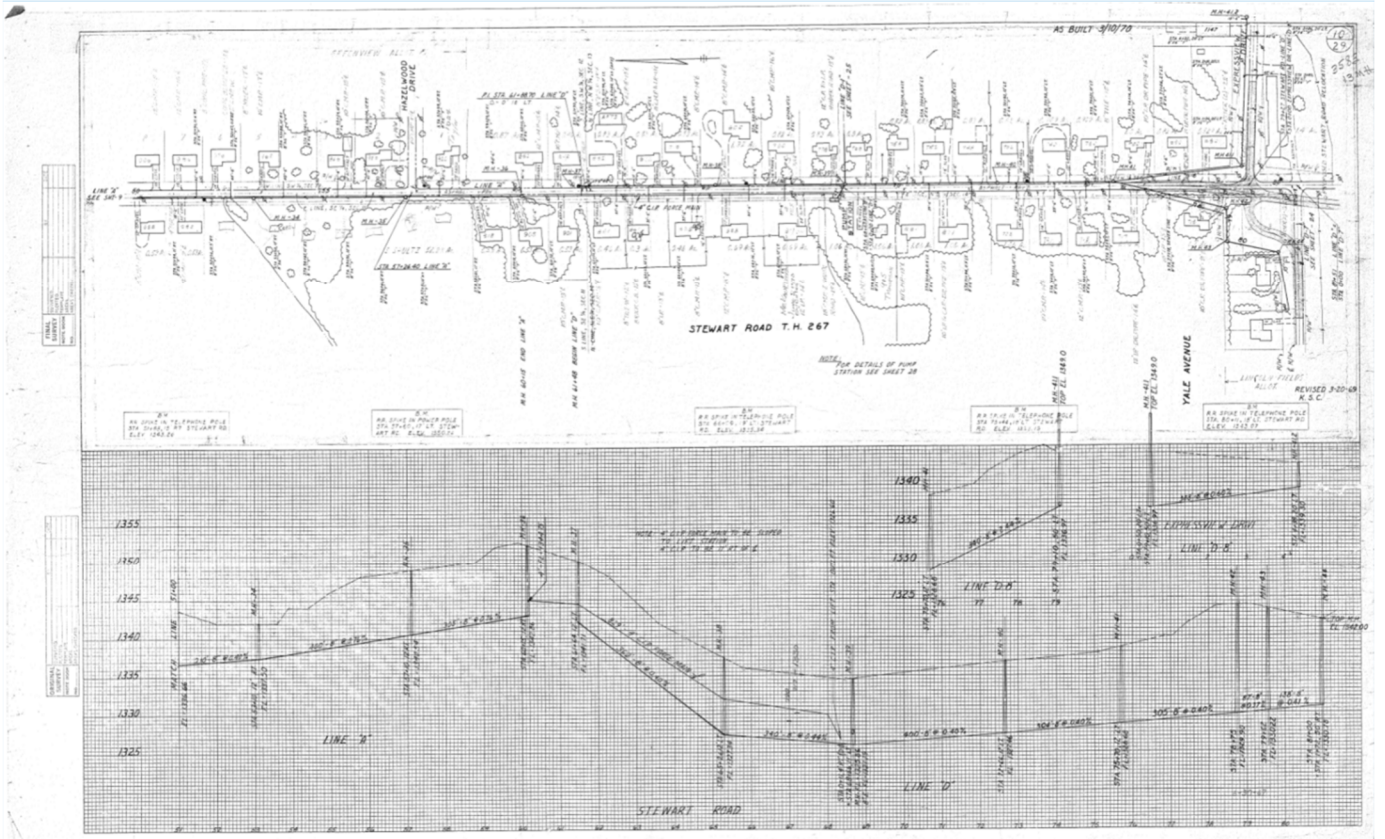


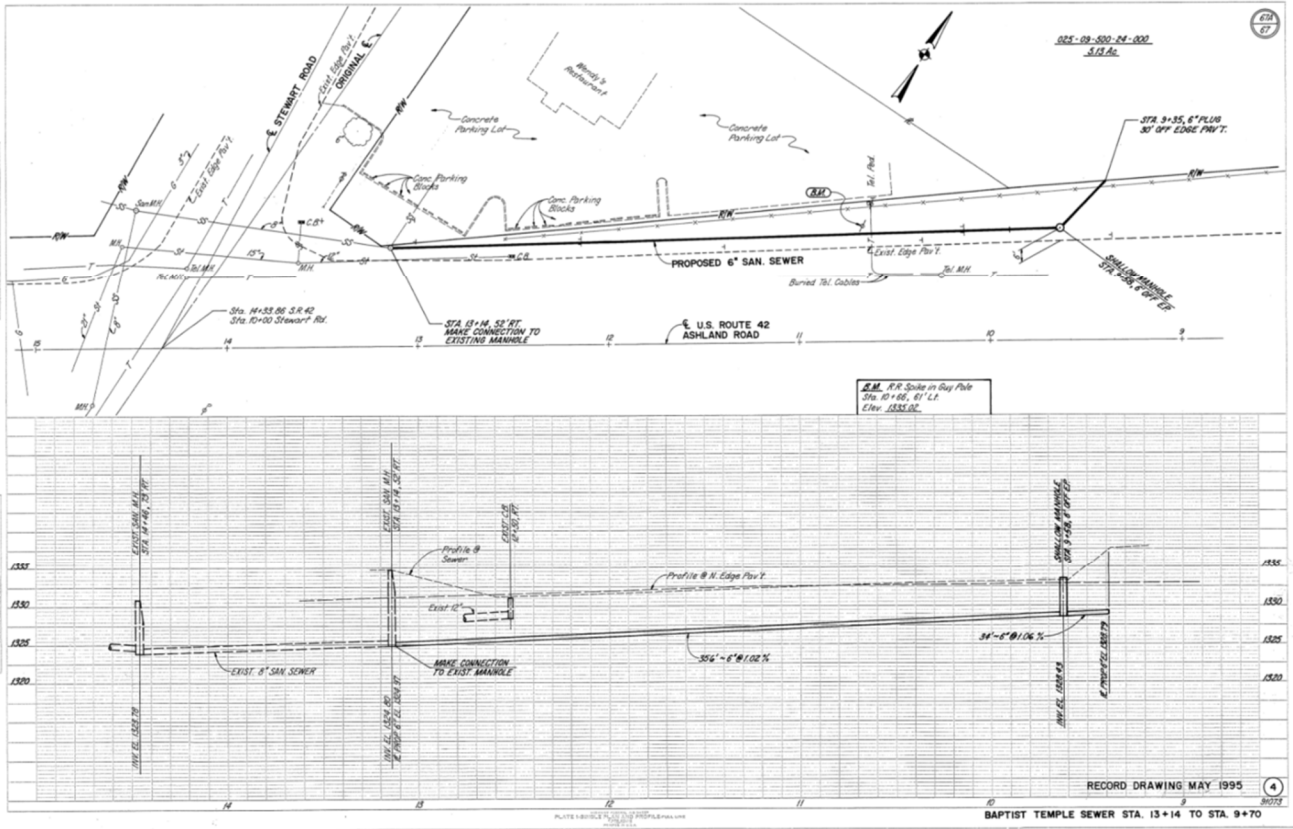
Madison Water District





Richland County Wastewater





Appendix I: Detailed Cost Estimates

CY 2025-2029 Business Plan Inflation Calculator:

[Not sure if you have the latest calculator? Click here.](#)

Last Modified: 1/27/2025

Today's Date:
September 18, 2025

Please Enter Values in the Yellow Areas Only:

Estimation Start Date:

Less than or Equal to Today's Date
(mm/dd/yyyy)

9/18/2025

Start Date:

Enter Construction Mid-Point Date:

(cannot exceed 09/18/2050)
(mm/dd/yyyy)

10/1/2031

Construction Mid-Point Date:

Present-Day Estimated Cost:

\$1.00

Estimated Dollar Amount:

Estimate Start Date to Construction Mid-Point Date:

73

Months

Inflation - Start to Mid-Point of Construction:

(compounded growth rate)

Inflated Dollar Amount:

Business Plan

25.2%

\$1.25

Estimator's Name:

County - Route - Section:

RIC-30/42

PID: 107533

Estimator's Notes:

Planning Level Estimate

RIC-30/42 Option 1 - Tight Diamond Interchange with Multi-Use Path
PID 119315

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	PAVEMENT				
	MAINLINE & RAMPS - LANES & SHOULDERS - ASPHALT	21000	SQ YD	\$90	\$1,890,000
	MAINLINE & RAMPS - LANES & SHOULDERS - CONCRETE	11000	SQ YD	\$135	\$1,485,000
	PAVEMENT OVERLAY - 2" THICK	23234	SQ YD	\$30	\$697,100
	CONCRETE BARRIER	300	FT	\$155	\$46,500
	PAVEMENT SUBTOTAL:				\$4,118,600
2	ROADWAY				
	PAVEMENT REMOVAL	24000	SQ YD	\$16	\$384,000
	EXCAVATION - ROCK		CU YD	\$46	\$0
	EXCAVATION - SOIL	33000	CU YD	\$17	\$561,000
	FILL - EMBANKMENT	25000	CU YD	\$18	\$450,000
	GUARDRAIL	2000	FT	\$20	\$40,000
	END/BRIDGE TERMINAL ASSEMBLY	9	EACH	\$1,650	\$14,900
	MGS TYPE B ANCHOR SYSTEM	8	EACH	\$3,000	\$24,000
	TYPE T END POST	2	EACH	\$900	\$1,800
	CLEARING & GRUBBING	15	ACRE	\$4,000	\$60,000
	4" CONCRETE WALK	25060	SF	\$12	\$300,800
	CURB, TYPE 6	125	LF	\$35	\$4,400
	ROADWAY SUBTOTAL:				\$1,840,900
3	DRAINAGE				
	5% OF Items 1-2	0.05	LUMP	\$5,959,500	\$298,000
	DRAINAGE SUBTOTAL:				\$298,000
4	EROSION CONTROL				
	5% of Items 1-2	0.05	LUMP	\$5,959,500	\$298,000
	EROSION CONTROL SUBTOTAL:				\$298,000
5	UTILITIES				
	1% of Items 1-2	0.01	LUMP	\$5,959,500	\$59,600
	UTILITIES SUBTOTAL:				\$59,600
6	LIGHTING				
	SYSTEM - FULL INTERCHANGE		LUMP	\$754,000	\$0
	SYSTEM - PARTIAL INTERCHANGE		LUMP	\$451,000	\$0
	SERVICE - FULL INTERCHANGE		LUMP	\$231,000	\$0
	SERVICE - PARTIAL INTERCHANGE	1	LUMP	\$119,000	\$119,000
	CONTINUOUS ROADWAY		LF	\$160	\$0
	SUPPLEMENTAL LIGHTING (INDIVIDUAL TOWERS)		EACH	\$59,000	\$0
	LIGHTING SUBTOTAL:				\$119,000

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
7	TRAFFIC SIGNALS				
	SIGNALS - INTERSECTIONS	4	EACH	\$209,000	\$836,000
	TRAFFIC SIGNALS SUBTOTAL:				\$836,000
8	TRAFFIC CONTROL				
	SIGNING (Rural freeway)	0.60	MILE	\$250,000	\$150,000
	PAVEMENT MARKING	2.00	MILE	\$48,000	\$96,000
	TRAFFIC CONTROL SUBTOTAL:				\$246,000
9	STRUCTURES				
	PROPOSED BRIDGE				
	MULTI-SPAN < 4000 SQ FT		SQ FT	\$275	\$0
	MULTI-SPAN > 4000 SQ FT		SQ FT	\$330	\$0
	PROPOSED BRIDGE WIDENING				
	BRIDGE WIDENING		SQ FT	\$220	\$0
	SUPERSTRUCTURE REPLACEMENT AND WIDENING	0	SQ FT	\$275	\$0
	PROPOSED BRIDGE MAINTENANCE				
	SRS BRIDGE DECK TREATMENT	0	SQ FT	\$8	\$0
	MINOR REHABILITATION WORK		SQ FT	\$6	\$0
	STRUCTURES SUBTOTAL:				\$0
10	RETAINING WALLS				
	CAST-IN-PLACE RETAINING WALL		SQ FT	\$240	\$0
	MSE RETAINING WALL		SQ FT	\$170	\$0
	CONCRETE BARRIER W/ SLEEPER SLAB ON MSE RET. WALL		FT	\$280	\$0
	RETAINING WALLS SUBTOTAL:				\$0
10A	NOISE WALLS				
	NOISE WALL	0	LF	\$485	\$0
	NOISE WALL SUBTOTAL:				\$0
11	BUILDING DEMOLITION				
	RESIDENTIAL - SMALL		EACH	\$13,000	\$0
	RESIDENTIAL - LARGE		EACH	\$22,500	\$0
	COMMERCIAL - SMALL		EACH	\$30,500	\$0
	COMMERCIAL - MEDIUM		EACH	\$46,000	\$0
	COMMERCIAL - LARGE		EACH	\$75,500	\$0
	NON-HIGHWAY DEMOLITION SUBTOTAL:				\$0
12	MAINTENANCE OF TRAFFIC				
	10% OF ITEMS 1-11	0.10	LUMP	\$7,816,100	\$781,700
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$781,700
13	INCIDENTALS				
	623 CONSTRUCTION LAYOUT STAKES (0.50% OF ITEMS 1-12)	0.005	LUMP	\$8,597,800	\$43,000
	624 MOBILIZATION (PER 2023 CMS)	1	LUMP	\$400,000	\$400,000

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	PERFORMANCE BOND (0.50% OF ITEMS 1-12)	0.005	LUMP	\$8,597,800	\$43,000
	619 FIELD OFFICE	18	MON	\$4,000	\$72,000
	MISCELLANEOUS SUBTOTAL:				\$558,000
	TOTAL CONSTRUCTION COST IN 2025 DOLLARS:				\$9,155,800
14	DESIGN CONTINGENCY				
	20% DESIGN CONTINGENCY			(20% OF CONSTR.)	\$1,831,200
	CONSTRUCTION SUB-TOTAL:				\$10,987,000
15	INFLATION CONTINGENCY (From ODOT Inflation Calculator)			(25.2% OF CONSTR. SUB-TOTAL)	\$2,768,800
	TOTAL CONSTRUCTION COST:				\$13,755,800
	DESIGN ENGINEERING COST:		(11% OF CONSTR. TOTAL)		\$1,514,000
	CONSTRUCTION INSPECTION COST:		(10% OF CONSTR. TOTAL)		\$1,375,600
	TOTAL CONSTRUCTION, DESIGN AND INSPECTION COST:				\$16,645,400
16	RIGHT OF WAY				
	TOTAL TAKE				
	RELOCATION & COMPENSATION - MAJOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - MINOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - RESIDENTIAL		EACH	\$250,000	\$0
	COMPENSATION - VACANT RESIDENTIAL		EACH	\$50,000	\$0
	PARTIAL TAKE				
	PARTIAL TAKE - MAJOR COMMERCIAL	4	EACH	\$20,000	\$80,000
	PARTIAL TAKE - MINOR COMMERCIAL (Aerial Easement)		EACH	\$10,000	\$0
	PARTIAL TAKE - RESIDENTIAL		EACH	\$10,000	\$0
	ACQUISITION SERVICES				
	COMMERCIAL	4	EACH	\$13,000	\$52,000
	RESIDENTIAL		EACH	\$7,000	\$0
	TEMPORARY WORK AGREEMENT		EACH	\$4,000	\$0
	RIGHT OF WAY SUBTOTAL:				\$132,000
	TOTAL CONSTRUCTION AND ROW COST IN 2025 DOLLARS:				\$16,777,400

RIC-30/42 Option 2 - Roundabout with Multi-Use Path with Beal Road
PID 119315

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	PAVEMENT				
	MAINLINE & RAMPS - LANES & SHOULDERS - ASPHALT	27000	SQ YD	\$90	\$2,430,000
	MAINLINE & RAMPS - LANES & SHOULDERS - CONCRETE	9000	SQ YD	\$135	\$1,215,000
	PAVEMENT OVERLAY - 2" THICK	20100	SQ YD	\$30	\$603,000
	CONCRETE BARRIER	600	FT	\$155	\$93,000
	10" NON-REINFORCED CONC PAVEMENT, CLASS QCIP	2420	SQ YD	\$115	\$278,300
	PAVEMENT SUBTOTAL:				\$4,619,300
2	ROADWAY				
	PAVEMENT REMOVAL	26000	SQ YD	\$16	\$416,000
	EXCAVATION - ROCK		CU YD	\$46	\$0
	EXCAVATION - SOIL	41000	CU YD	\$17	\$697,000
	FILL - EMBANKMENT	6000	CU YD	\$18	\$108,000
	GUARDRAIL	2000	FT	\$20	\$40,000
	END/BRIDGE TERMINAL ASSEMBLY	13	EACH	\$1,650	\$21,500
	MGS TYPE B ANCHOR SYSTEM	12	EACH	\$3,000	\$36,000
	TYPE T END POST	2	EACH	\$900	\$1,800
	CLEARING & GRUBBING	15	ACRE	\$4,000	\$60,000
	4" CONCRETE WALK	32530	SF	\$12	\$390,400
	CURB, TYPE 6	1500	LF	\$35	\$52,500
	CURB, TYPE 9	915	LF	\$25	\$22,900
	COMBINATION CURB AND GUTTER, TYPE 2	10300	LF	\$45	\$463,500
	ROADWAY SUBTOTAL:				\$2,309,600
3	DRAINAGE				
	5% OF Items 1-2	0.05	LUMP	\$6,928,900	\$346,500
	DRAINAGE SUBTOTAL:				\$346,500
4	EROSION CONTROL				
	5% of Items 1-2	0.05	LUMP	\$6,928,900	\$346,500
	EROSION CONTROL SUBTOTAL:				\$346,500
5	UTILITIES				
	1% of Items 1-2	0.01	LUMP	\$6,928,900	\$69,300
	UTILITIES SUBTOTAL:				\$69,300
6	LIGHTING				
	SYSTEM - FULL INTERCHANGE		LUMP	\$754,000	\$0
	SYSTEM - PARTIAL INTERCHANGE		LUMP	\$451,000	\$0
	SERVICE - FULL INTERCHANGE		LUMP	\$231,000	\$0
	SERVICE - PARTIAL INTERCHANGE	1	LUMP	\$119,000	\$119,000
	CONTINUOUS ROADWAY		LF	\$160	\$0

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	SUPPLEMENTAL LIGHTING (INDIVIDUAL TOWERS)		EACH	\$59,000	\$0
	LIGHTING SUBTOTAL:				\$119,000
7	TRAFFIC SIGNALS				
	SIGNALS - INTERSECTIONS	2	EACH	\$209,000	\$418,000
	TRAFFIC SIGNALS SUBTOTAL:				\$418,000
8	TRAFFIC CONTROL				
	SIGNING (Rural freeway)	0.60	MILE	\$250,000	\$150,000
	PAVEMENT MARKING	2.00	MILE	\$48,000	\$96,000
	TRAFFIC CONTROL SUBTOTAL:				\$246,000
9	STRUCTURES				
	PROPOSED BRIDGE				
	MULTI-SPAN < 4000 SQ FT		SQ FT	\$275	\$0
	MULTI-SPAN > 4000 SQ FT		SQ FT	\$330	\$0
	PROPOSED BRIDGE WIDENING				
	BRIDGE WIDENING		SQ FT	\$220	\$0
	SUPERSTRUCTURE REPLACEMENT AND WIDENING	0	SQ FT	\$275	\$0
	PROPOSED BRIDGE MAINTENANCE				
	SRS BRIDGE DECK TREATMENT	0	SQ FT	\$8	\$0
	MINOR REHABILITATION WORK		SQ FT	\$6	\$0
	STRUCTURES SUBTOTAL:				\$0
10	RETAINING WALLS				
	CAST-IN-PLACE RETAINING WALL		SQ FT	\$240	\$0
	MSE RETAINING WALL		SQ FT	\$170	\$0
	CONCRETE BARRIER W/ SLEEPER SLAB ON MSE RET. WALL		FT	\$280	\$0
	RETAINING WALLS SUBTOTAL:				\$0
10A	NOISE WALLS				
	NOISE WALL	0	LF	\$485	\$0
	NOISE WALL SUBTOTAL:				\$0
11	BUILDING DEMOLITION				
	RESIDENTIAL - SMALL		EACH	\$13,000	\$0
	RESIDENTIAL - LARGE		EACH	\$22,500	\$0
	COMMERCIAL - SMALL		EACH	\$30,500	\$0
	COMMERCIAL - MEDIUM		EACH	\$46,000	\$0
	COMMERCIAL - LARGE		EACH	\$75,500	\$0
	NON-HIGHWAY DEMOLITION SUBTOTAL:				\$0
12	MAINTENANCE OF TRAFFIC				
	12% OF ITEMS 1-11	0.12	LUMP	\$8,474,200	\$1,017,000
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$1,017,000

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
13	INCIDENTALS				
	623 CONSTRUCTION LAYOUT STAKES (0.50% OF ITEMS 1-12)	0.005	LUMP	\$9,491,200	\$47,500
	624 MOBILIZATION (PER 2023 CMS)	1	LUMP	\$400,000	\$400,000
	PERFORMANCE BOND (0.50% OF ITEMS 1-12)	0.005	LUMP	\$9,491,200	\$47,500
	619 FIELD OFFICE	18	MON	\$4,000	\$72,000
	MISCELLANEOUS SUBTOTAL:				\$567,000
	TOTAL CONSTRUCTION COST IN 2025 DOLLARS:				\$10,058,200
14	DESIGN CONTINGENCY				
	20% DESIGN CONTINGENCY	(20% OF CONSTR.)			\$2,011,700
	CONSTRUCTION SUB-TOTAL:				\$12,069,900
15	INFLATION CONTINGENCY (From ODOT Inflation Calculator)	(25.2% OF CONSTR. SUB-TOTAL)			\$3,041,700
	TOTAL CONSTRUCTION COST:				\$15,111,600
	DESIGN ENGINEERING COST:		(11% OF CONSTR. TOTAL)		\$1,663,000
	CONSTRUCTION INSPECTION COST:		(10% OF CONSTR. TOTAL)		\$1,511,200
	TOTAL CONSTRUCTION, DESIGN AND INSPECTION COST:				\$18,285,800
16	RIGHT OF WAY				
	TOTAL TAKE				
	RELOCATION & COMPENSATION - MAJOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - MINOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - RESIDENTIAL		EACH	\$250,000	\$0
	COMPENSATION - VACANT RESIDENTIAL		EACH	\$50,000	\$0
	PARTIAL TAKE				
	PARTIAL TAKE - MAJOR COMMERCIAL	4	EACH	\$20,000	\$80,000
	PARTIAL TAKE - MINOR COMMERCIAL (Aerial Easement)		EACH	\$10,000	\$0
	PARTIAL TAKE - RESIDENTIAL		EACH	\$10,000	\$0
	ACQUISITION SERVICES				
	COMMERCIAL	4	EACH	\$13,000	\$52,000
	RESIDENTIAL		EACH	\$7,000	\$0
	TEMPORARY WORK AGREEMENT		EACH	\$4,000	\$0
	RIGHT OF WAY SUBTOTAL:				\$132,000
	TOTAL CONSTRUCTION AND ROW COST IN 2025 DOLLARS:				\$18,417,800

RIC-30/42 Option 2a - Roundabout with Multi-Use Path without Beal Road
PID 119315

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	PAVEMENT				
	MAINLINE & RAMPS - LANES & SHOULDERS - ASPHALT	30000	SQ YD	\$90	\$2,700,000
	MAINLINE & RAMPS - LANES & SHOULDERS - CONCRETE	9000	SQ YD	\$135	\$1,215,000
	PAVEMENT OVERLAY - 2" THICK	20100	SQ YD	\$30	\$603,000
	CONCRETE BARRIER	600	FT	\$155	\$93,000
	PAVEMENT SUBTOTAL:				\$4,611,000
2	ROADWAY				
	PAVEMENT REMOVAL	26000	SQ YD	\$16	\$416,000
	EXCAVATION - ROCK		CU YD	\$46	\$0
	EXCAVATION - SOIL	43000	CU YD	\$17	\$731,000
	FILL - EMBANKMENT	25000	CU YD	\$18	\$450,000
	GUARDRAIL	2000	FT	\$20	\$40,000
	END/BRIDGE TERMINAL ASSEMBLY	13	EACH	\$1,650	\$21,500
	MGS TYPE B ANCHOR SYSTEM	12	EACH	\$3,000	\$36,000
	TYPE T END POST	2	EACH	\$900	\$1,800
	CLEARING & GRUBBING	15	ACRE	\$4,000	\$60,000
	4" CONCRETE WALK	32530	SF	\$12	\$390,400
	CURB, TYPE 6	1500	LF	\$35	\$52,500
	CURB, TYPE 9	915	LF	\$25	\$22,900
	COMBINATION CURB AND GUTTER, TYPE 2	10300	LF	\$45	\$463,500
	ROADWAY SUBTOTAL:				\$2,685,600
3	DRAINAGE				
	5% OF Items 1-2	0.05	LUMP	\$7,296,600	\$364,900
	DRAINAGE SUBTOTAL:				\$364,900
4	EROSION CONTROL				
	5% of Items 1-2	0.05	LUMP	\$7,296,600	\$364,900
	EROSION CONTROL SUBTOTAL:				\$364,900
5	UTILITIES				
	1% of Items 1-2	0.01	LUMP	\$7,296,600	\$73,000
	UTILITIES SUBTOTAL:				\$73,000
6	LIGHTING				
	SYSTEM - FULL INTERCHANGE		LUMP	\$754,000	\$0
	SYSTEM - PARTIAL INTERCHANGE		LUMP	\$451,000	\$0
	SERVICE - FULL INTERCHANGE		LUMP	\$231,000	\$0
	SERVICE - PARTIAL INTERCHANGE	1	LUMP	\$119,000	\$119,000
	CONTINUOUS ROADWAY		LF	\$160	\$0
	SUPPLEMENTAL LIGHTING (INDIVIDUAL TOWERS)		EACH	\$59,000	\$0

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	LIGHTING SUBTOTAL:				\$119,000
7	TRAFFIC SIGNALS				
	SIGNALS - INTERSECTIONS	2	EACH	\$209,000	\$418,000
	TRAFFIC SIGNALS SUBTOTAL:				\$418,000
8	TRAFFIC CONTROL				
	SIGNING (Rural freeway)	0.60	MILE	\$250,000	\$150,000
	PAVEMENT MARKING	2.00	MILE	\$48,000	\$96,000
	TRAFFIC CONTROL SUBTOTAL:				\$246,000
9	STRUCTURES				
	PROPOSED BRIDGE				
	MULTI-SPAN < 4000 SQ FT		SQ FT	\$275	\$0
	MULTI-SPAN > 4000 SQ FT		SQ FT	\$330	\$0
	PROPOSED BRIDGE WIDENING				
	BRIDGE WIDENING		SQ FT	\$220	\$0
	SUPERSTRUCTURE REPLACEMENT AND WIDENING	0	SQ FT	\$275	\$0
	PROPOSED BRIDGE MAINTENANCE				
	SRS BRIDGE DECK TREATMENT	0	SQ FT	\$8	\$0
	MINOR REHABILITATION WORK		SQ FT	\$6	\$0
	STRUCTURES SUBTOTAL:				\$0
10	RETAINING WALLS				
	CAST-IN-PLACE RETAINING WALL		SQ FT	\$240	\$0
	MSE RETAINING WALL		SQ FT	\$170	\$0
	CONCRETE BARRIER W/ SLEEPER SLAB ON MSE RET. WALL		FT	\$280	\$0
	RETAINING WALLS SUBTOTAL:				\$0
10A	NOISE WALLS				
	NOISE WALL	0	LF	\$485	\$0
	NOISE WALL SUBTOTAL:				\$0
11	BUILDING DEMOLITION				
	RESIDENTIAL - SMALL		EACH	\$13,000	\$0
	RESIDENTIAL - LARGE		EACH	\$22,500	\$0
	COMMERCIAL - SMALL		EACH	\$30,500	\$0
	COMMERCIAL - MEDIUM		EACH	\$46,000	\$0
	COMMERCIAL - LARGE		EACH	\$75,500	\$0
	NON-HIGHWAY DEMOLITION SUBTOTAL:				\$0
12	MAINTENANCE OF TRAFFIC				
	12% OF ITEMS 1-11	0.12	LUMP	\$8,882,400	\$1,065,900
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$1,065,900
13	INCIDENTALS				

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	623 CONSTRUCTION LAYOUT STAKES (0.50% OF ITEMS 1-12)	0.005	LUMP	\$9,948,300	\$49,800
	624 MOBILIZATION (PER 2023 CMS)	1	LUMP	\$400,000	\$400,000
	PERFORMANCE BOND (0.50% OF ITEMS 1-12)	0.005	LUMP	\$9,948,300	\$49,800
	619 FIELD OFFICE	18	MON	\$4,000	\$72,000
	MISCELLANEOUS SUBTOTAL:				\$571,600
	TOTAL CONSTRUCTION COST IN 2025 DOLLARS:				\$10,519,900
14	DESIGN CONTINGENCY				
	20% DESIGN CONTINGENCY	(20% OF CONSTR.)			\$2,104,000
	CONSTRUCTION SUB-TOTAL:				\$12,623,900
15	INFLATION CONTINGENCY (From ODOT Inflation Calculator)	(25.2% OF CONSTR. SUB-TOTAL)			\$3,181,300
	TOTAL CONSTRUCTION COST:				\$15,805,200
	DESIGN ENGINEERING COST:	(11% OF CONSTR. TOTAL)			\$1,739,000
	CONSTRUCTION INSPECTION COST:	(10% OF CONSTR. TOTAL)			\$1,580,600
	TOTAL CONSTRUCTION, DESIGN AND INSPECTION COST:				\$19,124,800
16	RIGHT OF WAY				
	TOTAL TAKE				
	RELOCATION & COMPENSATION - MAJOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - MINOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - RESIDENTIAL		EACH	\$250,000	\$0
	COMPENSATION - VACANT RESIDENTIAL		EACH	\$50,000	\$0
	PARTIAL TAKE				
	PARTIAL TAKE - MAJOR COMMERCIAL	4	EACH	\$20,000	\$80,000
	PARTIAL TAKE - MINOR COMMERCIAL (Aerial Easement)		EACH	\$10,000	\$0
	PARTIAL TAKE - RESIDENTIAL		EACH	\$10,000	\$0
	ACQUISITION SERVICES				
	COMMERCIAL	4	EACH	\$13,000	\$52,000
	RESIDENTIAL		EACH	\$7,000	\$0
	TEMPORARY WORK AGREEMENT		EACH	\$4,000	\$0
	RIGHT OF WAY SUBTOTAL:				\$132,000
	TOTAL CONSTRUCTION AND ROW COST IN 2025 DOLLARS:				\$19,256,800

RIC-30/42 Option 3 - Widening Bridges with Multi-Use Path and Full Interchange Reconstruction
PID 119315

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	PAVEMENT				
	MAINLINE & RAMPS - LANES & SHOULDERS - ASPHALT	13300	SQ YD	\$90	\$1,197,000
	MAINLINE & RAMPS - LANES & SHOULDERS - CONCRETE	22300	SQ YD	\$135	\$3,010,500
	PAVEMENT OVERLAY - 2" THICK	0	SQ YD	\$30	\$0
	CONCRETE BARRIER	200	FT	\$155	\$31,000
	10" NON-REINFORCED CONC PAVEMENT, CLASS QCIP	0	SQ YD	\$115	\$0
	PAVEMENT SUBTOTAL:				\$4,238,500
2	ROADWAY				
	PAVEMENT REMOVAL	35600	SQ YD	\$16	\$569,600
	EXCAVATION - ROCK		CU YD	\$46	\$0
	EXCAVATION - SOIL	32200	CU YD	\$17	\$547,400
	FILL - EMBANKMENT	0	CU YD	\$18	\$0
	GUARDRAIL	1800	FT	\$20	\$36,000
	END/BRIDGE TERMINAL ASSEMBLY	4	EACH	\$1,650	\$6,600
	MGS TYPE B ANCHOR SYSTEM	2	EACH	\$3,000	\$6,000
	TYPE T END POST	1	EACH	\$900	\$900
	CLEARING & GRUBBING	9	ACRE	\$4,000	\$36,000
	4" CONCRETE WALK	26600	SF	\$12	\$319,200
	CURB, TYPE 6	0	LF	\$35	\$0
	CURB, TYPE 9	0	LF	\$25	\$0
	COMBINATION CURB AND GUTTER, TYPE 2	0	LF	\$45	\$0
	ROADWAY SUBTOTAL:				\$1,521,700
3	DRAINAGE				
	5% OF Items 1-2	0.05	LUMP	\$5,760,200	\$288,100
	DRAINAGE SUBTOTAL:				\$288,100
4	EROSION CONTROL				
	5% of Items 1-2	0.05	LUMP	\$5,760,200	\$288,100
	EROSION CONTROL SUBTOTAL:				\$288,100
5	UTILITIES				
	1% of Items 1-2	0.01	LUMP	\$5,760,200	\$57,700
	UTILITIES SUBTOTAL:				\$57,700
6	LIGHTING				
	SYSTEM - FULL INTERCHANGE		LUMP	\$754,000	\$0
	SYSTEM - PARTIAL INTERCHANGE		LUMP	\$451,000	\$0
	SERVICE - FULL INTERCHANGE		LUMP	\$231,000	\$0
	SERVICE - PARTIAL INTERCHANGE	1	LUMP	\$119,000	\$119,000
	CONTINUOUS ROADWAY		LF	\$160	\$0

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	SUPPLEMENTAL LIGHTING (INDIVIDUAL TOWERS)		EACH	\$59,000	\$0
	LIGHTING SUBTOTAL:				\$119,000
7	TRAFFIC SIGNALS				
	SIGNALS - INTERSECTIONS		EACH	\$209,000	\$0
	TRAFFIC SIGNALS SUBTOTAL:				\$0
8	TRAFFIC CONTROL				
	SIGNING (Urban freeway)	0.30	MILE	\$250,000	\$75,000
	PAVEMENT MARKING (Multi-lane freeway)	1.00	MILE	\$48,000	\$48,000
	TRAFFIC CONTROL SUBTOTAL:				\$123,000
9	STRUCTURES				
	PROPOSED BRIDGE				
	MULTI-SPAN < 4000 SQ FT		SQ FT	\$275	\$0
	MULTI-SPAN > 4000 SQ FT		SQ FT	\$330	\$0
	PROPOSED BRIDGE WIDENING				
	BRIDGE WIDENING	15000	SQ FT	\$220	\$3,300,000
	SUPERSTRUCTURE REPLACEMENT AND WIDENING		SQ FT	\$275	\$0
	PROPOSED BRIDGE MAINTENANCE				
	SRS BRIDGE DECK TREATMENT	0	SQ FT	\$8	\$0
	MINOR REHABILITATION WORK		SQ FT	\$6	\$0
	STRUCTURES SUBTOTAL:				\$3,300,000
10	RETAINING WALLS				
	CAST-IN-PLACE RETAINING WALL		SQ FT	\$240	\$0
	MSE RETAINING WALL		SQ FT	\$170	\$0
	CONCRETE BARRIER W/ SLEEPER SLAB ON MSE RET. WALL		FT	\$280	\$0
	RETAINING WALLS SUBTOTAL:				\$0
10A	NOISE WALLS				
	NOISE WALL	0	LF	\$485	\$0
	NOISE WALL SUBTOTAL:				\$0
11	BUILDING DEMOLITION				
	RESIDENTIAL - SMALL		EACH	\$13,000	\$0
	RESIDENTIAL - LARGE		EACH	\$22,500	\$0
	COMMERCIAL - SMALL		EACH	\$30,500	\$0
	COMMERCIAL - MEDIUM		EACH	\$46,000	\$0
	COMMERCIAL - LARGE		EACH	\$75,500	\$0
	NON-HIGHWAY DEMOLITION SUBTOTAL:				\$0
12	MAINTENANCE OF TRAFFIC				
	12% OF ITEMS 1-11	0.12	LUMP	\$9,936,100	\$1,192,400
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$1,192,400

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
13	INCIDENTALS				
	623 CONSTRUCTION LAYOUT STAKES (0.50% OF ITEMS 1-12)	0.005	LUMP	\$11,128,500	\$55,700
	624 MOBILIZATION (PER 2023 CMS)	1	LUMP	\$400,000	\$400,000
	PERFORMANCE BOND (0.50% OF ITEMS 1-12)	0.005	LUMP	\$11,128,500	\$55,700
	619 FIELD OFFICE	18	MON	\$4,000	\$72,000
	MISCELLANEOUS SUBTOTAL:				\$583,400
	TOTAL CONSTRUCTION COST IN 2025 DOLLARS:				\$11,711,900
14	DESIGN CONTINGENCY				
	20% DESIGN CONTINGENCY	(20% OF CONSTR.)			\$2,342,400
	CONSTRUCTION SUB-TOTAL:				\$14,054,300
15	INFLATION CONTINGENCY (From ODOT Inflation Calculator)	(25.2% OF CONSTR. SUB-TOTAL)			\$3,541,700
	TOTAL CONSTRUCTION COST:				\$17,596,000
	DESIGN ENGINEERING COST:		(11% OF CONSTR. TOTAL)		\$1,936,000
	CONSTRUCTION INSPECTION COST:		(10% OF CONSTR. TOTAL)		\$1,759,600
	TOTAL CONSTRUCTION, DESIGN AND INSPECTION COST:				\$21,291,600
16	RIGHT OF WAY				
	TOTAL TAKE				
	RELOCATION & COMPENSATION - MAJOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - MINOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - RESIDENTIAL		EACH	\$250,000	\$0
	COMPENSATION - VACANT RESIDENTIAL		EACH	\$50,000	\$0
	PARTIAL TAKE				
	PARTIAL TAKE - MAJOR COMMERCIAL		EACH	\$20,000	\$0
	PARTIAL TAKE - MINOR COMMERCIAL (Aerial Easement)		EACH	\$10,000	\$0
	PARTIAL TAKE - RESIDENTIAL		EACH	\$10,000	\$0
	ACQUISITION SERVICES				
	COMMERCIAL		EACH	\$13,000	\$0
	RESIDENTIAL		EACH	\$7,000	\$0
	TEMPORARY WORK AGREEMENT		EACH	\$4,000	\$0
	RIGHT OF WAY SUBTOTAL:				\$0
	TOTAL CONSTRUCTION AND ROW COST IN 2025 DOLLARS:				\$21,291,600

RIC-30/42 Option 4 - Diamond Interchange with Multi-Use Path and Full Interchange Reconstruction
PID 119315

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
1	PAVEMENT				
	MAINLINE & RAMPS - LANES & SHOULDERS - ASPHALT	14900	SQ YD	\$90	\$1,341,000
	MAINLINE & RAMPS - LANES & SHOULDERS - CONCRETE	14000	SQ YD	\$135	\$1,890,000
	PAVEMENT OVERLAY - 2" THICK	23300	SQ YD	\$30	\$699,000
	CONCRETE BARRIER	200	FT	\$155	\$31,000
	10" NON-REINFORCED CONC PAVEMENT, CLASS QCIP	30	SQ YD	\$115	\$3,450
	PAVEMENT SUBTOTAL:				\$3,964,450
2	ROADWAY				
	PAVEMENT REMOVAL	34300	SQ YD	\$16	\$548,800
	EXCAVATION - ROCK		CU YD	\$46	\$0
	EXCAVATION - SOIL	29200	CU YD	\$17	\$496,400
	FILL - EMBANKMENT	1000	CU YD	\$18	\$18,000
	GUARDRAIL	900	FT	\$20	\$18,000
	END/BRIDGE TERMINAL ASSEMBLY	3	EACH	\$1,650	\$5,000
	MGS TYPE B ANCHOR SYSTEM	1	EACH	\$3,000	\$3,000
	TYPE T END POST	2	EACH	\$900	\$1,800
	CLEARING & GRUBBING	7	ACRE	\$4,000	\$28,000
	4" CONCRETE WALK	26600	SF	\$12	\$319,200
	CURB, TYPE 6	500	LF	\$35	\$17,500
	CURB, TYPE 9	0	LF	\$25	\$0
	COMBINATION CURB AND GUTTER, TYPE 2	0	LF	\$45	\$0
	ROADWAY SUBTOTAL:				\$1,455,700
3	DRAINAGE				
	5% OF Items 1-2	0.05	LUMP	\$5,420,150	\$271,100
	DRAINAGE SUBTOTAL:				\$271,100
4	EROSION CONTROL				
	5% of Items 1-2	0.05	LUMP	\$5,420,150	\$271,100
	EROSION CONTROL SUBTOTAL:				\$271,100
5	UTILITIES				
	1% of Items 1-2	0.01	LUMP	\$5,420,150	\$54,300
	UTILITIES SUBTOTAL:				\$54,300
6	LIGHTING				
	SYSTEM - FULL INTERCHANGE		LUMP	\$754,000	\$0
	SYSTEM - PARTIAL INTERCHANGE		LUMP	\$451,000	\$0
	SERVICE - FULL INTERCHANGE		LUMP	\$231,000	\$0
	SERVICE - PARTIAL INTERCHANGE	1	LUMP	\$119,000	\$119,000
	CONTINUOUS ROADWAY		LF	\$160	\$0

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
	SUPPLEMENTAL LIGHTING (INDIVIDUAL TOWERS)		EACH	\$59,000	\$0
	LIGHTING SUBTOTAL:				\$119,000
7	TRAFFIC SIGNALS				
	SIGNALS - INTERSECTIONS	4	EACH	\$209,000	\$836,000
	TRAFFIC SIGNALS SUBTOTAL:				\$836,000
8	TRAFFIC CONTROL				
	SIGNING (Rural freeway)	0.30	MILE	\$250,000	\$75,000
	PAVEMENT MARKING	2.00	MILE	\$48,000	\$96,000
	TRAFFIC CONTROL SUBTOTAL:				\$171,000
9	STRUCTURES				
	PROPOSED BRIDGE				
	MULTI-SPAN < 4000 SQ FT		SQ FT	\$275	\$0
	MULTI-SPAN > 4000 SQ FT		SQ FT	\$330	\$0
	PROPOSED BRIDGE WIDENING				
	BRIDGE WIDENING		SQ FT	\$220	\$0
	SUPERSTRUCTURE REPLACEMENT AND WIDENING		SQ FT	\$275	\$0
	PROPOSED BRIDGE MAINTENANCE				
	SRS BRIDGE DECK TREATMENT	0	SQ FT	\$8	\$0
	MINOR REHABILITATION WORK		SQ FT	\$6	\$0
	STRUCTURES SUBTOTAL:				\$0
10	RETAINING WALLS				
	CAST-IN-PLACE RETAINING WALL		SQ FT	\$240	\$0
	MSE RETAINING WALL		SQ FT	\$170	\$0
	CONCRETE BARRIER W/ SLEEPER SLAB ON MSE RET. WALL		FT	\$280	\$0
	RETAINING WALLS SUBTOTAL:				\$0
10A	NOISE WALLS				
	NOISE WALL	0	LF	\$485	\$0
	NOISE WALL SUBTOTAL:				\$0
11	BUILDING DEMOLITION				
	RESIDENTIAL - SMALL		EACH	\$13,000	\$0
	RESIDENTIAL - LARGE		EACH	\$22,500	\$0
	COMMERCIAL - SMALL		EACH	\$30,500	\$0
	COMMERCIAL - MEDIUM		EACH	\$46,000	\$0
	COMMERCIAL - LARGE		EACH	\$75,500	\$0
	NON-HIGHWAY DEMOLITION SUBTOTAL:				\$0
12	MAINTENANCE OF TRAFFIC				
	12% OF ITEMS 1-11	0.12	LUMP	\$7,142,650	\$857,200
	MAINTENANCE OF TRAFFIC SUBTOTAL:				\$857,200

Planning-Level Cost Estimate

Date: December 2025

ITEM	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	TOTAL
13	INCIDENTALS				
	623 CONSTRUCTION LAYOUT STAKES (0.50% OF ITEMS 1-12)	0.005	LUMP	\$7,999,850	\$40,000
	624 MOBILIZATION (PER 2023 CMS)	1	LUMP	\$400,000	\$400,000
	PERFORMANCE BOND (0.50% OF ITEMS 1-12)	0.005	LUMP	\$7,999,850	\$40,000
	619 FIELD OFFICE	18	MON	\$4,000	\$72,000
	MISCELLANEOUS SUBTOTAL:				\$552,000
	TOTAL CONSTRUCTION COST IN 2025 DOLLARS:				\$8,551,850
14	DESIGN CONTINGENCY				
	20% DESIGN CONTINGENCY	(20% OF CONSTR.)			\$1,710,400
	CONSTRUCTION SUB-TOTAL:				\$10,262,250
15	INFLATION CONTINGENCY (From ODOT Inflation Calculator)	(25.2% OF CONSTR. SUB-TOTAL)			\$2,586,100
	TOTAL CONSTRUCTION COST:				\$12,848,350
	DESIGN ENGINEERING COST:		(11% OF CONSTR. TOTAL)		\$1,414,000
	CONSTRUCTION INSPECTION COST:		(10% OF CONSTR. TOTAL)		\$1,284,900
	TOTAL CONSTRUCTION, DESIGN AND INSPECTION COST:				\$15,547,250
16	RIGHT OF WAY				
	TOTAL TAKE				
	RELOCATION & COMPENSATION - MAJOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - MINOR COMMERCIAL		EACH		\$0
	RELOCATION & COMPENSATION - RESIDENTIAL		EACH	\$250,000	\$0
	COMPENSATION - VACANT RESIDENTIAL		EACH	\$50,000	\$0
	PARTIAL TAKE				
	PARTIAL TAKE - MAJOR COMMERCIAL	4	EACH	\$20,000	\$80,000
	PARTIAL TAKE - MINOR COMMERCIAL (Aerial Easement)		EACH	\$10,000	\$0
	PARTIAL TAKE - RESIDENTIAL		EACH	\$10,000	\$0
	ACQUISITION SERVICES				
	COMMERCIAL	4	EACH	\$13,000	\$52,000
	RESIDENTIAL		EACH	\$7,000	\$0
	TEMPORARY WORK AGREEMENT		EACH	\$4,000	\$0
	RIGHT OF WAY SUBTOTAL:				\$132,000
	TOTAL CONSTRUCTION AND ROW COST IN 2025 DOLLARS:				\$15,679,250