

E/W Freight Routes, Phase 2



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Dover/Kent County MPO
&
Kent Economic Partnership

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East/West Freight Routes Phase 2 Study

Kent County, Delaware

Contents

Executive Summary	3
SR 1 Interchange – Dover	3
Hazlettsville Road to Forrest Avenue Extension – Dover	3
US 113 N to SR 1 S Ramp – Milford.....	4
Airport Road to Warner Road Connector – Milford.....	4
US 13 Crossover – Harrington	4
Main Street Truck Restriction – Clayton.....	4
Introduction	5
Existing Conditions.....	6
Purpose & Need	8
Industry & Community Outreach	9
Prioritization	10
Concepts.....	12
Clayton	12
Main Street Truck Restriction.....	12
Dover	14
SR 1 Interchange	15
Hazlettsville Road to Forrest Avenue Connector	16
Division Street (SR 8) Truck Restriction	21
Milford	22
Airport Road to Warner Road Connector.....	24
US 113 N to SR 1 S Ramp	25
Harrington	27
US 13 Crossover	28
Cost Estimates.....	30
SR 1 Interchange – Dover	30
Hazlettsville Road to Forrest Avenue Extension – Dover	30
US 113 N to SR 1 S Ramp – Milford.....	31

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Airport Road to Warner Road Connector – Milford.....	31
US 13 Crossover – Harrington	31
Main Street Truck Restriction – Clayton.....	31
<i>Appendix A</i>	32
Completed Questionnaires	32
<i>Appendix B</i>	33
SR 8 Downtown Dover Truck Restriction	33
<i>Appendix C</i>	34
Individual Concept Plans	34
<i>Appendix D</i>	35
Cost Estimates.....	35

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Executive Summary

This study is a continuation of and builds on the Kent County East-West Truck Freight Route Feasibility Analysis Phase 1 study which was completed in December 2022. This current study, as well as the Phase 1 study, were sponsored by the Kent Economic Partnership (KEP) and managed through the Dover/Kent County MPO (MPO). This initiative supports the mission of the KEP to spur economic development in Central Delaware. A 2018 analysis by Rockport Analytics and Reach Market Planning identified logistics and manufacturing as two of the target industries for Kent County, both of which require a robust and reliable transportation network which led KEP to sponsor the Phase 1 and Phase 2 freight route studies.

This study encompasses the entirety of Kent County, Delaware, an area of 798 square miles. Given the extent of the study area, potential improvements were initially evaluated on a macro level, and then prioritized based on industry support, coordination with local officials, KEP insight, and a prioritization matrix that was created as part of this study.

The purpose of this study was to identify east/west routes or portions of routes in Kent County that present challenges for freight movement and recommend targeted improvements or potential new alignments that would enhance efficiency, reliability, and safety of freight movement across the county.

Based on the results of the prioritization analysis, the following six (6) recommendations were conceptually developed including cost estimates:

SR 1 Interchange – Dover

Design	\$750,000
Row	\$2,300,000
Construction	\$5,908,000
Total	\$8,958,000

Hazletville Road to Forrest Avenue Extension – Dover

Design	\$1,600,000
Row	\$2,500,000
Construction	\$9,244,000
Total	\$13,344,000

***Concept 2 Total \$13,014,000**

*Approximately \$330,000 less than Concept 1

East/West Freight Routes Phase 2 Study

Kent County, Delaware

US 113 N to SR 1 S Ramp – Milford

Design	\$397,000
Row	\$750,000
Construction	\$3,004,000
Total	\$4,151,000

Airport Road to Warner Road Connector – Milford

Design	\$746,000
Row	\$1,000,000
Construction	\$5,993,000
Total	\$7,739,000

US 13 Crossover – Harrington

Design	\$93,000
Row	\$0
Construction	\$626,000
*Total	\$719,000

* This improvement was prioritized as part of a separate TIF, therefore funding could potentially be secured from an alternate source other than DelDOT's Capital Transportation Program (CTP).

Main Street Truck Restriction – Clayton

Design	\$485,000
Row	\$200,000
Construction	\$1,932,000
Total	\$2,617,000

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Introduction

The Dover Kent County MPO on behalf of The Kent Economic Partnership (KEP) initiated a study to build on the previous completed East West Freight Routes, Phase 1 study to develop specific improvements and recommendations on how to improve the capacity, reliability, and efficiency of east west freight routes in Kent County. This initiative supports the mission of the KEP to spur economic development in Central Delaware. The transportation network and access to markets is critical to business attraction and retention efforts of the KEP in central Delaware.

In 2018, Rockport Analytics and Reach Market Planning performed a target cluster analysis of Kent County, seeking a manageable list of viable industry targets for economic development strategy and outreach (*Figure 1*). The study identified logistics and manufacturing as two of the target industries for Kent County. The nature of these industries is the movement of goods throughout the state and region. This requires a robust and reliable transportation network. KEP commissioned an update to the original study in 2020. The results of the study are consistent with the 2018 study. The recommended target areas for Kent County



Figure 1 Rock Analytics and Reach Market Planning

include:

- Business & Legal Services
- Distribution, Warehousing, Logistics
- Health Care
- Fabricated Metals
- Light Manufacturing
- Rental, Leasing, and Repair

Four of the six target areas have critical supply chain requirements and would be supported by improved east west freight access. Additionally, the study identified the key target industries for the three major municipalities in Kent County. These include Smyrna, Dover, and Milford.

This study builds on the efforts of the Phase 1 study. The initial purpose of the Phase 1 study was to determine the most effective east-west freight route for Kent County. As the study progressed it became apparent that it needed to focus on identifying appropriate routes and the possible need for new routes that are designed for truck travel efficiency and reliability. The study analyzed existing east-west truck freight traffic patterns, identified deficiencies that impact freight movements, and provided recommendations for a preferred set of improvements for east west truck freight routes in Kent County. The initial study also explored future infrastructure improvements such as commercial truck bypasses, new bridges, and other improvements, which may be required in the future as Kent County continues to grow.

As identified in the Phase 1 study, Kent County has five major east west corridors that connect the three (3) major municipalities, and other areas of the County to the eastern parts of Maryland, and ultimately the US 50 corridor and Bay Bridge to reach markets in Baltimore and Washington DC, as follows:

East/West Freight Routes Phase 2 Study

Kent County, Delaware

- SR 300 between the Maryland state line and Smyrna
- SR 42 between SR 300 and US 13
- SR 8, SR 11, and SR 44 between the Maryland state line and SR 1
- SR 10 between the Maryland state line and SR 1; also includes the Camden Bypass
- SR 14 between the Maryland state line and SR 1

Based on the initial findings of the Phase 1 study, the Phase 2 Study identified pinch points and other freight movement impediments along the identified routes to determine what specific areas needed a more detailed engineering analysis. These locations became the focus areas of the Phase 2 study.

As part of the Phase 2 study's detailed engineering analysis, scaled conceptual drawings, and alternatives were developed for evaluation. This approach allowed the study to identify and develop detailed alternatives that can be incorporated into the MPO Metropolitan Transportation Plan (MTP) and ultimately the programmed and funded Transportation Improvement Program (TIP).

The Phase 1 plan also recommended an evaluation of a bypass and/or alternate designated truck route. Phase 2 will explore this idea further by looking at possible options in and around the municipal areas. This effort will also need to be coordinated with the MPO's SR42 By-Pass study that will be happening concurrently with this study.

Existing Conditions

Centrally located in the state, Kent County has a total area of 798 square miles and borders New Castle County to the north and Sussex County to the south. It is comprised of eight "Hundreds," a colonial designation with somewhat unclear origins including areas of 100 families or people, or an area that could raise 100 militiamen. There are three cities in the County, Dover, Harrington, and Milford, seventeen Towns, and four unincorporated localities.

Of Delaware's three (3) counties, Kent is the least populated with a population of 181,851 according to the 2020 US Census. According to the 2021 American Community Survey, the racial makeup of that population was as follows: 58.8% Non-Hispanic White, 28.4% Black or African American, 0.8% Native American, 2.4% Asian, 0.1% Pacific Islander, 4.1% multiracial, and 7.8% Hispanic or Latino. The median household income for this population was \$63,715 with 12.2% of the population living below the poverty line.

Major highways located in Kent County include US 13, US 113, as well as thirteen roads that are designated State Routes. The Delmarva Central Railroad operates two freight lines through the County, but there is currently no passenger rail service in the County. Delaware First State operates several local bus routes in Dover, as well as services to other parts of the state including Wilmington, Newark, Georgetown, Lewes, and Rehoboth Beach. Seven public-use and military airports are located in Kent County in Dover, Farmington, Cheswold, Felton, Wyoming, and Smyrna.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

This study encompasses the entirety of Kent County, Delaware (*Figure 2*), and as such required both macro and micro approaches to analyses. As noted previously, this study builds on the Phase 1 Study which was completed in December 2022, and incorporates many of those overall elements, initial findings, and recommendations into this Phase 2 Study. One of the initial steps of the Phase 2 study was to evaluate the recommendations of the Phase 1

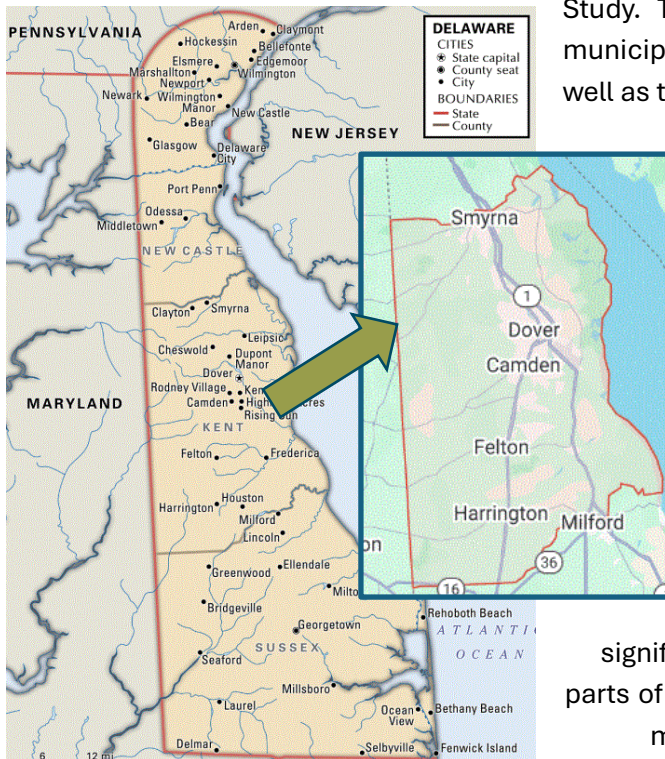


Figure 2 Project Location

Study. This was accomplished through coordination with various municipalities, agencies, and members of the freight community, as well as through in-field analyses. All potential routes recommended in

the Phase 1 report were driven, or in the case of new alignment recommendations, evaluated in the field to help determine their viability. Through this evaluation, recommendations from the Phase 1 study were refined, and in some cases, new improvements were identified, evaluated, and recommended. Proposed improvements recommended included upgrades to existing roadways and intersections, development of new alignments, as well as an evaluation of current truck restrictions including potentially adding or lifting existing restrictions.

Several municipalities within the County are home to numerous industries and other organizations that generate significant freight traffic that travel through their towns and other parts of the County. As part of this study, coordination occurred with many of these municipalities and industries to gain their insight into the impact freight movement has on municipalities, and the difficulties freight movers face traveling through them as

they seek access to the regional highway network.

The primary municipalities, and industries within those municipalities this study focused on include the following:

Clayton:

- Hanover Food Corporation
- Walmart Distribution Center

Dover:

- Delaware Air Force Base
- Central Delaware Aviation Complex
- Garrison Oaks Technology Park
- Kraft Heinz Company
- Proctor & Gamble
- Edgewell Personal Care
- Hirsh Industries

East/West Freight Routes Phase 2 Study

Kent County, Delaware

- Delmarva Corrugated Packaging

Milford

West

- United Cold Storage
- Southern States
- Delaware Building Supply
- Milford Public Works
- Baltimore Air Coil company

East

- Perdue Farms, Inc
- Kent-Sussex Industries, Inc

Harrington

- PJ Woodlands
- OA Newton Company
- Pepsi Bottling Ventures
- Argo LAB
- EZ Work Trucks

Concepts were developed, and recommendations made to facilitate freight movement in these areas and for these industries.

Purpose & Need

The purpose of this study was to identify east/west routes or portions of routes in Kent County, Delaware that present challenges for freight movement. These challenges may include congestion, limited access, roadway geometry, safety concerns, or conflicts with non-freight traffic. The goal is to assess these issues and recommend targeted improvements or potential new alignments that would enhance efficiency, reliability, and safety of freight movement across the county.

The need for this study arises from the growing importance of freight traffic in supporting regional economic development. As freight volumes increase and land patterns evolve, it becomes essential to ensure that Kent County can accommodate these changes while also minimizing negative impacts on communities, infrastructure, and other roadway users. This study supports the efforts to strengthen the county's freight transportation network and position it for changes in the future.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Industry & Community Outreach

The analyses performed as part of this study were valuable and important components in identifying potential east/west freight route improvements. In addition to these analyses, it was essential to solicit feedback from area freight movers to gain firsthand knowledge of the travel issues and challenges they face in the County, as well as gaining perspective from the communities that freight mover travel through regularly.

As noted previously, the study area encompasses all of Kent County, Delaware. Given the extent of the study area and the type of study, it was not practical, feasible nor would it have been efficient to hold general, public workshops and expect a robust turnout. Instead, the more effective approach was to target key stakeholders, including drivers, dispatchers, and others in the freight community, as well as officials in the towns and cities that are regularly affected by freight movement.

A survey was developed in both hard copy and online formats to solicit input from freight the community. The hard copy was mailed to a project mailing list of known freight generators throughout the County. The hard copy included a QR Code providing the option to complete the Questionnaire electronically. The completed Questionnaires can be found in [Appendix A](#) of this report.

In addition to the Questionnaire, this study included meetings and presentations to various stakeholders, both freight movers, as well as local officials from municipalities affected by freight movement. The following provides a complete list of these meetings to date:

- | | |
|--|--------------------|
| • Development of Freight Generators Survey | February 2024 |
| • Mailing of Survey to Freight Generators | March 2024 |
| • Stakeholder Roundtable | March 26, 2024 |
| • Survey with QR Coded Emailed to DE Farm Bureau (Jaiden Cain) | March 2024 |
| • Summer 2024 Freight Summit | June 5, 2024 |
| • Development and Posting of On-Line Freight Generators Survey | April 2024 |
| • Meeting with Milford (Rob Pierce) | August 1, 2024 |
| • Meeting with Clayton (Paul Johnson) | August 26, 2024 |
| • Dover Freight Plan Stakeholder Meeting | September 9, 2024 |
| • E/W Freight Routes Meeting Coordination with Rossi | September 17, 2024 |
| • Dover Freight Routes Meeting Coordination with WRA | September 18, 2024 |
| • Meeting with Dover (Dave Hugg & Sharon Duca) | September 24, 2024 |
| • Winter 2024 Freight Summit | December 11, 2024 |

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Prioritization

Given the number of routes identified and evaluated countywide, it was not practical at this level of study to develop full concept plans for each recommendation. *Figures 3 & 4* highlight these routes, illustrating the extent of analyses performed as part of this study.



Figure 3 Improvements Evaluated Northern Kent County

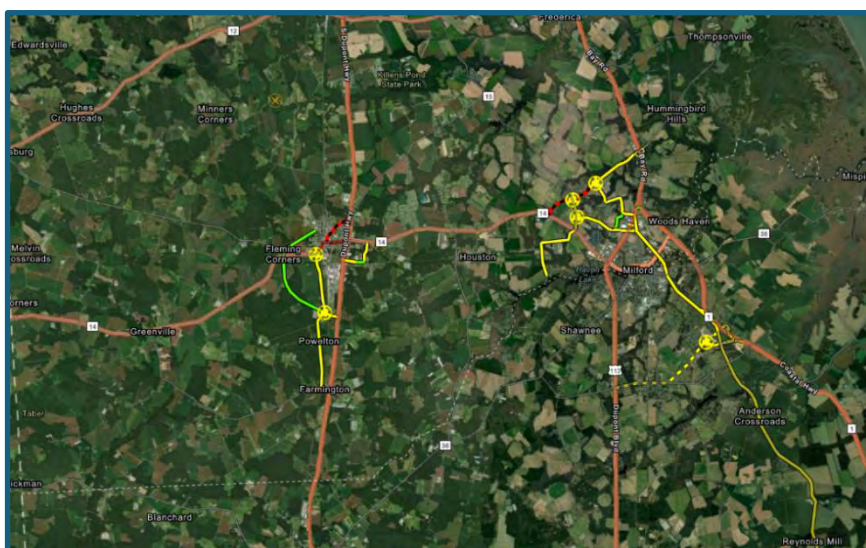


Figure 4 Improvements Evaluated Southern Kent County

Legend

Proposed Lines

Type

- Proposed Truck Connection
- Upgrade Existing Roadway
- Potential Roadway Upgrade

Truck Restrictions

STATUS

- Existing Truck Restriction
- Explore Feasibility of Lifting Truck Restrictions
- Explore Feasibility of Adding Truck Restriction

East/West Freight Routes Phase 2 Study

Kent County, Delaware

To help determine which recommendations should be fully developed, a Prioritization Matrix was created to evaluate several key criteria. These included the number of trucks benefitting, impediments removed, presence of bottlenecks on routes, and support from the Kent Economic Partnership (KEP). *Figure 5* presents the matrix with the full set of criteria used to rank proposed recommendations. *Figure 6* shows the relative score of each recommendation based on those criteria.

Although all the recommended improvements were identified as part of the Phase 2 Study, full concept plans and cost estimates were developed for the top six (6) ranked recommendations countywide.

The methodology used to calculate the “Number of Trucks Benefiting” involved applying each road segment’s Average Annual Daily Traffic (AADT) and its truck percentage based on its Traffic Group Pattern.

E/W Freight Routes Phase 2 Prioritization Matrix				
Criteria	Method of Measurement		Measurment Ranges	Overall Score
Number of Trucks Benefitting	Number of Trips		801-1000	5
			601-800	4
			401-600	3
			201-400	2
			0-200	1
Impediments Removed	Width	1	>4	5
	Weight	3	4	4
	Turning Movements	2	3	3
			2	2
			1	1
Bottlenecks	Is the project located on an identified bottleneck?		Yes	1
			No	0
KEP Support	Is the project desired by the local community and the surrounding industries?		Highest Priority	5
			High Priority	4
			Medium Priority	3
			Low Priority	2
			Lowest Priority	1
Freight Route	Is the project located on an identified freight route?		Yes	1
			No	0

Figure 5 Prioritization Matrix

In addition to the Prioritization Matrix, input from the freight community was an important factor in determining which recommendations moved forward for full concept development. Input included meetings with freight drivers and business owners, local officials, and the Delaware Farm Bureau, the public, as well as the results from the project Questionnaire.

The Kent Economic Partnership’s (KEP) feedback and prioritization of the recommendations

were heavily weighted. As the project sponsor, the KEP plays a vital role in driving countywide economic growth. This includes collaborating with existing industries to identify ways to improve freight movement to and from their businesses and the regional highway network. Also, the KEP works to attract new industries to the county which involves regular correspondence with potential businesses about the transportation improvements that would encourage them to establish operations in the county. Because the KEP’s priorities are informed by direct industry input, they carried significant weight in the final ranking of the recommendations.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

E/W Freight Routes Study, Phase 2 Recommendations	Number of Trucks Benefitting	Impediments Removed	Bottlenecks	KEP Support	Freight Route	Total Score	Final Rating
SR 1 Interchange – Dover	5	2	1	5	1	14	1
Hazlettville Road to Forrest Avenue Extension – Dover	4	3	1	4	0	12	2
US 113 to SR 1 Ramp – Milford	5	2	1	2	1	11	3
Airport Road to Warner Road Extension – Milford	5	3	1	2	0	11	4
US 13 Crossover – Harrington	2	3	0	3	1	9	5
SR 14 and SR 13 Intersection Improvement	5	2	0	1	1	9	6
SR 42/SR 300 Intersection Improvement	5	1	0	1	0	7	7
Main Street Truck Restriction – Clayton	3	1	0	2	0	6	8
SR 8 Truck Restriction	5	0	0	0	0	5	9

Figure 6 Prioritization of Recommendations

Concepts

Based on the results of the prioritization analysis, the following six (6) recommendations were identified for full concept development. These concepts are listed in geographical order, from north to south throughout Kent County, not by their priority ranking.

Clayton

Main Street Truck Restriction

This concept involves rerouting truck traffic from using Main Street through Clayton. Currently, high volumes of trucks, many from Hanover Foods, traveling east on Millington Road continue through Main Street to access regional highways including US 13 and SR 1. Through meetings and follow-up coordination with Clayton town officials, they expressed a desire to eliminate trucks with a regional destination from using Main Street. Based on this coordination, a concept was developed that would post a truck restriction on the Main Street/School Lane intersection and reroute trucks to School Lane to Wheatley's Pond Road (SR 300). This concept would include converting the traditional intersection of Main Street/School Lane to a roundabout to facilitate truck travel. School Lane is currently under evaluation as part of another study, including the intersection of School Lane/Wheatley's Pond Road and conceptually includes: replacing the existing six (6) foot sidewalk on the south side of School Lane with a ten (10) foot shared use path (which would be shifted slightly south to accommodate the proposed roundabout), a new traffic signal including a protected left turn phase from Wheatley's Pond Road to School Lane and pedestrian signals, new right and left turn lanes from Wheatley's Pond Road to School Lane, and new pedestrian crosswalks on School Lane and Wheatley's Pond Road.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Figure 7 provides a locational context and an overview of the proposed Clayton improvements.

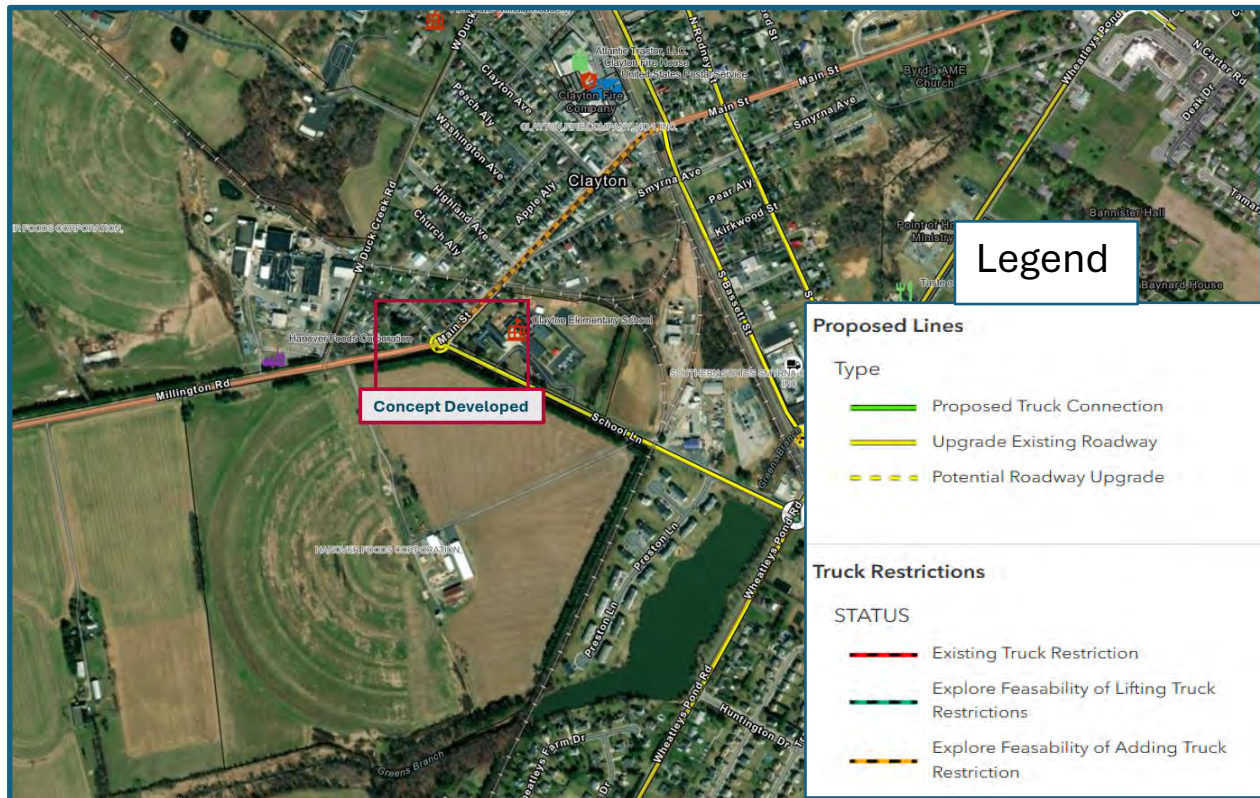


Figure 7 Improvements Overview, Clayton

Figure 8 provides the conceptual roundabout design at Main Street and School Lane in Clayton.



Figure 8 Main Street and School Lane Roundabout, Clayton

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Figure 9 provides the conceptual improvements along School Lane in Clayton.

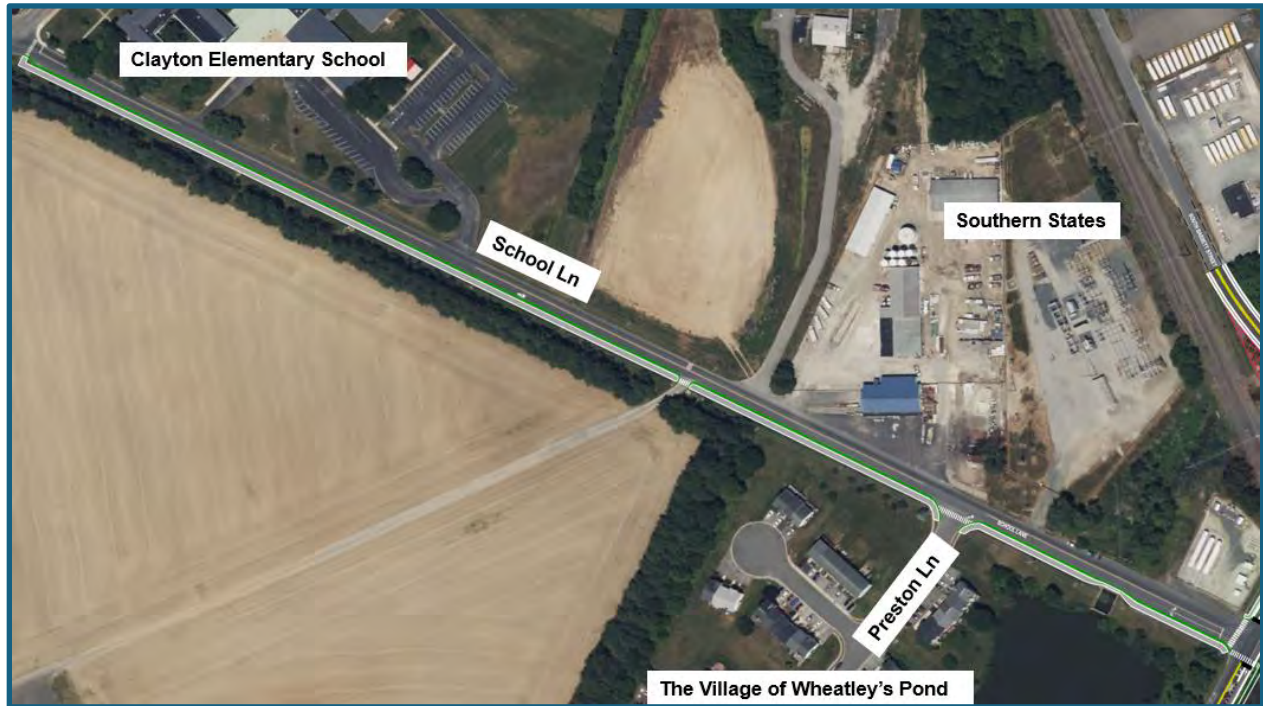


Figure 9 School Lane Improvements, Clayton

Dover

The City of Dover is vital to the economic base of Kent County, and the efficient movement of freight through the City is important to that base. Several major industries and other large freight generators travel through and are even located in the City. The Dover Air Force Base, Central Delaware Aviation Complex (CDAC), and Garrison Oaks Technology Park are located east of SR 1. Kraft Heinz Company, Proctor & Gamble, Edgewell Personal Care, Hirsh Industries, and Delmarva Corrugated Packaging are located off the POW/MIA Parkway on the western side of the City. These industries, and others in the City, as well as numerous within the region routinely travel through downtown Dover as they seek to access the regional highway network. Numerous studies related to the efficient movement of freight through Dover have been conducted, and these studies were reviewed and utilized to assist in the development of improvements as part of this study. The improvements recommended from these other studies are also imperative to facilitate freight movement in the Dover area. These improvements are in varying stages of completion. Funding sources differ and have been identified for some but not others. Most have been fully vetted, and together with the recommendations from this study form a comprehensive freight network for the City of Dover and the surrounding area. The following describes the conceptual alternatives developed for the City of Dover as part of this study.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Figure 10 provides locational context and an overview of the proposed SR 1 Interchange improvements.

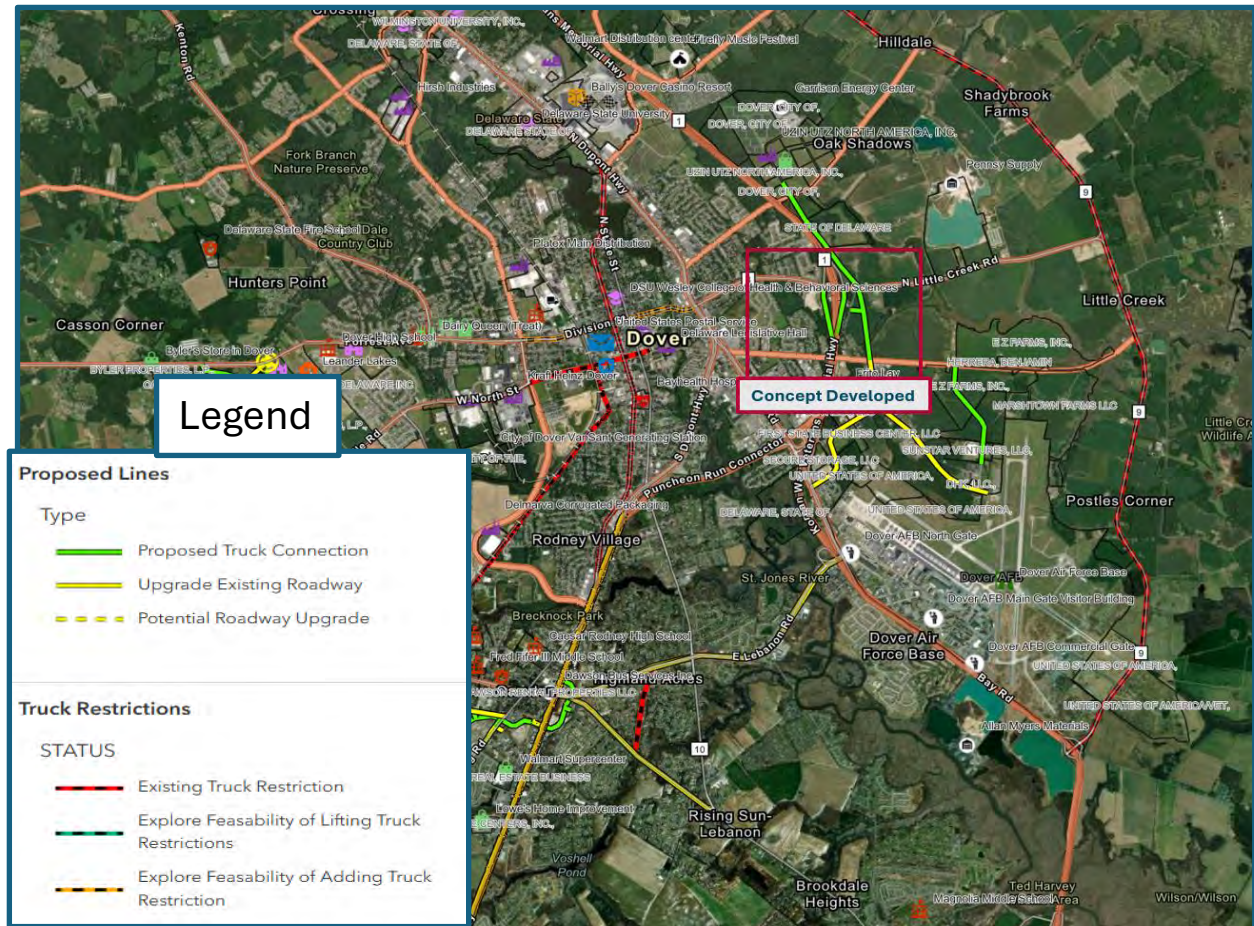


Figure 10 Improvements Overview, Dover East

SR 1 Interchange

The existing SR 1 Interchange at N. Little Creek Road in Dover is a half-diamond configuration, consisting of a northbound on-ramp and a southbound off-ramp. Requests for this interchange to be completed have been common through various past studies, including as part of the Dover Air Cargo Freight Access Study. At the time of that study, the recommendation was to not pursue completing this interchange due to several factors including geometric challenges and costs (the complete study is available on the Dover/Kent County MPO's website). However, since the time of that study, additional industrial development has occurred in this area and requests from the freight community for completing this interchange persist. In addition, the City supports this improvement which was learned through coordination with City of Dover officials as part of this study.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

The proposed improvement would add a northbound off-ramp from SR 1 to N. Little Creek Road and a southbound on-ramp from N. Little Creek Road to SR 1 (*Figure 11*). Both ramps would greatly



Figure 11 SR 1 Interchange

improve access to and from the industrial complexes in this area, including the CDAC and Garrison Oaks Technology Park and would make the area much more attractive for future industries.

Hazlettsville Road to Forrest Avenue Connector

While the completion of the SR 1 interchange facilitates freight movement on the east side of Dover, improving freight access on the west side was also a focus of this study. Several major industries in this area including Kraft Heinz Company, Proctor & Gamble, and Edgewell Personal Care use the POW-MIA Parkway, Forrest Avenue (SR 8), and Hazlettsville Road (SR 15) to and from points west, including the Bay Bridge in Maryland to access Baltimore, MD, Washington DC, and the I 95 corridor. Of particular concern in this area are westbound trucks using Hazlettsville Road. Hazlettsville Road was not designed to handle high volumes of truck traffic. It is a rural road with narrow travel lanes and shoulders, and much of the road is bound by farmland leading to tractors and other slow moving farm equipment often using the road. To address this, the Hazlettsville Road to Forrest Avenue Extension was developed. *Figure 12* provides locational context and an overview of the proposed extension.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

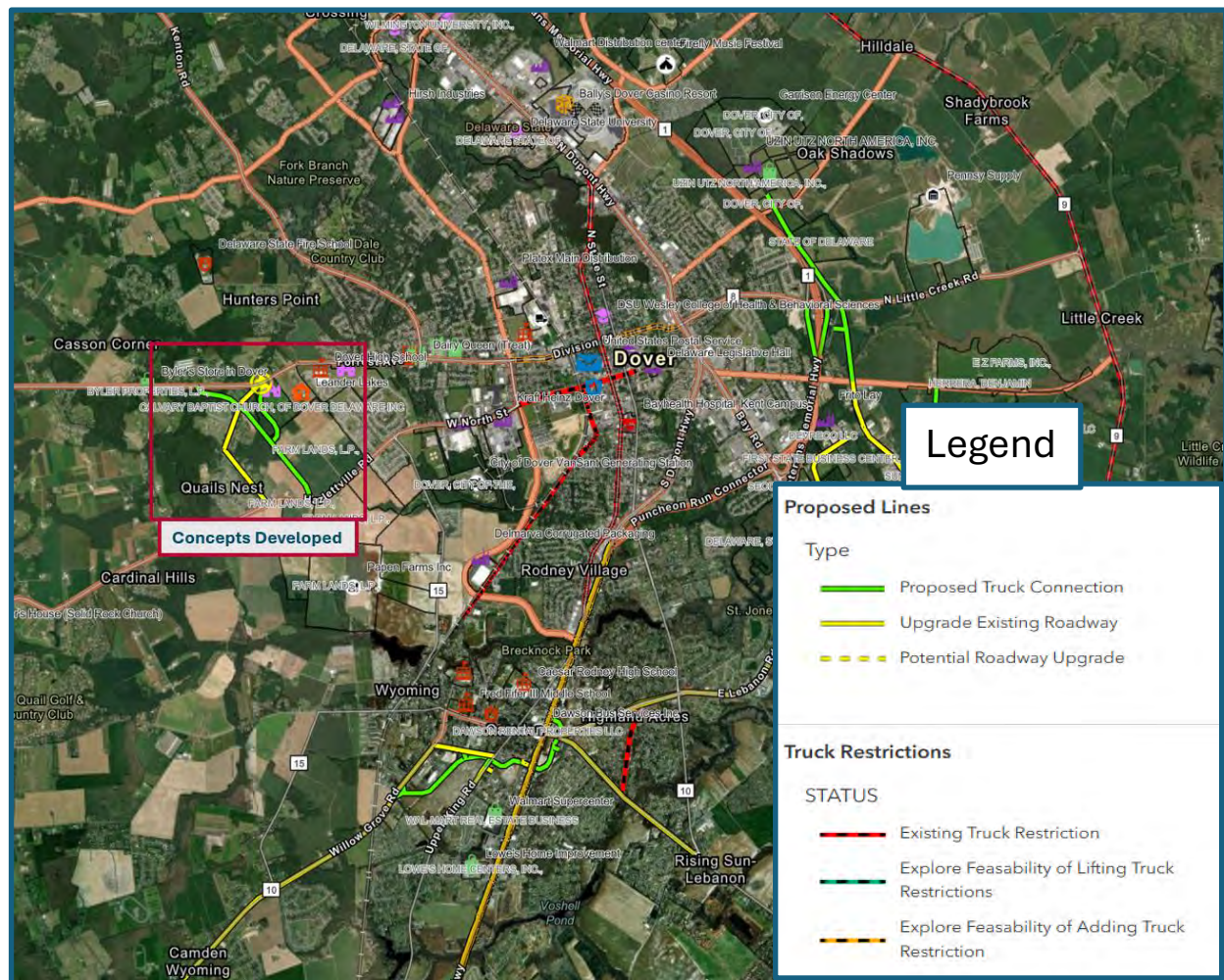


Figure 12 Improvements Overview, Dover West

This concept would include: a connection on new alignment from Hazlettville Road to Forrest Avenue; a new intersection off Hazlettville Road; a new signalized intersection at Forrest Avenue/Artis Drive/Sharon Road; a new intersection with Artis Drive; and two options for new connections from the new alignment to Artis Drive.

Figure 13 shows the entirety of the Hazlettville Road to Forrest Avenue Connector with Connection Concept 1.

East/West Freight Routes Phase 2 Study

Kent County, Delaware



Figure 14 Hazlettville Road to Forrest Avenue Connector with Connection Concept 1

Figure 14 provides a close-up of Connection Concept 1 from the new connector to Artis Drive.



Figure 13 Connection Concept 1 from New Connector to Artis Drive

Figure 15 provides a close-up of the new, signalized intersection at Forrest Avenue/Artis Drive/Sharon Road. A cul-de-sac would be added to Artis Drive west of the new intersection, and a section of existing Artis Drive would be removed.

East/West Freight Routes Phase 2 Study

Kent County, Delaware



Figure 15 Forrest Avenue/Artis Drive/Sharon Road Intersection

Figure 16 shows the entirety of the Hazletville Road to Forrest Avenue Connector with Connection Concept 2.



Figure 16 Hazletville Road to Forrest Avenue Connector with Connection Concept 2

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Figure 17 provides a close-up of Connection Concept 2 from the new alignment to Artis Drive, and a close-up of the new, signalized intersection at Forrest Avenue/Artis Drive/Sharon Road with a section of existing Artis Drive removed.



Figure 17 Connection Concept 2

Figure 18 shows the new intersection off Hazletville Road to the new alignment for both Concepts 1 and 2.



Figure 18 Hazletville Road & New Connector Intersection

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Division Street (SR 8) Truck Restriction

Another concept that was evaluated to improve freight movement in Dover was exploring the feasibility of adding a truck restriction to Division Street (SR 8) between US 13 and Saulsbury Road (SR 15). The purpose of the study was to investigate the impacts on proposed routes to which trucks would be diverted if a truck restriction was implemented on Division Street in Downtown Dover. This concept would entail restricting all eastbound and westbound trucks, except local delivery trucks, from using Division Street between US 13 and Saulsbury Road. Eastbound and westbound trucks north of SR 8 would be diverted to use the Scarborough/McKee/Saulsbury Road Corridor between US 13 and SR 8 as the proposed North Diverted Truck Route. Eastbound and westbound trucks south of SR 8 would be diverted to use the Saulsbury Road/POW-MIA Parkway Corridor between SR 8 and US 13 as the proposed South Diverted Truck Route.

Figure 19 shows the Division Street (SR 8) Truck Restriction, as well as the North Diverted and South Diverted Truck Routes.

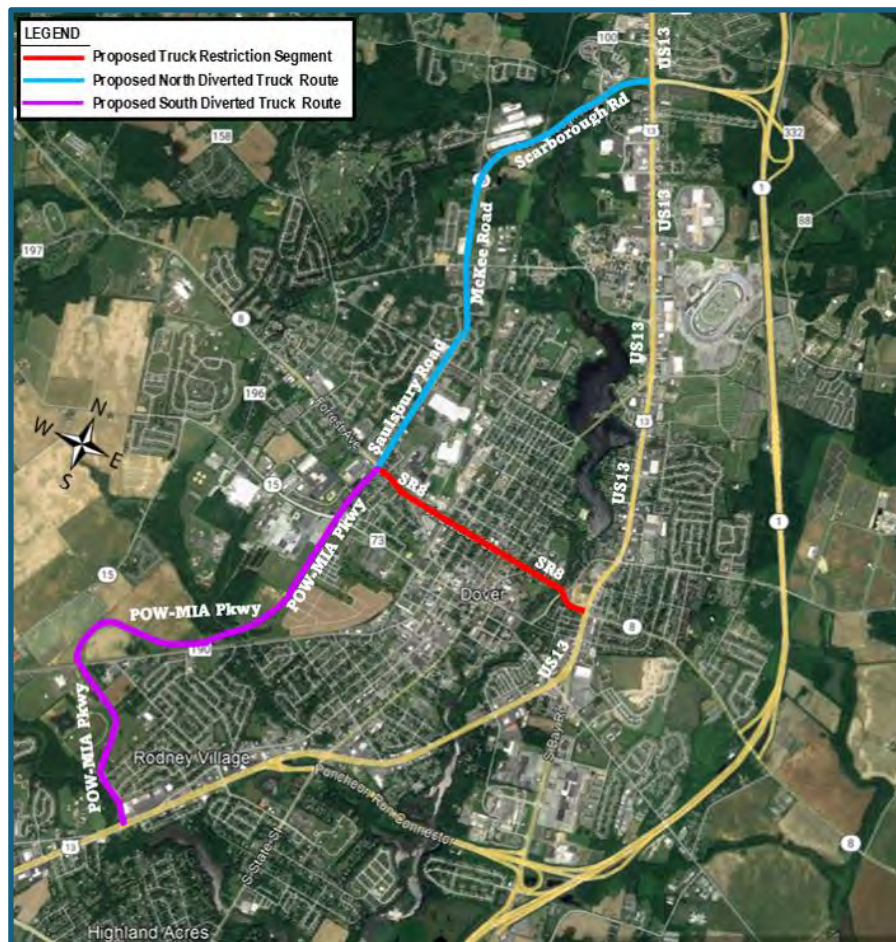


Figure 19 Division Street Truck Restriction & North and South Diverted Truck Routes

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Based on the operational analyses performed for this concept, a comparison between the Future Implementation Year (2025) and the Future Ultimate Year (2052) indicates that there would be no significant increase in delay and no change in level of service (LOS) at the intersections along the North and South Truck Diverted Routes with or without implementation of the Division Street (SR 8) Truck Restriction. It is therefore concluded that the impacted intersections within the study limits would not experience any detrimental decline in traffic operations because of the Division Street (SR 8) Truck Restriction through Downtown Dover.

Based on the travel time assessment performed as part of this study, trucks diverted because of implementing the Division Street (SR 8) Truck Restriction through Downtown Dover would not experience an increase in travel time exceeding two (2) minutes under current A.M. or P.M. peak hour traffic conditions. Assuming traffic increases uniformly throughout West Dover and signal timing adjustments remain consistent, the difference in travel times between the proposed truck-restricted SR 8 segment and the proposed diverted truck routes is not expected to vary significantly from the current difference. It is therefore concluded that diverted trucks within the study limits would not experience an unreasonable increase in travel time because of the Division Street (SR 8) Truck Restriction through Downtown Dover.

However, when presented to the freight community, there were concerns with this concept including travel times (despite the results of the travel time assessment) and fuel consumption. In addition, the Kent Economic Partnership (KEP) did not fully support this recommendation in part due to this lack of industry support. Due to these concerns, additional analyses and further coordination with the freight community are recommended before proceeding forward with this concept. Therefore, additional detailed conceptual development was not conducted for this concept as part of this study.

The complete *Traffic Analysis for SR 8, Downtown Dover Truck Restriction* report can be found in [Appendix B](#) of this report.

Milford

Split by the Mispillion River, the northern portion of the City of Milford is located in Kent County and the southern portion is in Sussex County. This study focused on the Kent County portion of the City, specifically the area west of US 113 in the vicinity of Airport Road and SR 14. There are numerous large freight generators in this area including United Cold Storage, Southern States Corporation, Delaware Building Supply, and Baltimore Air Coil. Access to and from SR 1 is vital to much of this freight traffic. Coordination with the freight industry in this area, as well as City officials, indicated that improved access to and from SR 1 would facilitate freight movement, serve to make this area more attractive for future industrial growth, and avoid having trucks use local roads and portions of the inner-city as they travel to and from the regional highway network.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Currently, trucks from industries west of US 113 and in the vicinity of Airport Road and SR 14, traveling south on SR 1 exit at the Thompsonville Road interchange and weave their way through a circuitous route of small local roads including Church Hill Road, Bowman Road, and Warner Road, to reach their destinations. To address this, a new connection between Airport Road and Warner Road was developed.

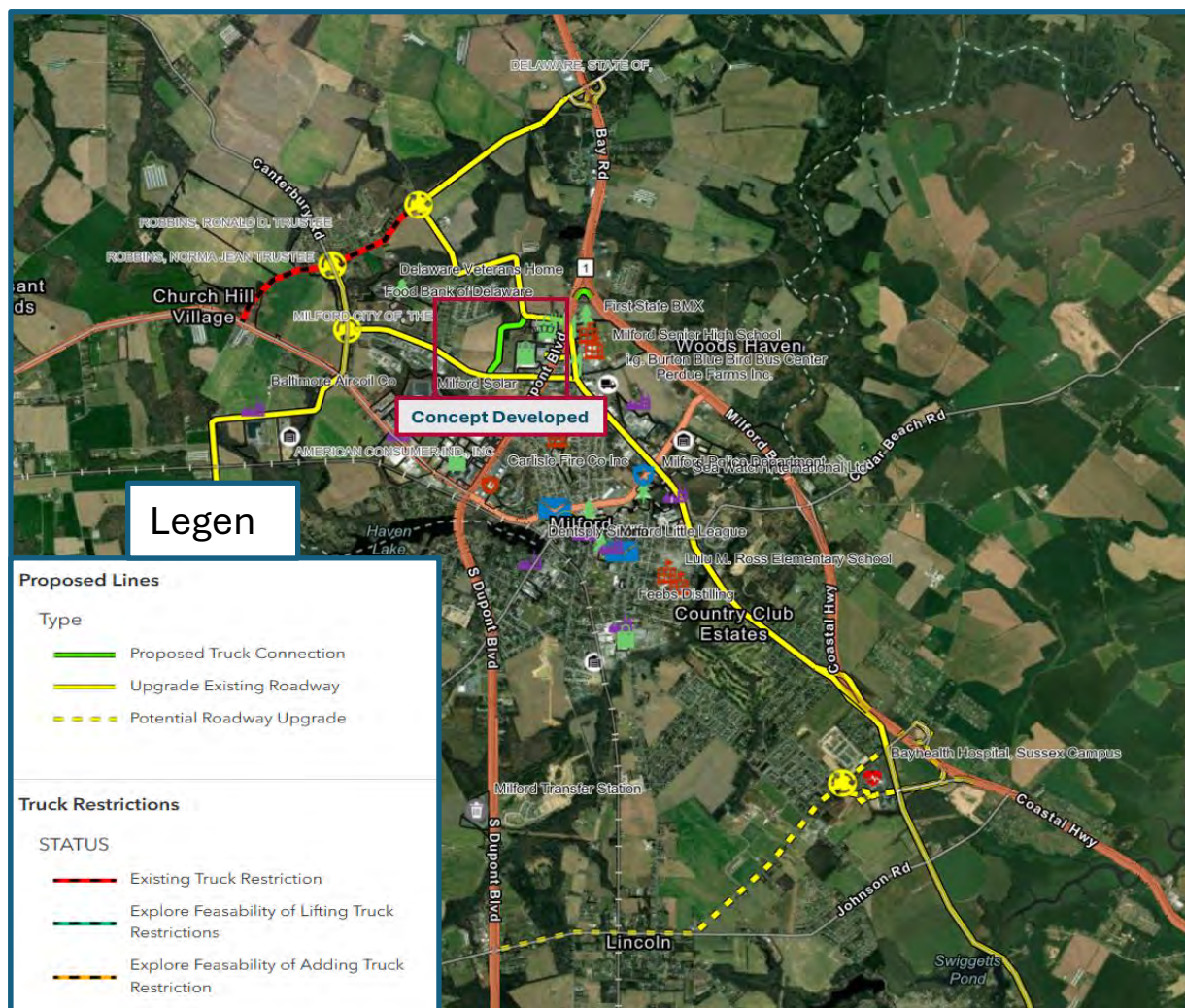


Figure 20 Improvements Overview, Milford West

Figure 20 provides locational context and an overview of the proposed extension.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Airport Road to Warner Road Connector

This concept would include: a connection on new alignment between Airport Road and Warner Road; improvements to Airport Road including widening and dedicated left and right turning lanes; and new intersections with the proposed extension at Airport Road and Warner Road.

Figure 21 shows the proposed new connector between Airport Road and Warner Road.



Figure 21 Airport Road to Warner Road Connector

Figure 22 shows the proposed Airport Road improvements and the new intersection with the proposed connector.



Figure 22 Airport Road Improvements and Intersection with Connector

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Figure 23 shows the new Warner Road intersection with the proposed connector.



Figure 23 Warner Road Intersection with New Connector

US 113 N to SR 1 S Ramp

Another important link that would facilitate freight movement in Milford, according to City officials, is to provide improved access for trucks traveling north on US 113 to SR 1 south. To address this, a ramp connecting these two important freight corridors was developed. Figure 24 provides locational context and an overview of the proposed ramp.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

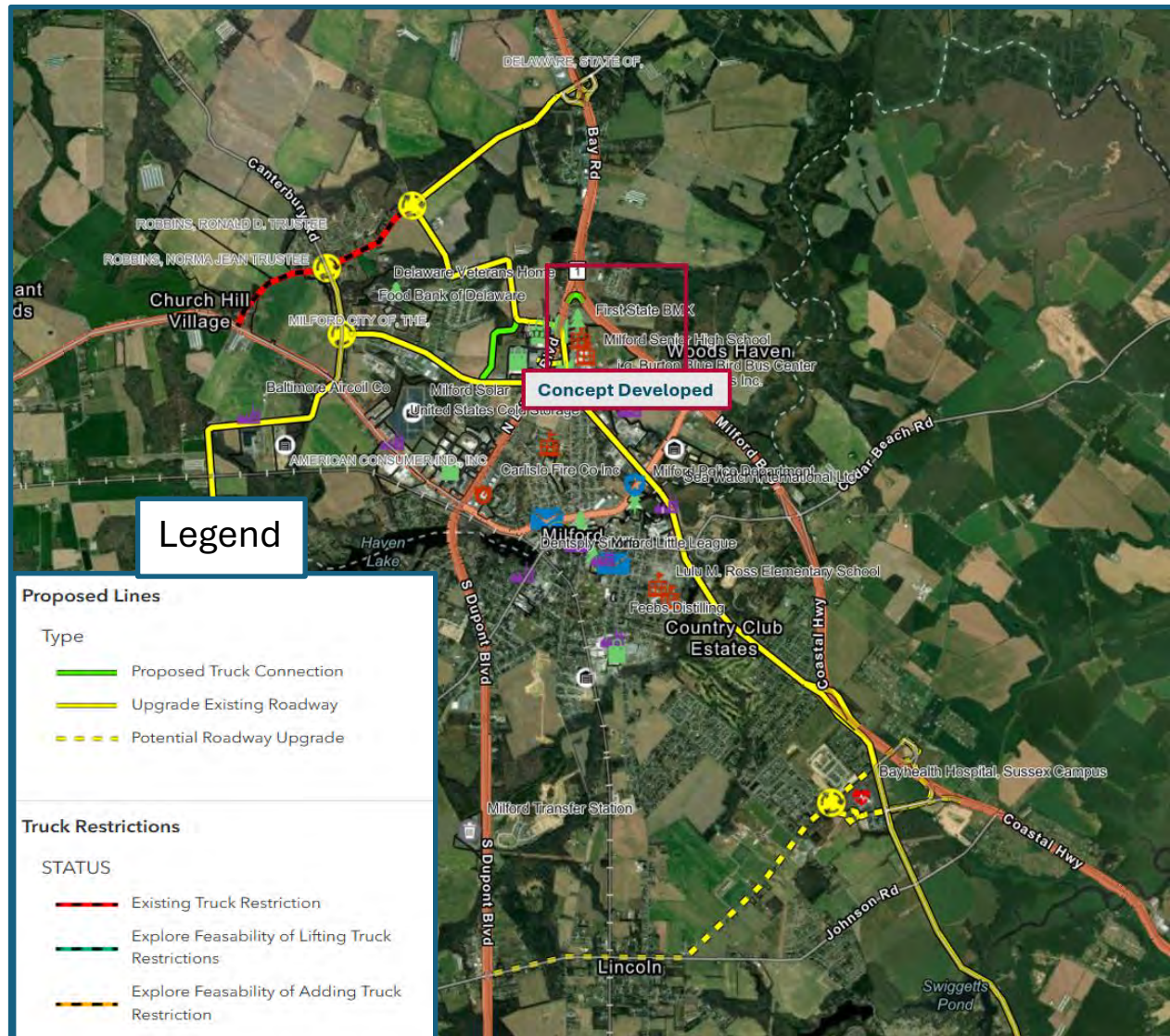


Figure 24 Improvements Overview, Milford East

East/West Freight Routes Phase 2 Study

Kent County, Delaware

This concept would include a slip ramp for vehicles traveling northbound on US 113 to access SR 1 southbound. *Figure 25* shows the proposed US 113 northbound to SR 1 southbound ramp.



Figure 25 US 113 N to SR 1 S Ramp

Several other improvements in Milford were evaluated such as roadway widenings, intersection upgrades, or the addition of shoulders to the following:

- Church Hill Road improvement between SR 1 and Bowman Road
- Bowman Road improvement between Church Hill Road and Warner Road
- Airport Road improvement between US 113 and Canterbury Road
- NW 10th Street improvement between US 113 and SR 1
- Buccaneer Boulevard improvement between N Walnut Street and entrance to Milford Airpark Plaza
- Holly Hill Rd improvement between SR 14 and Willamsville Road
- N. Walnut Street improvement between US 113 and NW 10th Street
- N Rehoboth Boulevard improvement between NW 10th Street and NE Front Street
- S Rehoboth Boulevard improvements between NE Front Street and SR 1
- Cedar Creek Road improvement between S. Rehoboth Boulevard and Jefferson Road
- Isaacs Road improvement between Jefferson Road and Ellendale Road

While these improvements would benefit freight movement in and around Milford and should be considered through DelDOT's regular program, they are not considered essential at this time and are therefore not recommended for full concept Development as part of this study.

Harrington

Several of the industries east of US 13 in Harrington including Pepsi Bottling, PJ Woodlands, and EZ Work Trucks, experience difficulties attempting to cross US 13 northbound lanes to access US 13

East/West Freight Routes Phase 2 Study

Kent County, Delaware

southbound lanes. To address this issue, a crossover lane was developed between the northbound and southbound lanes of US 13. Although there is an existing crossover lane just north of the proposed new crossover, the existing lane is not geometrically adequate to accommodate the largest trucks. The existing crossover is designed for two lanes to accommodate southbound US 13 traffic to access northbound US 13 and northbound US 13 traffic to access US 13 southbound. However, the geometry of this crossover necessitates large turning trucks to encroach on the oncoming lane.

US 13 Crossover

The proposed new crossover is designed for one lane to facilitate northbound US 13 trucks to access US 13 southbound. With this concept, the existing crossover would be converted to a one lane northbound crossover creating two dedicated crossovers for northbound and southbound traffic.

Figure 26 provides locational context and an overview of the proposed US13 crossover in Harrington.



Figure 26 Improvements Overview, Harrington

East/West Freight Routes Phase 2 Study

Kent County, Delaware

This concept includes a single-lane, dedicated crossover for US 13 northbound vehicles to access US 13 southbound. The crossover was designed with adequate width and turning radius to accommodate large trucks. The concept also includes a northbound turn lane to allow vehicles to access the crossover without the need to turn from the travel lane.

Figure 27 shows the proposed US13 crossover in Harrington.



Figure 27 US 13 Crossover

Other improvements in the Harrington area were evaluated that would improve freight movement including:

- Improvements to Kathryn Drive from SR 14 to south portion of JP Latham Inc. north of Conrail tracks
- Extension from Kathryn Drive to Cluckey Drive connecting at OA Newton Company
- Improvements to Cluckey Drive to from OA Newton Company to US 13
- New connection between Park Brown Road/N West Street and Farmington Road with new intersection at Vernon Road
- Improvements from Farmington Road between Vernon Road and Tower Hill Road
- Improvements to Tower Hill Road between Farmington Road and US 13
- Convert intersections to roundabouts at: Commerce Street/Vernon Road; and Farmington Road/Tower Hill Road

These improvements are recommended to be considered through DelDOT's regular program but were found not to be essential as part of this study.

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Individual concept plans for each of the six (6) recommendations identified can be found in [Appendix C](#).

Cost Estimates

Preliminary cost estimates were developed for the six (6) highest-priority projects that received full concept designs as part of this study. These estimates provide a general understanding of the potential funding needs associated with each improvement and include considerations for design, right-of-way, and construction. Prioritization is also necessary and useful from a funding perspective. While DelDOT's Capital Transportation Program (CTP), along with federal matching funds, would support most large capital projects, additional funding sources, such as federal grant opportunities, should also be explored to maximize investment potential and project feasibility.

SR 1 Interchange – Dover

Design	\$750,000
Row	\$2,300,000
Construction	\$5,908,000
Total	\$8,958,000

Hazletville Road to Forrest Avenue Extension – Dover

Design	\$1,600,000
Row	\$2,500,000
Construction	\$9,244,000
Total	\$13,344,000

***Concept 2 Total \$13,014,000**

*Approximately \$330,000 less than Concept 1

East/West Freight Routes Phase 2 Study

Kent County, Delaware

US 113 N to SR 1 S Ramp – Milford

Design	\$397,000
Row	\$750,000
Construction	\$3,004,000
Total	\$4,151,000

Airport Road to Warner Road Connector – Milford

Design	\$746,000
Row	\$1,000,000
Construction	\$5,993,000
Total	\$7,739,000

US 13 Crossover – Harrington

Design	\$93,000
Row	\$0
Construction	\$626,000
*Total	\$719,000

* This improvement was prioritized as part of a separate TIF, therefore funding could potentially be secured from an alternate source other than DelDOT's Capital Transportation Program (CTP).

Main Street Truck Restriction – Clayton

Design	\$485,000
Row	\$200,000
Construction	\$1,932,000
Total	\$2,617,000

All costs are based on conceptual designs and are rounded to the nearest thousandth. Details of the cost estimates are provided in [Appendix D](#).

East/West Freight Routes Phase 2 Study

Kent County, Delaware

Appendix A

Completed Questionnaires

Responses Overview

Closed

Responses

3



Average Time

189:09



Duration

73 Days



1. Which best describes your business?

Construction	0
Manufacturing	0
Transportation/Logistics	1
Agriculture	1
Other	1



2. Does your business involve the use of heavy trucks?

Yes	3
No	0



3. How many truck trips (either entering or exiting) does your business generate on an average day?

0 - 10	1
11 - 30	0
31 - 50	1
51 - 100	0
> 100	1



4. What are your peak truck activity times?



5. What percent of trips are coming from of going to Maryland to the west (i.e. US 50/US 301/SR 404)?



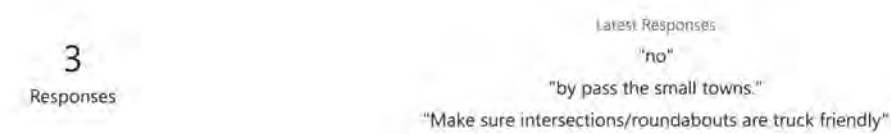
6. What are your most often used east/west truck travel routes?



7. Are there any issues along these routes?



8. Do you have suggestions for improvements along these routes?



9. Do you have suggestions for any east/west routes and/or connections of routes to improve freight movement?

2

Responses

Latest Responses

"no"

"Rt 300 in Smyrna to US 301 would cut excess miles out of our routes to the Bay B..."

10. Do you prefer roundabouts or traditional intersections with stop signs or traffic signals for freight movement with large trucks?

- Roundabouts

Traditional intersections with stop signs or traffic signals

Unsure

1

0

2



11. Name of business

2

Responses

Latest Responses

"Byler's Store Inc"

"Walmart Transportation"

12. Address of business

2

Responses

Latest Responses

"1368 Rose Valley School Road Dover, DE 19904"

"100 Walton Way, Smyrna, DE 19977"

13. Contact person at business

2

Responses

Latest Responses

"Lyn Byler"

"Alex Finn"

14. Email address

2

Responses

Latest Responses

"Lyn@bylers.com"

"alexander.finn@walmart.com"

View results

Respondent

1

Anonymous

562:16

Time to complete

1. Which best describes your business?

- ☐ Construction
- ☐ Manufacturing
- ☒ Transportation/Logistics
- ☐ Agriculture
- ☐ Other

2. Does your business involve the use of heavy trucks?

- ☒ Yes
- ☐ No

3. How many truck trips (either entering or exiting) does your business generate on an average day?

- ☐ 0 - 10
- ☐ 11 - 30
- ☐ 31 - 50
- ☐ 51 - 100
- ☒ > 100

4. What are your peak truck activity times?

- ☒ AM Peak Hours
- ☐ Mid-Day
- ☐ PM Peak Hours
- ☐ Other

5. What percent of trips are coming from of going to Maryland to the west (i.e. US 50/US 301/SR 404)?

- ☐ 0 - 10%
- ☐ 11 - 20%
- ☒ 21 - 30%
- ☐ 31 - 40%
- ☐ 41 - 50%
- ☐ > 50%

6. What are your most often used east/west truck travel routes?

US 301, US 50, 404, US 9

7. Are there any issues along these routes?

- ☒ Congestion or bottlenecks
- ☐ Pinch points
- ☐ Weight restrictions
- ☐ Geometry
- ☐ Other

8. Do you have suggestions for improvements along these routes?

Make sure intersections/roundabouts are truck friendly

9. Do you have suggestions for any east/west routes and/or connections of routes to improve freight movement?

Rt 300 in Smyrna to US 301 would cut excess miles out of our routes to the Bay Bridge

10. Do you prefer roundabouts or traditional intersections with stop signs or traffic signals for freight movement with large trucks?

- ☐ Roundabouts
- ☐ Traditional intersections with stop signs or traffic signals
- ☒ Unsure

11. Name of business

Walmart Transportation

12. Address of business

100 Walton Way, Smyrna, DE 19977

13. Contact person at business

Alex Finn

14. Email address

alexander.finn@walmart.com

[View results](#)

Respondent

2

Anonymous

03:04

Time to complete

1. Which best describes your business?

- ☐ Construction
- ☐ Manufacturing
- ☐ Transportation/Logistics
- ☐ Agriculture
- ☒ Retail Grocery

2. Does your business involve the use of heavy trucks?

- ☒ Yes
- ☐ No

3. How many truck trips (either entering or exiting) does your business generate on an average day?

- ☒ 0 - 10
- ☐ 11 - 30
- ☐ 31 - 50
- ☐ 51 - 100
- ☐ > 100

4. What are your peak truck activity times?

- ☒ AM Peak Hours
- ☐ Mid-Day
- ☐ PM Peak Hours
- ☐ Other

5. What percent of trips are coming from of going to Maryland to the west (i.e. US 50/US 301/SR 404)?

- ☒ 0 - 10%
- ☐ 11 - 20%
- ☐ 21 - 30%
- ☐ 31 - 40%
- ☐ 41 - 50%
- ☐ > 50%

6. What are your most often used east/west truck travel routes?

Route 8 to 301 South across the Bay Bridge

7. Are there any issues along these routes?

- ☐ Congestion or bottlenecks
- ☒ Pinch points
- ☐ Weight restrictions
- ☐ Geometry
- ☐ Other

8. Do you have suggestions for improvements along these routes?

by pass the small towns.

9. Do you have suggestions for any east/west routes and/or connections of routes to improve freight movement?

10. Do you prefer roundabouts or traditional intersections with stop signs or traffic signals for freight movement with large trucks?

- ☒ Roundabouts
- ☐ Traditional intersections with stop signs or traffic signals
- ☐ Unsure

11. Name of business

Byler's Store Inc

12. Address of business

1368 Rose Valley School Road Dover, DE 19904

13. Contact person at business

Lyn Byler

14. Email address

Lyn@bylers.com

[View results](#)

Respondent

3

Anonymous

02:08

Time to complete

1. Which best describes your business?

- ☐ Construction
- ☐ Manufacturing
- ☐ Transportation/Logistics
- ☒ Agriculture
- ☐ Other

2. Does your business involve the use of heavy trucks?

- ☒ Yes
- ☐ No

3. How many truck trips (either entering or exiting) does your business generate on an average day?

- ☐ 0 - 10
- ☐ 11 - 30
- ☒ 31 - 50
- ☐ 51 - 100
- ☐ > 100

4. What are your peak truck activity times?

- ☐ AM Peak Hours
- ☒ Mid-Day
- ☐ PM Peak Hours
- ☐ Other

5. What percent of trips are coming from of going to Maryland to the west (i.e. US 50/US 301/SR 404)?

- ☐ 0 - 10%
- ☒ 11 - 20%
- ☐ 21 - 30%
- ☐ 31 - 40%
- ☐ 41 - 50%
- ☐ > 50%

6. What are your most often used east/west truck travel routes?

14

7. Are there any issues along these routes?

- ☐ Congestion or bottlenecks
- ☐ Pinch points
- ☐ Weight restrictions
- ☐ Geometry
- ☒ none

8. Do you have suggestions for improvements along these routes?

no

9. Do you have suggestions for any east/west routes and/or connections of routes to improve freight movement?

no

10. Do you prefer roundabouts or traditional intersections with stop signs or traffic signals for freight movement with large trucks?

- ☐ Roundabouts
- ☐ Traditional intersections with stop signs or traffic signals
- ☒ Unsure

11. Name of business

12. Address of business

13. Contact person at business

14. Email address

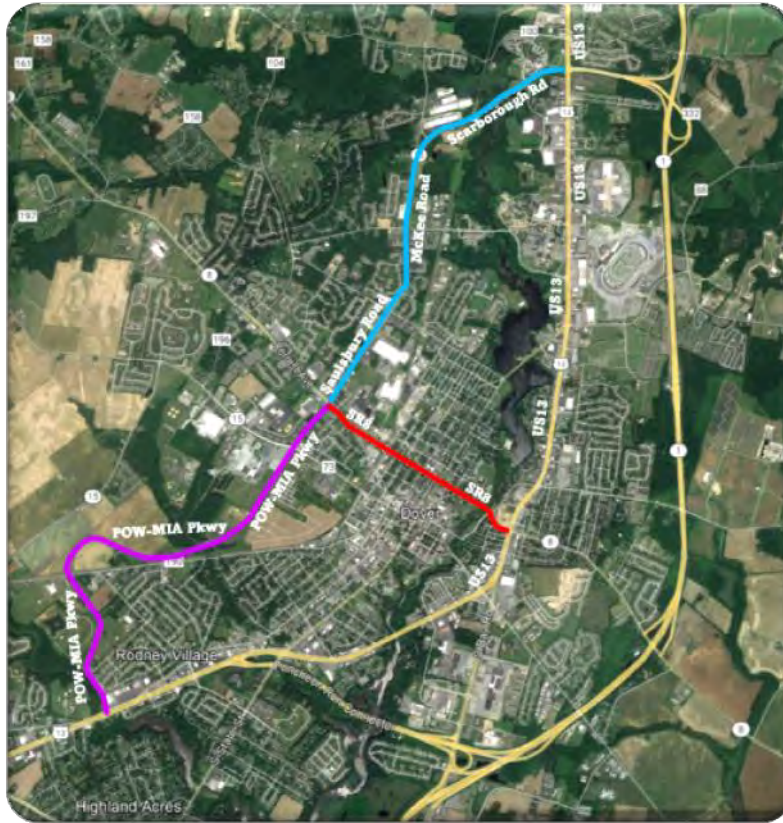
East/West Freight Routes Phase 2 Study

Kent County, Delaware

Appendix B

SR 8 Downtown Dover Truck Restriction

Traffic Analysis for SR8, Downtown Dover Truck Restriction East-West Freight Routes Study



Prepared for:



By:



July 29, 2024

Table of Contents

A. EXECUTIVE SUMMARY	1
B. INTRODUCTION	3
C. TRAFFIC	4
1. Existing Traffic Conditions	4
2. Future Traffic Conditions	16
D. TRAFFIC ANALYSIS	66
1. Intersection Operational Analysis	66
2. Intersection Operational Analysis Results.....	67
E. TRAVEL TIME ASSESSMENT	81
F. CONCLUSIONS	82

List of Figures

Figure 1: Traffic Study Area	3
Figure 2: 2024 A.M. Turning Movement Volumes – All Vehicles.....	5
Figure 3: 2024 A.M. Turning Movement Volumes – Trucks.....	8
Figure 4: 2024 P.M. Turning Movement Volumes – All Vehicles	11
Figure 5: 2024 P.M. Turning Movement Volumes – Trucks	14
Figure 6: Proposed/Committed Developments	17
Figure 7: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles	19
Figure 8: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – Trucks ...	22
Figure 9: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles	25
Figure 10: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – Trucks ..	28
Figure 11: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles	31
Figure 12: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – Trucks	34
Figure 13: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles	37
Figure 14: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – Trucks.....	40
Figure 15: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles.....	43

Figure 16: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – Trucks	46
Figure 17: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles.....	49
Figure 18: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – Trucks.	52
Figure 19: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles	55
Figure 20: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – Trucks.....	58
Figure 21: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles	61
Figure 22: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – Trucks	64
Figure 23: Existing 2024 A.M. Operational Analysis MOE	71
Figure 24: Existing 2022 P.M. Operational Analysis MOE.....	72
Figure 25: 2025 A.M. Without SR8 Truck Restriction Operational Analysis MOE	73
Figure 26: 2025 A.M. With SR8 Truck Restriction Operational Analysis MOE.....	74
Figure 27: 2025 P.M. Without SR8 Truck Restriction Operational Analysis MOE	75
Figure 28: 2025 P.M. With SR8 Truck Restriction Operational Analysis MOE	76
Figure 29: 2052 A.M. Without SR8 Truck Restriction Operational Analysis MOE	77
Figure 30: 2052 A.M. With SR8 Truck Restriction Operational Analysis MOE.....	78
Figure 31: 2052 P.M. Without SR8 Truck Restriction Operational Analysis MOE.....	79
Figure 32: 2052 P.M. With SR8 Truck Restriction Operational Analysis MOE	80
List of Tables	
Table 1: Level of Service Criteria	68
Table 2: 2024 Signalized Intersection MOE	68
Table 3: 2024 Unsignalized Intersection MOE	69
Table 4: FIY 2025 Signalized Intersection MOE	69
Table 5: FIY 2025 Unsignalized Intersection MOE	69
Table 6: FUY 2052 Signalized Intersection MOE.....	70
Table 7: A.M. Peak Hour Travel Time Comparison	81
Table 8: P.M. Peak Hour Travel Time Comparison.....	81



Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

List of Appendices

Appendix A: Raw Turning Movement Traffic Counts	A
Appendix B: Eden Hill Development Unbuilt Units' Trip Generation	B
Appendix C: Proposed & Committed Developments' Trip Assignment Figures	C
Appendix D: Synchro Output Reports	D

A. EXECUTIVE SUMMARY

This traffic study was conducted to investigate the impacts on proposed routes to which trucks would be diverted if a truck restriction is implemented on SR8 within Downtown Dover. This implementation would be part of the Dover Kent MPO's East/West Freight Routes Study options. All eastbound/westbound trucks, except local delivery trucks, would be restricted from using SR8 between US13 (N Dupont Highway) and SR15 (Saulsbury Road). East/west trucks north of SR8 would be diverted to use Scarborough/McKee/Saulsbury Road Corridor between US13 and SR8 (Proposed North Diverted Truck Route). East/west trucks south of SR8 would be diverted to use S Saulsbury Road/POW-MIA Parkway Corridor between SR8 and US13 (Proposed South Diverted Truck Route). To that end traffic operational analyses were performed for the following intersections within the study limits:

1. US13 (K2) at Scarborough Road (K294)
2. Scarborough Road at S Delaware Tech Drive/Crawford Carroll
3. McKee Road (K156) at Scarborough Road (K294)
4. McKee Road at College Road (K99)
5. McKee Road/Saulsbury Road (K156) at Walker Road (K157/K70)
6. Saulsbury Road at SR8, Forrest Avenue (K51)
7. Saulsbury Road at Gateway Boulevard
8. Saulsbury Road/POW-MIA Parkway (K151) at West North Street/Hazletville Road
9. POW/MIA Parkway at Wyoming Mill Spur/Delmarva Corrugated Packaging Entrance
10. POW-MIA Parkway (K151) at Baden Powell Way (K151A)
11. POW-MIA Parkway at US13 (K24)
12. SR8, E Division Street (K16) at US13 (K7)

A travel time assessment was also performed to assess the impact of the SR8 Truck Restriction through Downtown Dover on the trucks rerouted to the Diverted Truck Routes. A summary of the study results and resulting conclusions are as follows:

Traffic Operations

Based on the operational analyses, except for the intersection of SR8 at US13, all the other study intersections would operate at LOS D or better for existing and all future traffic conditions with all the proposed and committed developments. The intersection of SR8 at US13 would operate at LOS E with 78.8 seconds delay and LOS E with 76.3 seconds delay for the P.M. peak hour respectively for FUY 2052 without the SR8 Truck Restriction and FUY 2052 with the SR8 Truck Restriction. It is expected that since the intersection is within DelDOT's coordinated signal system, the unsatisfactory LOS would be addressed as part of the wider DelDOT US13 Coordinated Signal Corridor Improvements.

Comparison of FIY 2025 and FUY 2052 with and without the SR8 Truck Restriction implementation indicate that there is no significant increase in delay and no change in LOS at the intersections along the North and South Truck Diverted Routes. For FIY 2025, the worst increase in delay would be 1.6 seconds and would be experienced during the P.M. peak hour at the intersection of POW / MIA at US13. For FUY 2052, the worst increase in delay would be 3.1 seconds and would be experienced during the A.M. peak hour at the intersection of McKee Road at Scarborough Road.

Similarly, improvements at the east and west limits intersections of the SR8 Truck Restriction segment from which trucks are diverted are also not significant. For FIY 2025 the best improvement would be a 2.3

second delay reduction experienced during the A.M. peak hour at the intersection of SR8 at US13. For FUY 2025 the best improvement, a 2.5 second delay reduction, would again be experienced at the intersection of SR8 at US13, but during the A.M. peak hour.

It is therefore concluded that based on results of the operational analyses, the ***impacted intersections within the study limits would not experience any detrimental decline in traffic operations as a result of the SR8 Truck Restriction through Downtown Dover.***

Travel Time

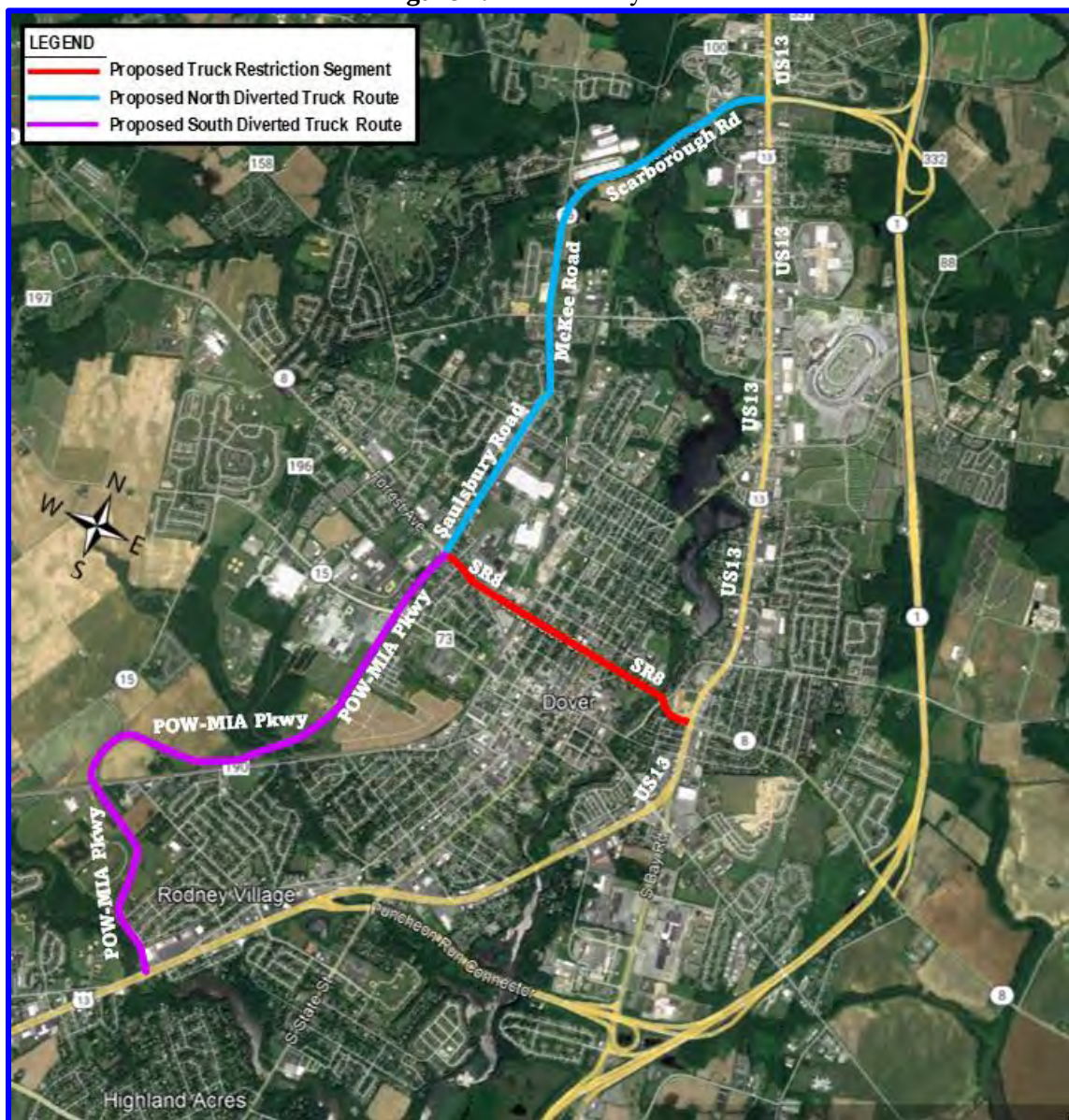
Based on the travel time assessment performed as part of this study, trucks diverted as a result of implementing the SR8 Truck Restriction through Downtown Dover would not experience an increase in travel time exceeding two (2) minutes under current A.M. or P.M. peak hour traffic conditions. Only westbound trucks that would have to divert to the North Diverted Truck Route would experience the highest additional travel time for the A.M. peak hour traffic conditions. Assuming that traffic increases fairly uniformly throughout West Dover as confirmed by the growth rate provided for by DelDOT Planning for the McKee Road Corridor Study, and which was used to generate future traffic for this study, it is logical to assume that with things like signal timing adjustments being equal, the ***difference*** in travel times between the proposed Truck Restricted SR8 segment, and the proposed Diverted Truck Routes, should not vary significantly from the current difference.

It is therefore concluded that based on results of the travel time assessment, ***diverted trucks within the study limits would not experience unreasonable increase in travel time as a result of the SR8 Truck Restriction through Downtown Dover.***

B. INTRODUCTION

This traffic study investigates the impacts on proposed routes to which trucks would be diverted if a truck restriction is implementing on SR8 within Downtown Dover. This implementation would be part of the Dover Kent MPO's East/West Freight Routes Study options. **Figure 1** presents the traffic study area. As shown in the figure, all eastbound/westbound trucks, except local delivery trucks, would be restricted from using SR8 between US13 (N Dupont Highway) and SR15 (Saulsbury Road). East/west trucks north of SR8 would be diverted to use Scarborough/McKee/Saulsbury Road Corridor between US13 and SR8 (Proposed North Diverted Truck Route). East/west trucks south of SR8 would be diverted to use S Saulsbury Road/POW-MIA Parkway Corridor between SR8 and US13 (Proposed South Diverted Truck Route). Since the truck restriction option is very low cost, it was imperative to conduct a very cost-effective study.

Figure 1: Traffic Study Area



C. TRAFFIC

1. Existing Traffic Conditions

A.M. and P.M. peak hour turning movement counts were obtained for the two critical signalized intersections between which the truck restriction is proposed, the intersection of SR8 at Saulsbury Road and the intersection of SR8 at US13 respectively on Wednesday May 29, 2024, and Thursday May 30, 2024. These were regular weekdays when the local school systems were in session. The raw counts are included in **Appendix A**.

Existing traffic data also obtained on regular weekdays when the local school systems were in session between Tuesday, April 12, 2022, through Thursday April 14, 2022, were utilized for the remaining signalized intersections analyzed in this study. The 2022 counts were adjusted as necessary based on the same traffic growth rate trend of 0.75% per annum in the West Dover area that DelDOT Planning provided for the Dover/Kent MPO's McKee Road Corridor Study completed in 2022, and the 2024 turning movement counts for the two key intersections previously mentioned. In all, twelve intersections, eleven of which are signalized are expected to be impacted by the proposed truck restriction and associated truck diverted routes. The signalized intersections are as listed below:

13. US13 (K2) at Scarborough Road (K294)
14. Scarborough Road at S Delaware Tech Drive/Crawford Carroll
15. McKee Road (K156) at Scarborough Road (K294)
16. McKee Road at College Road (K99)
17. McKee Road/Saulsbury Road (K156) at Walker Road (K157/K70)
18. Saulsbury Road at SR8, Forrest Avenue (K51)
19. Saulsbury Road at Gateway Boulevard
20. Saulsbury Road/POW-MIA Parkway (K151) at West North Street/Hazletville Road
21. POW-MIA Parkway (K151) at Baden Powell Way (K151A)
22. POW-MIA Parkway at US13 (K24)
23. SR8, E Division Street (K16) at US13 (K7)

The twelfth intersection is the currently unsignalized intersection of POW-MIA Parkway at Wyoming Mill Spur. The A.M. 2024 turning movement traffic volumes for all vehicles and for trucks posted on diagrams of the road network are provided respectively in **Figure 2** and **Figure 3**. The P.M. 2024 turning movement traffic volumes for all vehicles and for trucks, posted on diagrams of the road network are provided respectively in **Figure 4** and **Figure 5**.

Figure 2: 2024 A.M. Turning Movement Volumes – All Vehicles

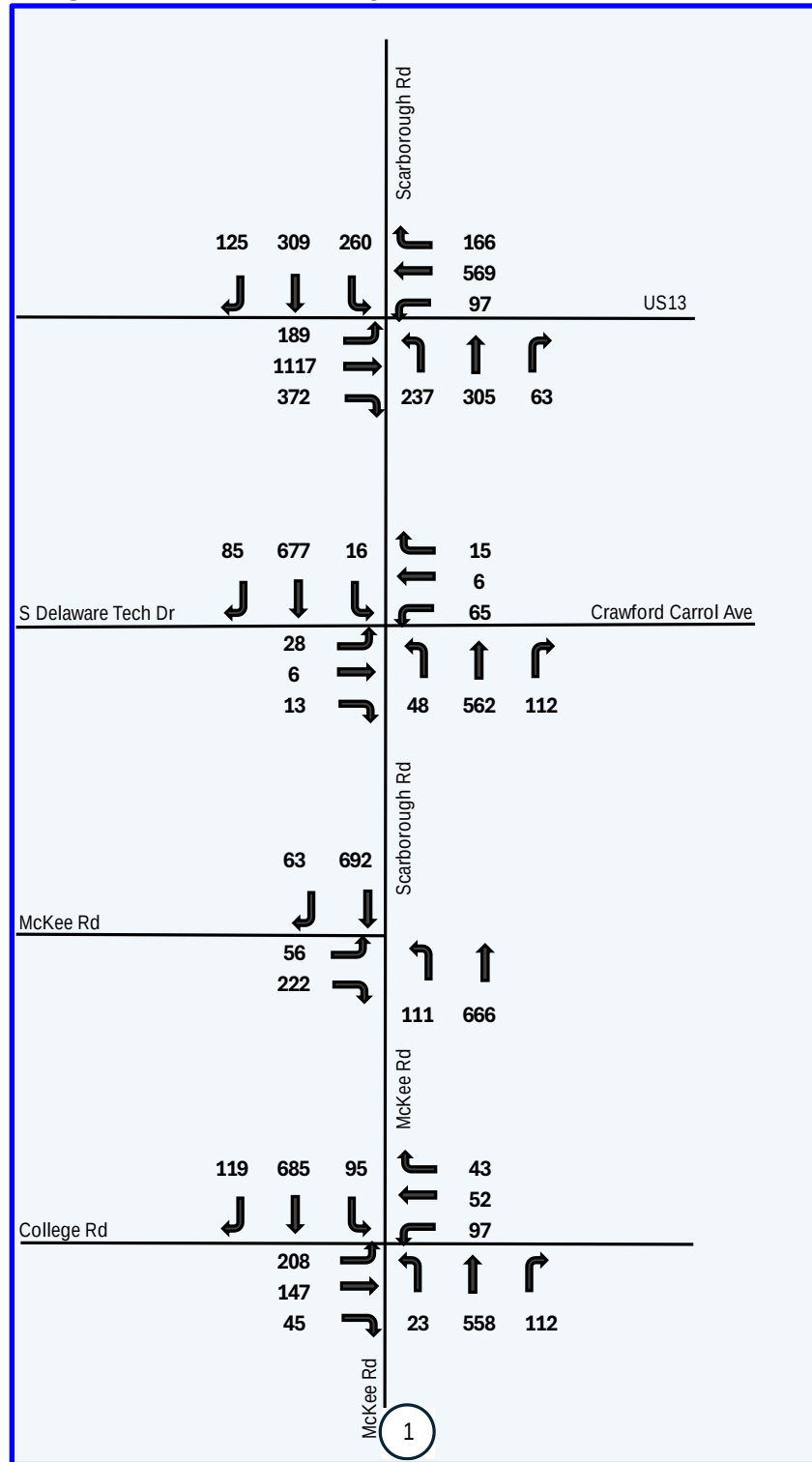
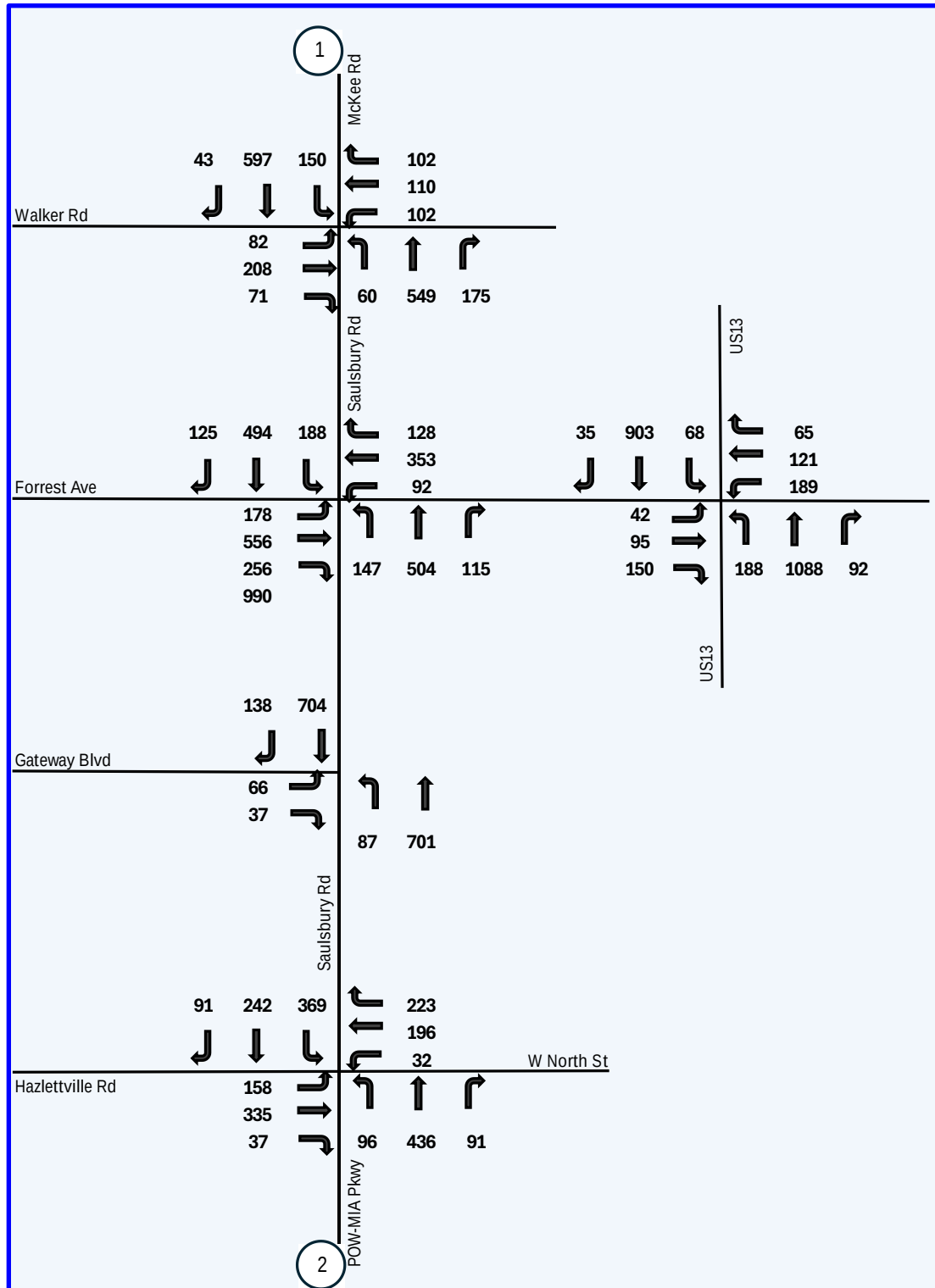


Figure 2: 2024 A.M. Turning Movement Volumes – All Vehicles (Continued)



Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

Figure 2: 2024 A.M. Turning Movement Volumes – All Vehicles (Continued)

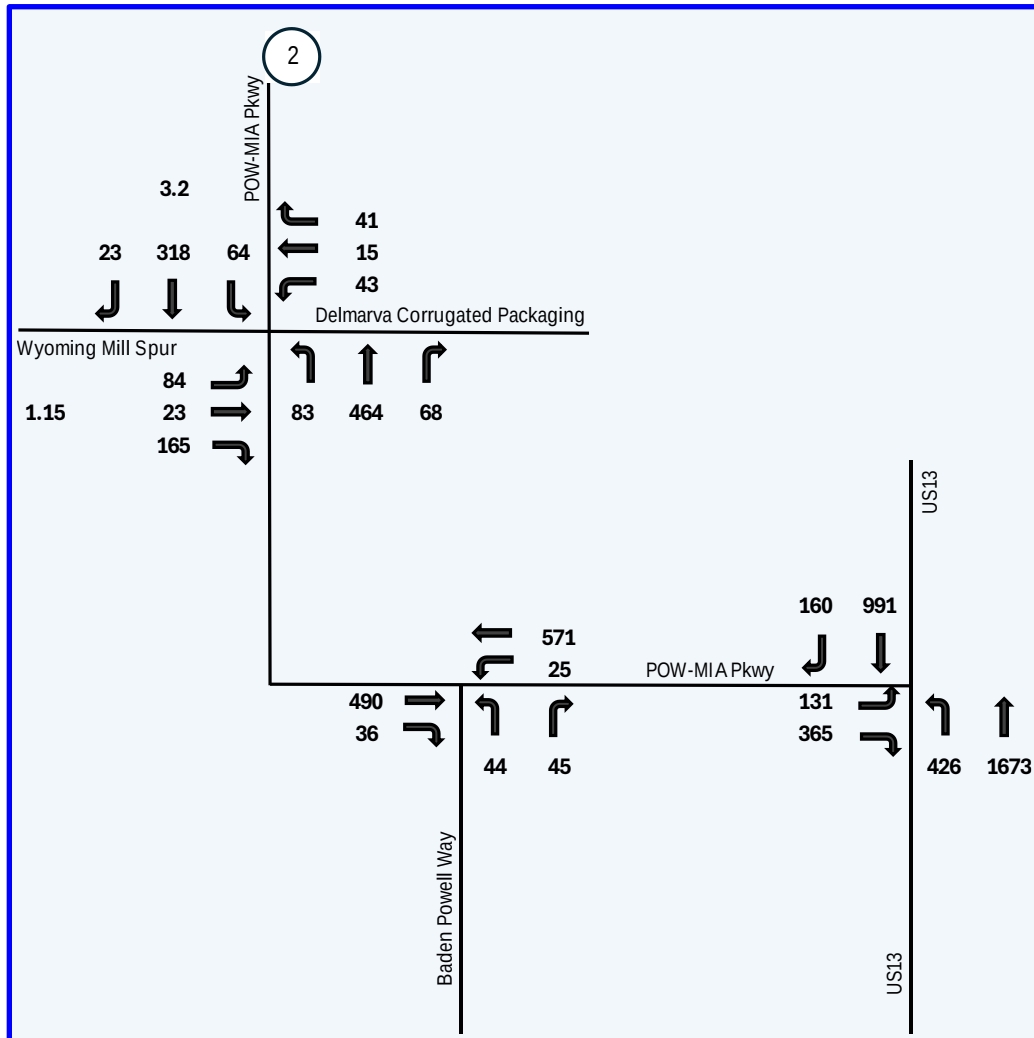


Figure 3: 2024 A.M. Turning Movement Volumes – Trucks

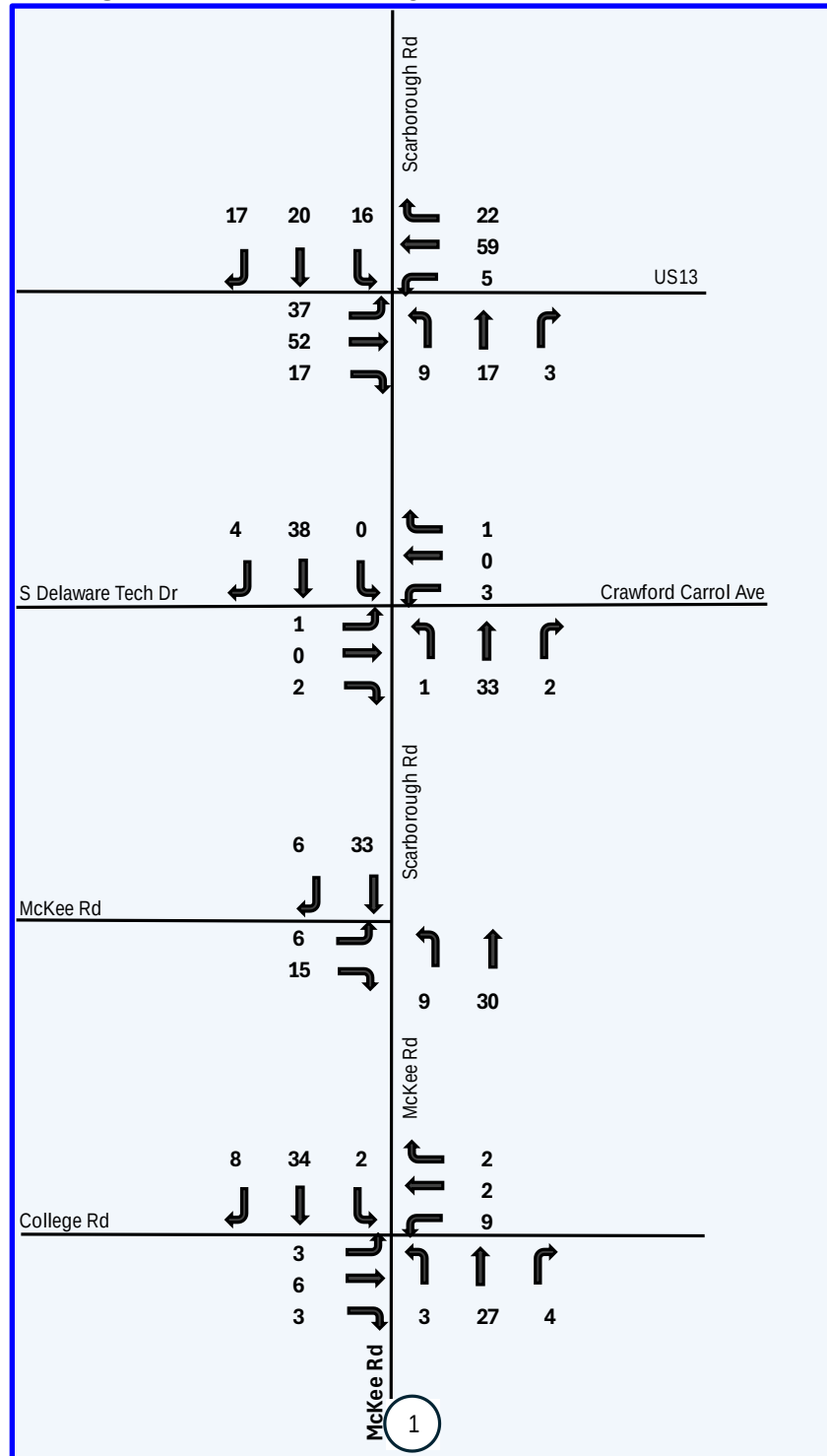


Figure 3: 2024 A.M. Turning Movement Volumes – Trucks (Continued)

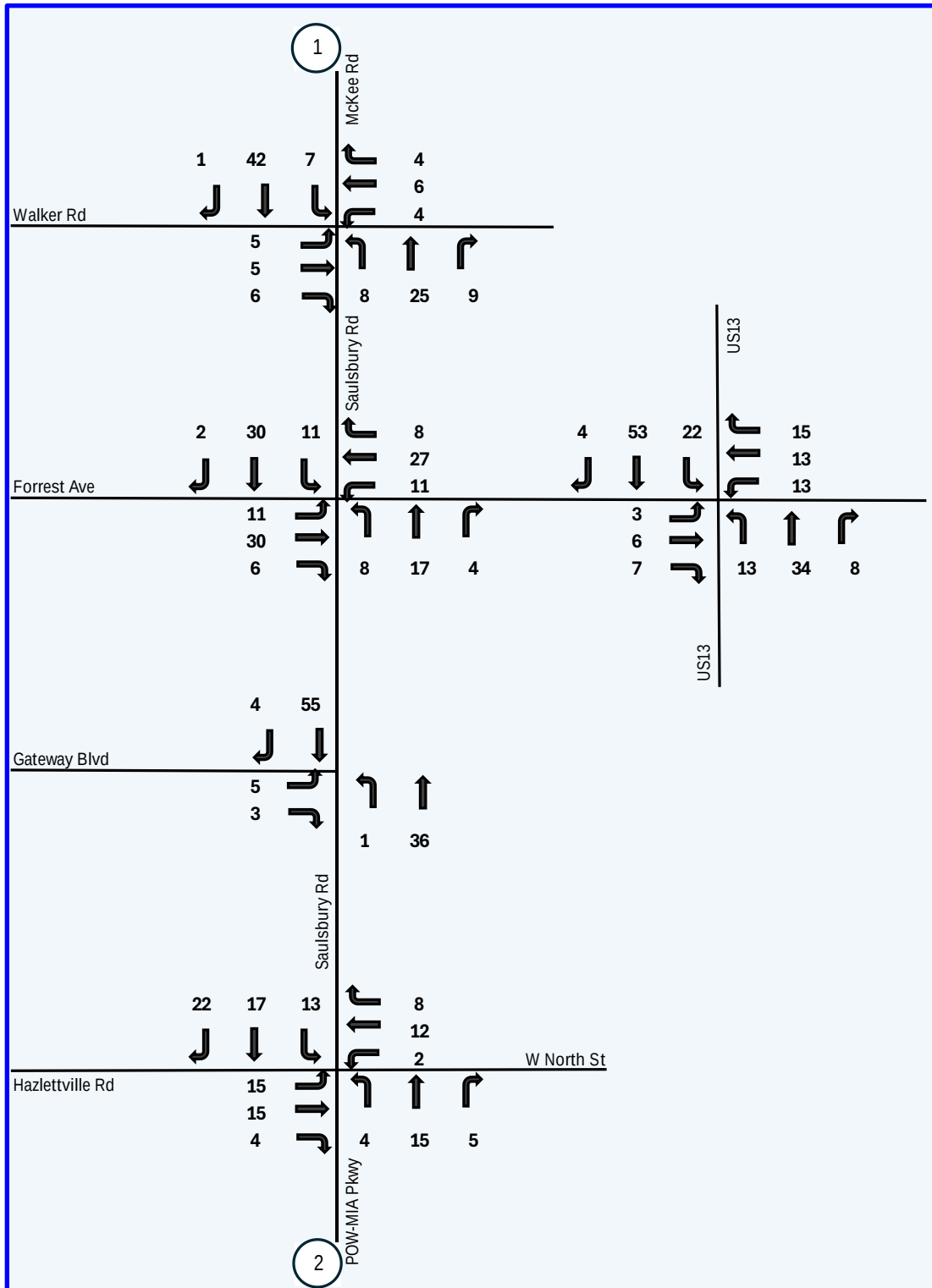


Figure 3: 2024 A.M. Turning Movement Volumes – Trucks (Continued)

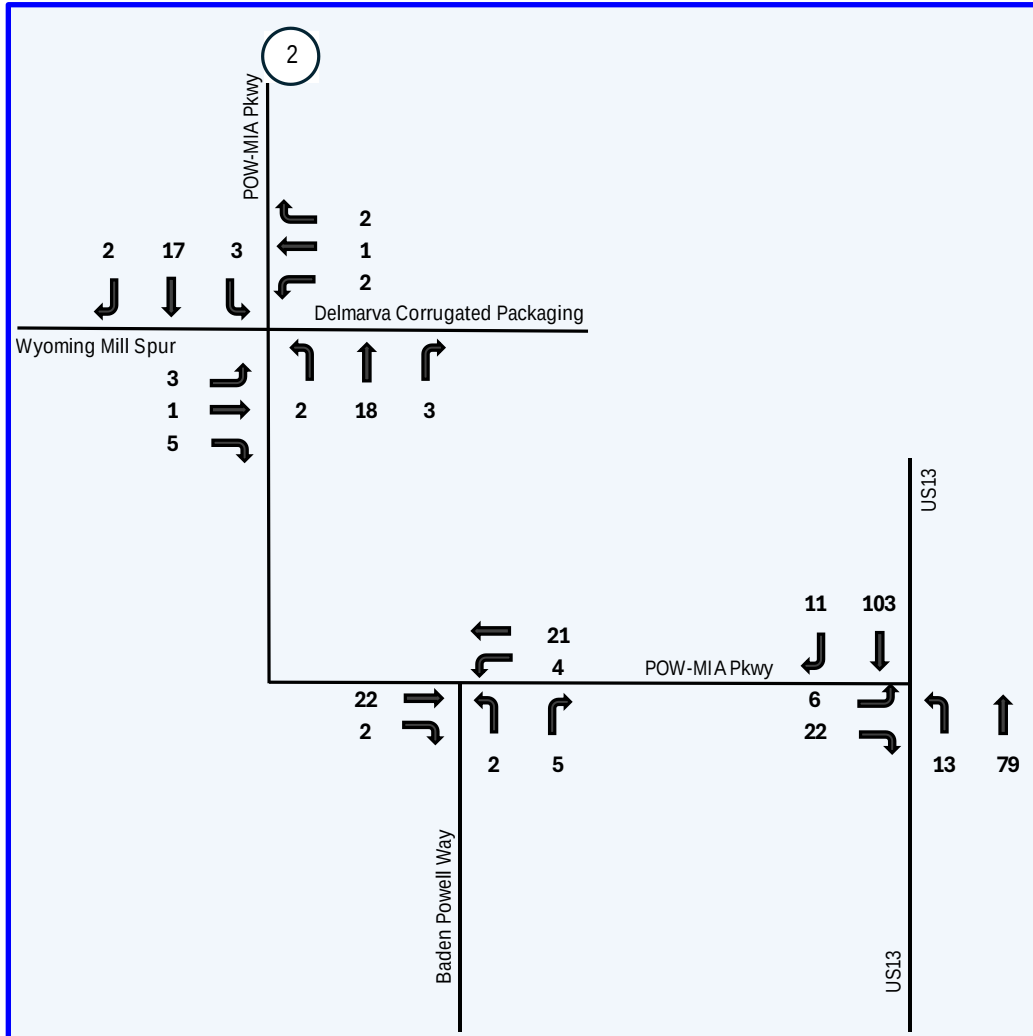


Figure 4: 2024 P.M. Turning Movement Volumes – All Vehicles

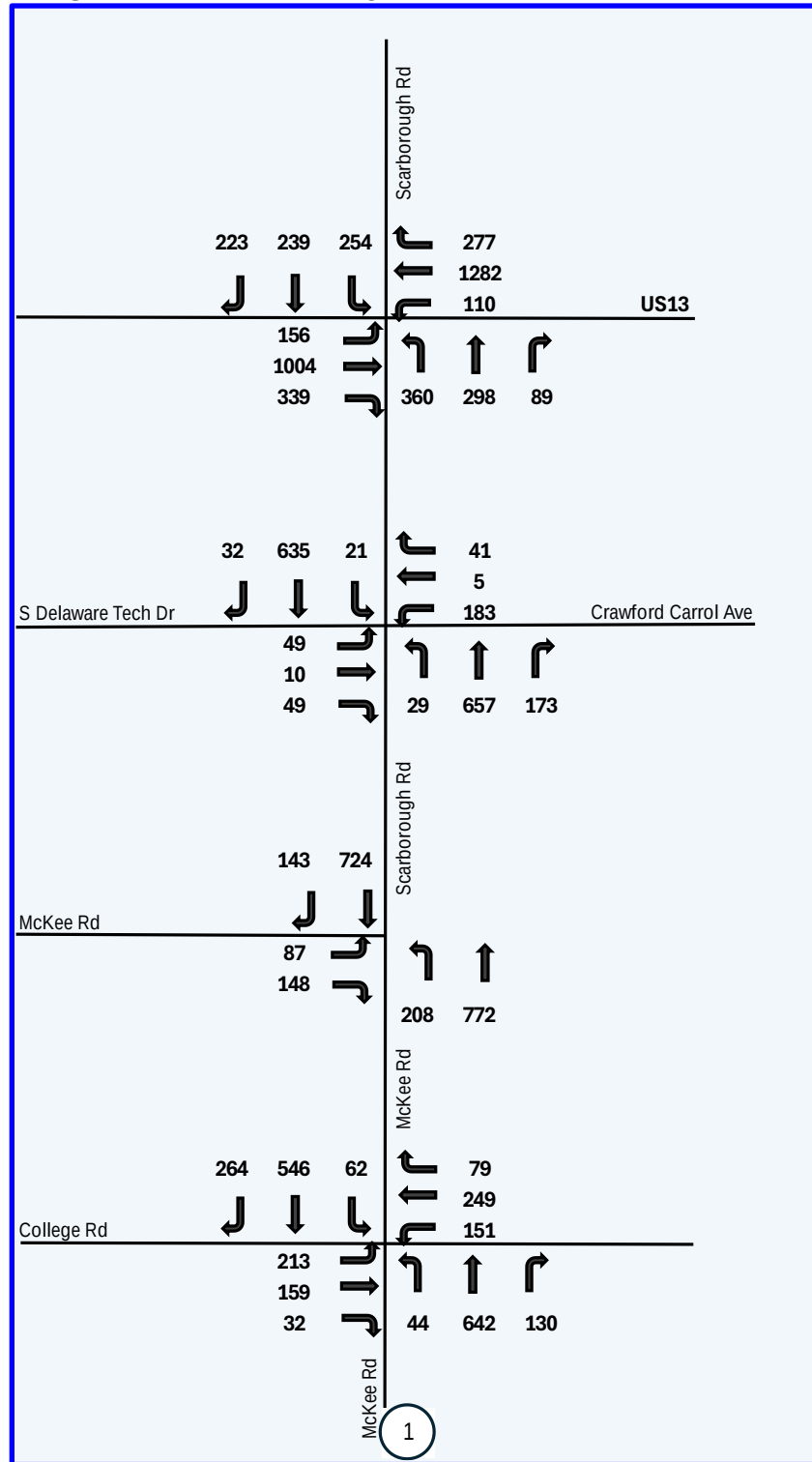


Figure 4: 2024 P.M. Turning Movement Volumes – All Vehicles (Continued)

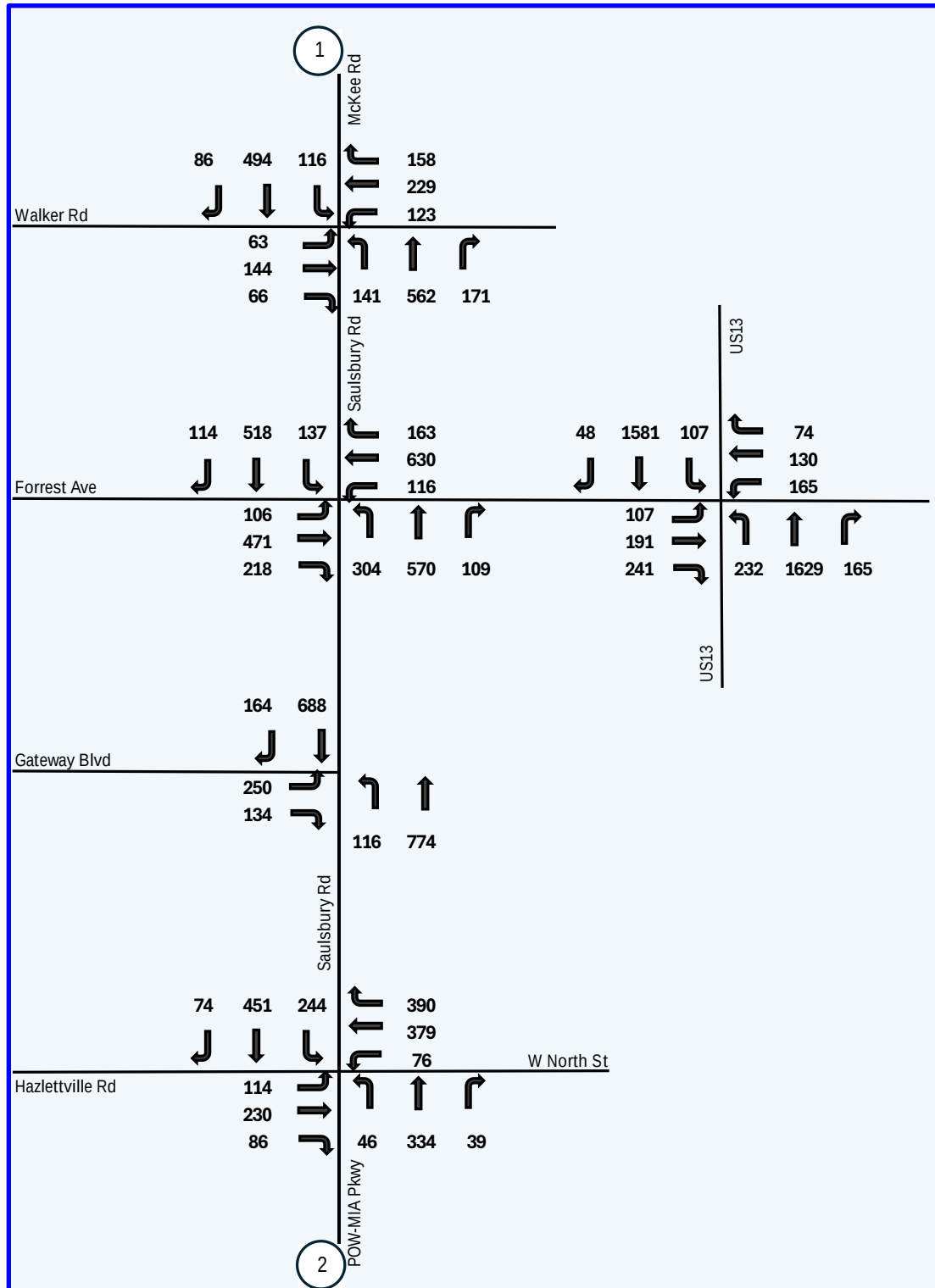


Figure 4: 2024 P.M. Turning Movement Volumes – All Vehicles (Continued)

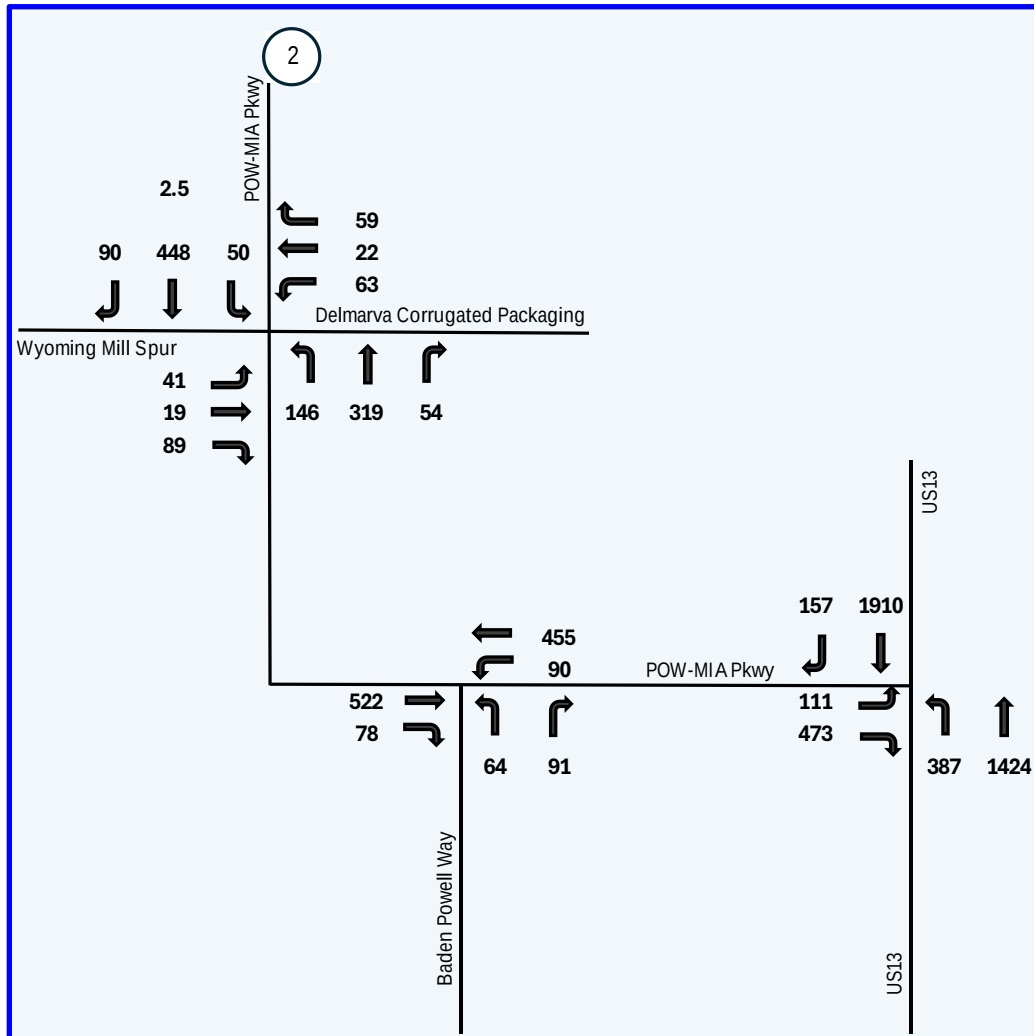


Figure 5: 2024 P.M. Turning Movement Volumes – Trucks

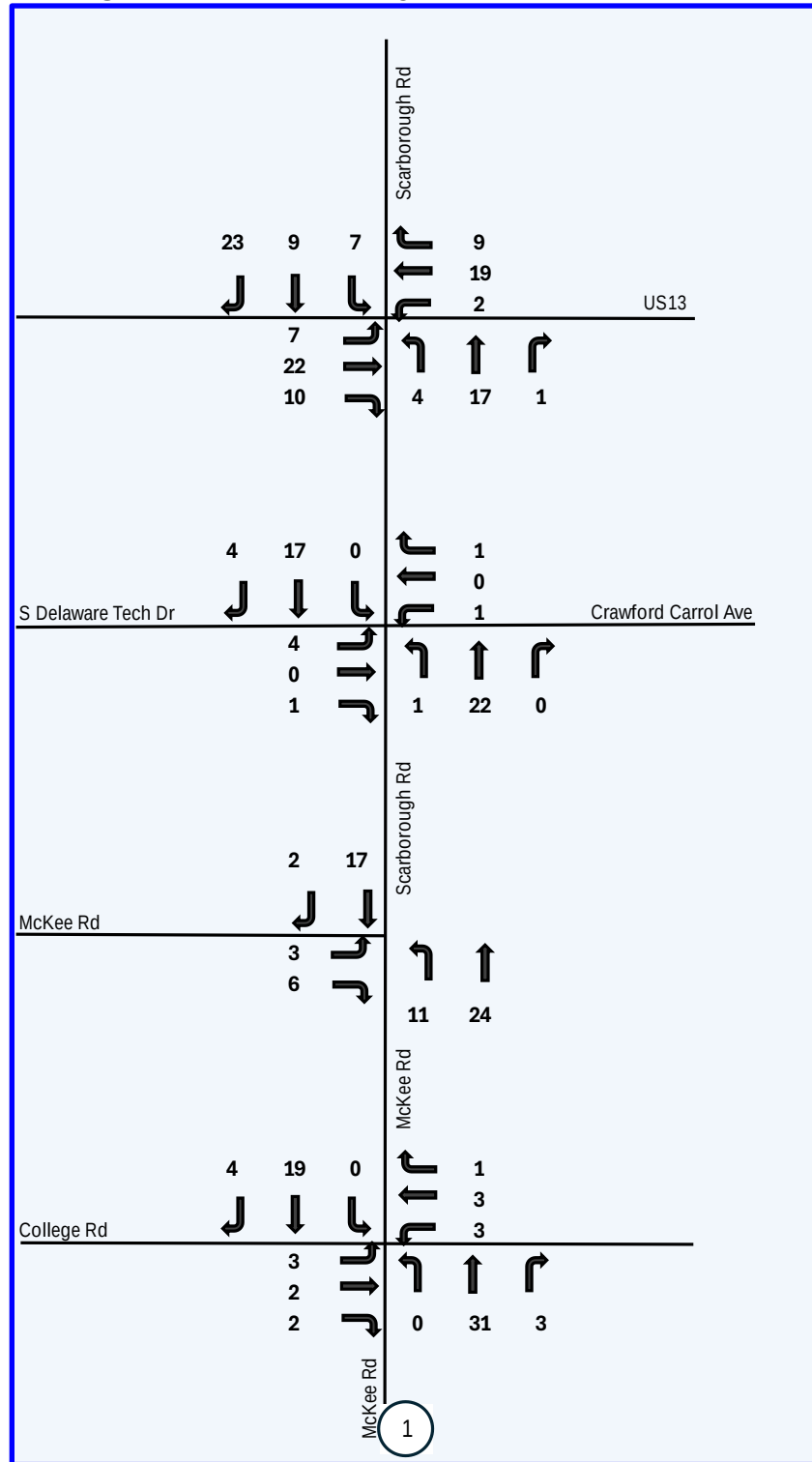


Figure 5: 2024 P.M. Turning Movement Volumes – Trucks (Continued)

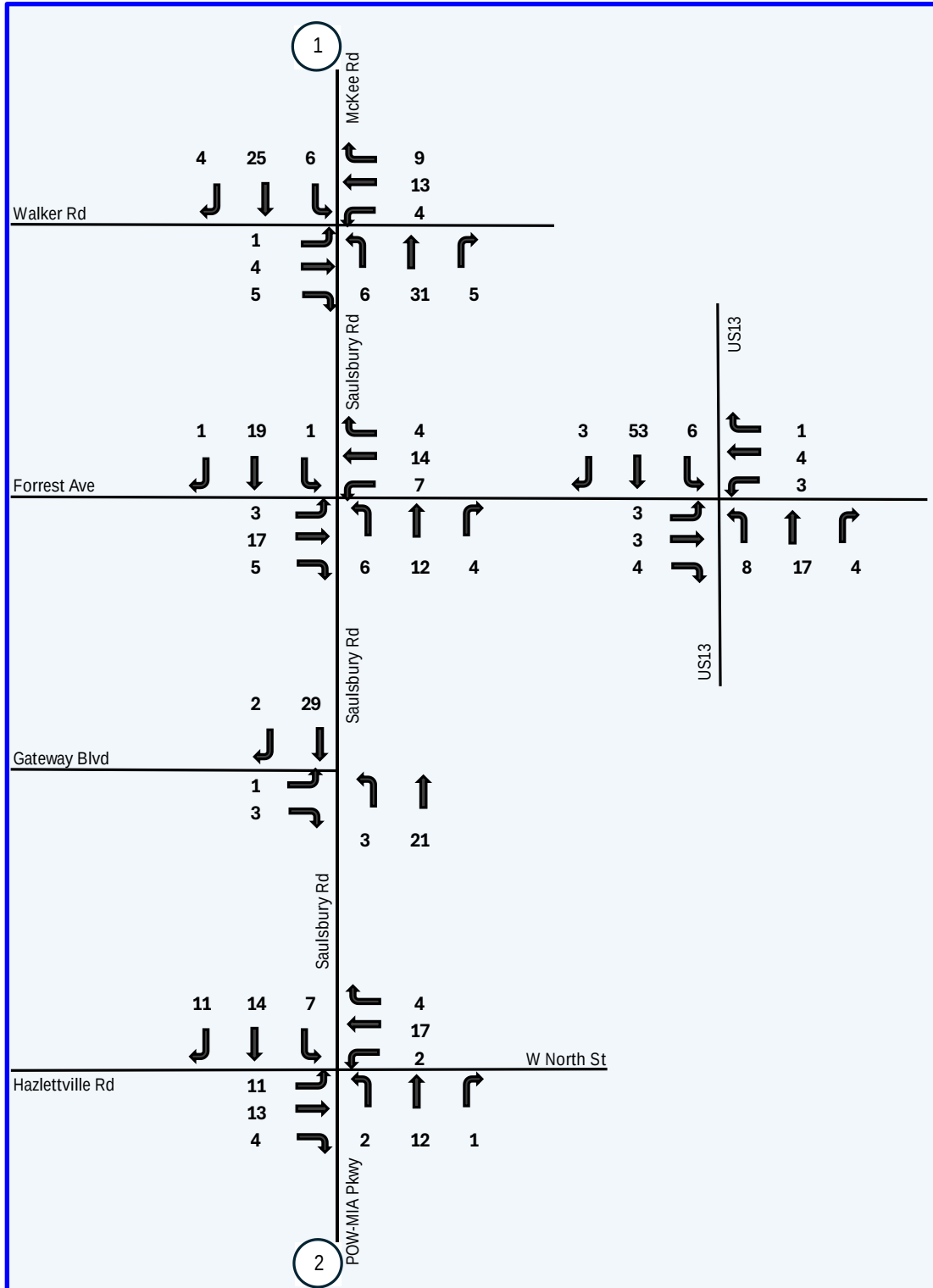
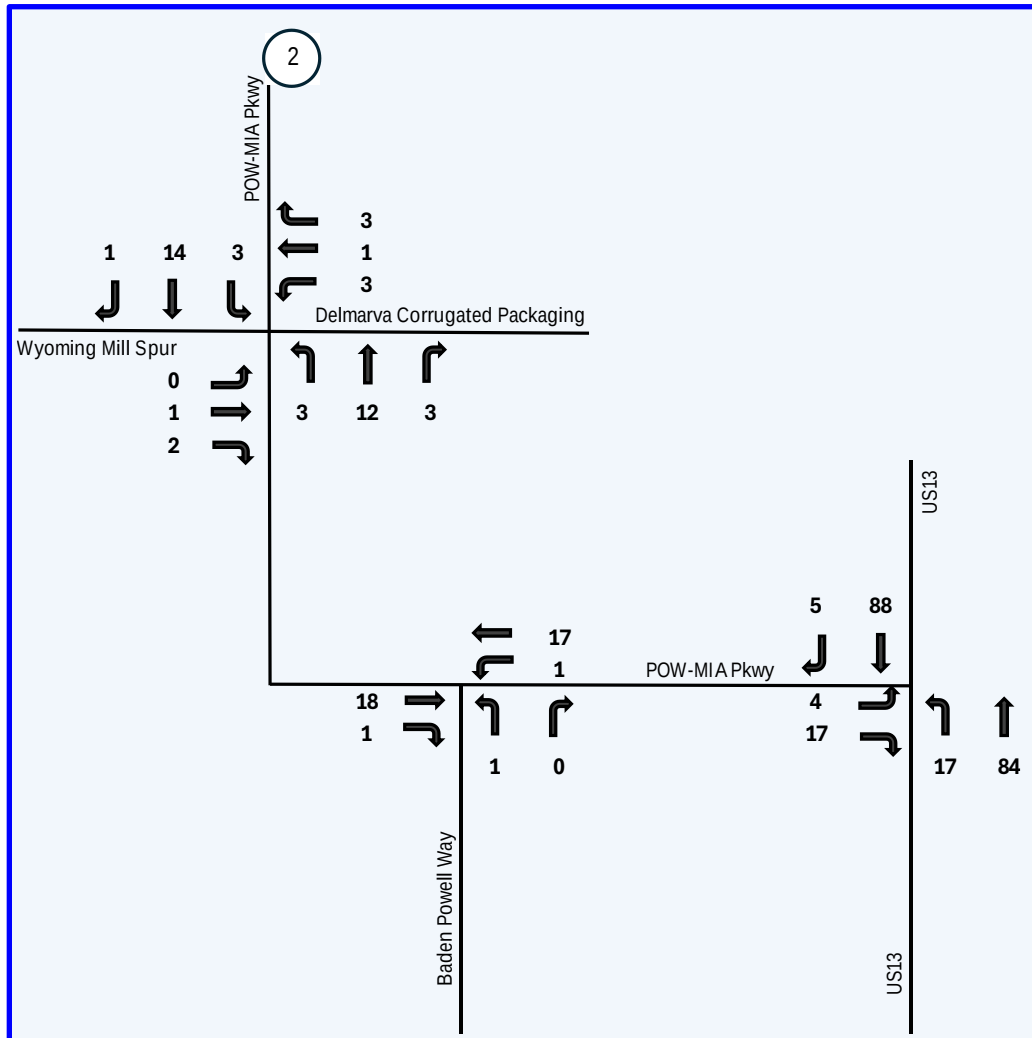


Figure 5: 2024 P.M. Turning Movement Volumes – Trucks (Continued)



2. Future Traffic Conditions

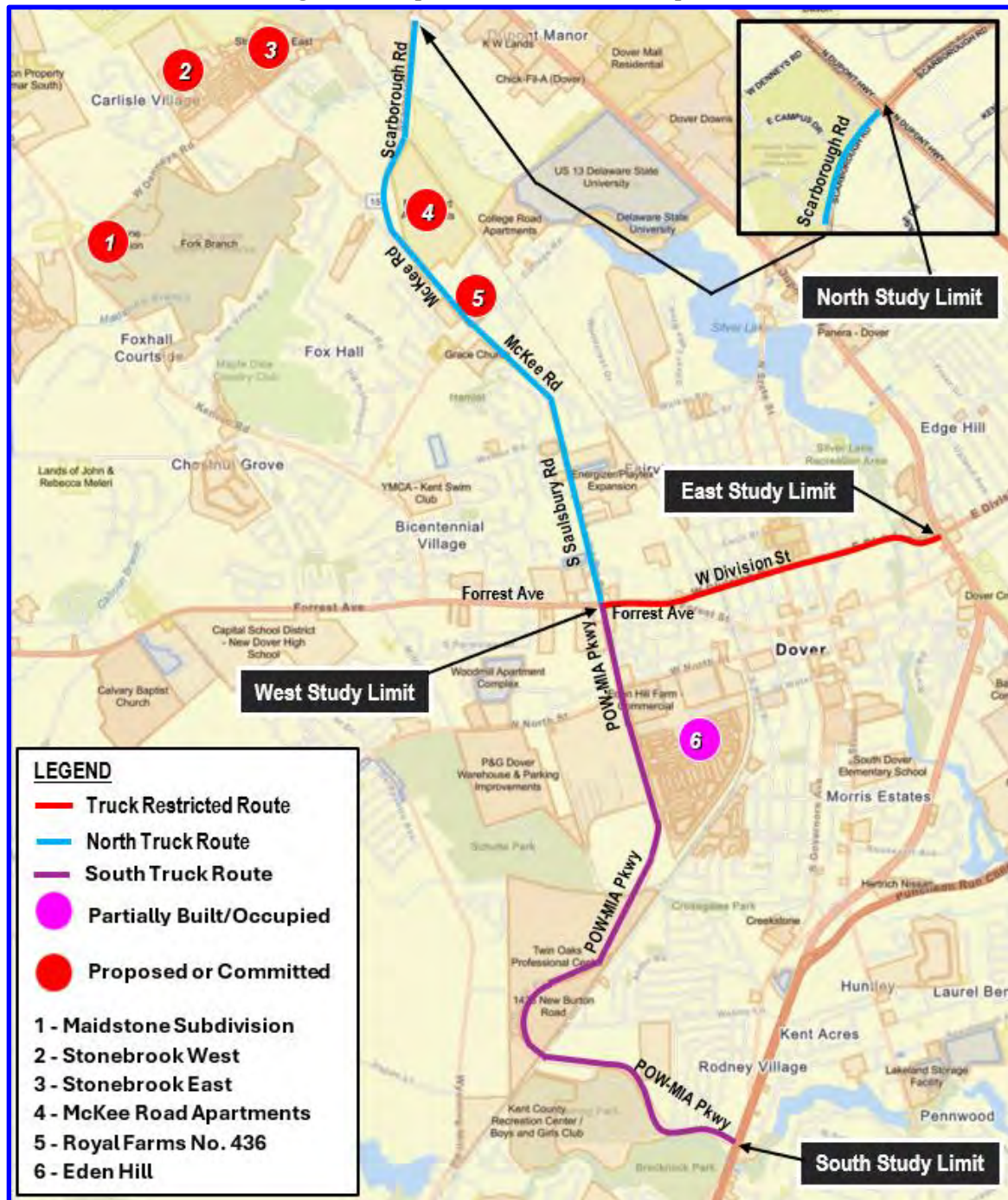
It is expected that if adopted, the truck restriction would be implemented in 2025. The aforementioned Dover/Kent MPO's McKee Road Corridor Study, which included most of the current study area intersections, utilized design year 2052. Future traffic for this study was therefore developed for future implementation year (FIY) 2025 and future ultimate year (FUY) 2052. Future traffic volumes with background growth only were developed based on the growth rate of 0.75% per annum provided by DelDOT Planning Section discussed previously. In addition to the expected general background growth in traffic, proposed and committed developments' traffic expected to utilize the study area road network were also included in the future 2052 traffic volumes. Traffic volumes from these developments were added on to the background growth for the future year 2052 to obtain the final FUY 2052 traffic used in the analysis.

Figure 6 shows the location of the proposed/committed developments included the study in relation to the study limits. For the partially completed development of Eden Hill, only traffic from the unbuilt portion of the development was added on. The trip generation tables for Eden Hill are included in **Appendix B** and

Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

the trip assignment traffic volumes for all the committed developments posted on diagrams of the road network are included in **Appendix C**. The trip assignments for the 100% unbuilt developments were obtained from their respective Traffic Impact Studies (TIS).

Figure 6: Proposed/Committed Developments



Future scenarios for which traffic volumes for all vehicles, and traffic volumes for trucks were developed for the traffic analyses are as follows:

1. FIY 2025 without proposed truck restriction
2. FIY 2025 with proposed truck restriction
3. FUY 2052 without truck restriction
4. FUY 2052 with truck restriction.

The A.M. peak hour FIY 2025 without Truck Restriction turning movement traffic volumes for all vehicles and for trucks are respectively presented in **Figure 7** and **Figure 8**. **Figure 9** and **Figure 10** respectively present the P.M. peak hour FIY 2025 without Truck Restriction turning movement traffic volumes for all vehicles and for trucks.

It is logical that if the worst-case scenario analyzed under truck restriction conditions results in acceptable/minimal impact to traffic operations, then, any other scenario will be acceptable as well. Based on this premise assumptions were made that would result in the highest volume of diverted trucks onto the proposed truck diversion routes during the A.M. and P.M. peak hours. This enabled the traffic analysis study to be performed cost-effectively due to the elimination of an otherwise needed costly origin-destination study.

To develop the truck restricted scenario traffic volumes, it was assumed that:

1. All westbound SR8 through traffic at the intersection of SR8 and Saulsbury Road originated from the intersection of SR8 and US13 and would have to be diverted with no reduction for mid-block local delivery trucks.
2. All eastbound SR8 truck traffic at the intersection of SR8 and US13 originated from eastbound SR8 through traffic at the intersection of SR8 and Saulsbury Road and would have to be diverted without any reduction for mid-block local delivery trucks.

The A.M. peak hour FIY 2025 with Truck Restriction turning movement traffic volumes for all vehicles and for trucks are respectively presented in **Figure 11** and **Figure 12**. **Figure 13** and **Figure 14** respectively present the P.M. peak hour FIY 2025 with Truck Restriction turning movement traffic volumes for all vehicles and for trucks.

The A.M. peak hour FUY 2052 without Truck Restriction turning movement traffic volumes for all vehicles and for trucks are respectively presented in **Figure 15** and **Figure 16**. **Figure 17** and **Figure 18** respectively present the P.M. peak hour FUY 2052 without Truck Restriction turning movement traffic volumes for all vehicles and for trucks.

The A.M. peak hour FUY 2052 with Truck Restriction turning movement traffic volumes for all vehicles and for trucks are respectively presented in **Figure 19** and **Figure 20**. **Figure 21** and **Figure 22** respectively present the P.M. peak hour FUY 2052 with Truck Restriction turning movement traffic volumes for all vehicles and for trucks.

Figure 7: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles

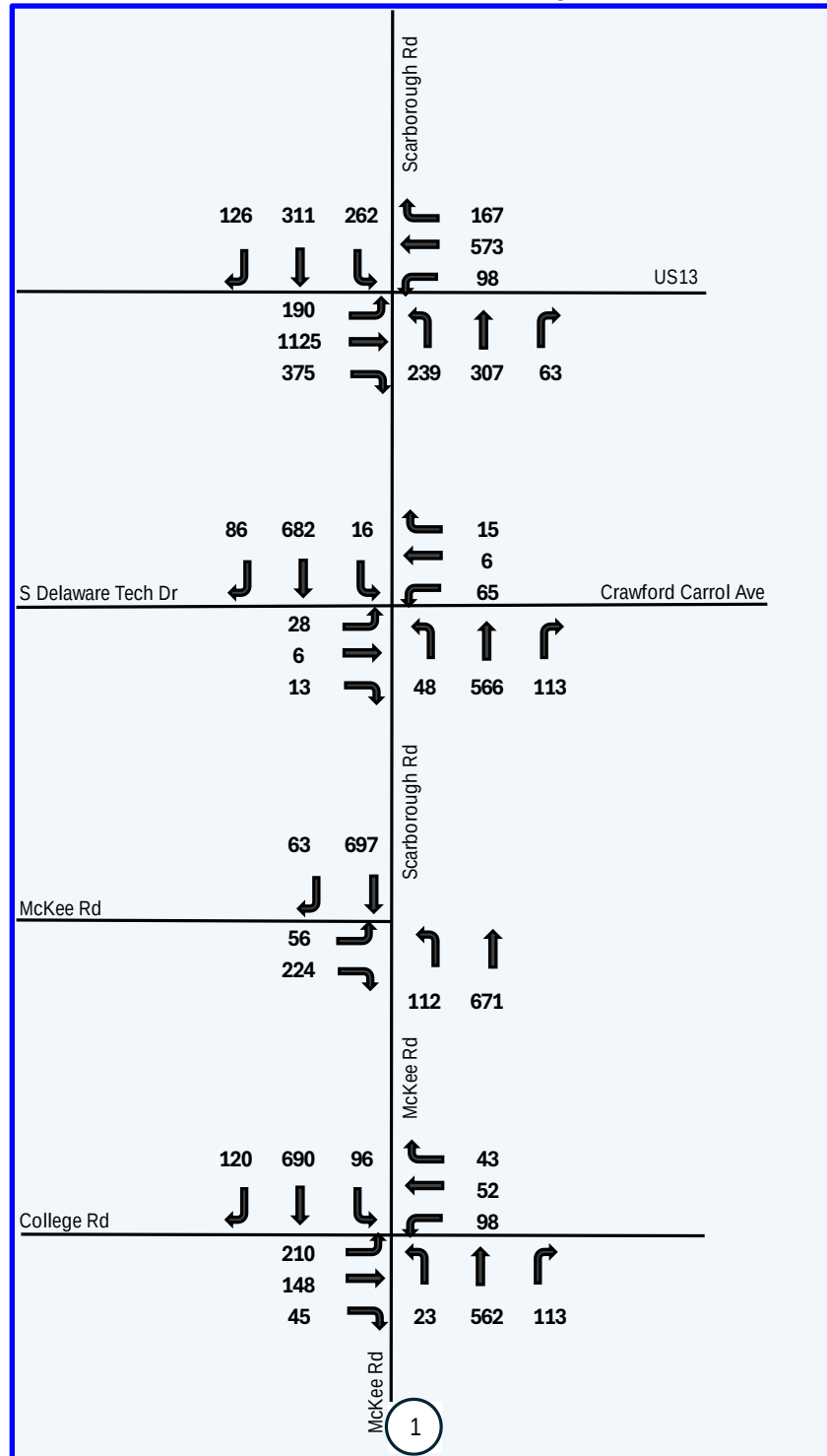


Figure 7: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

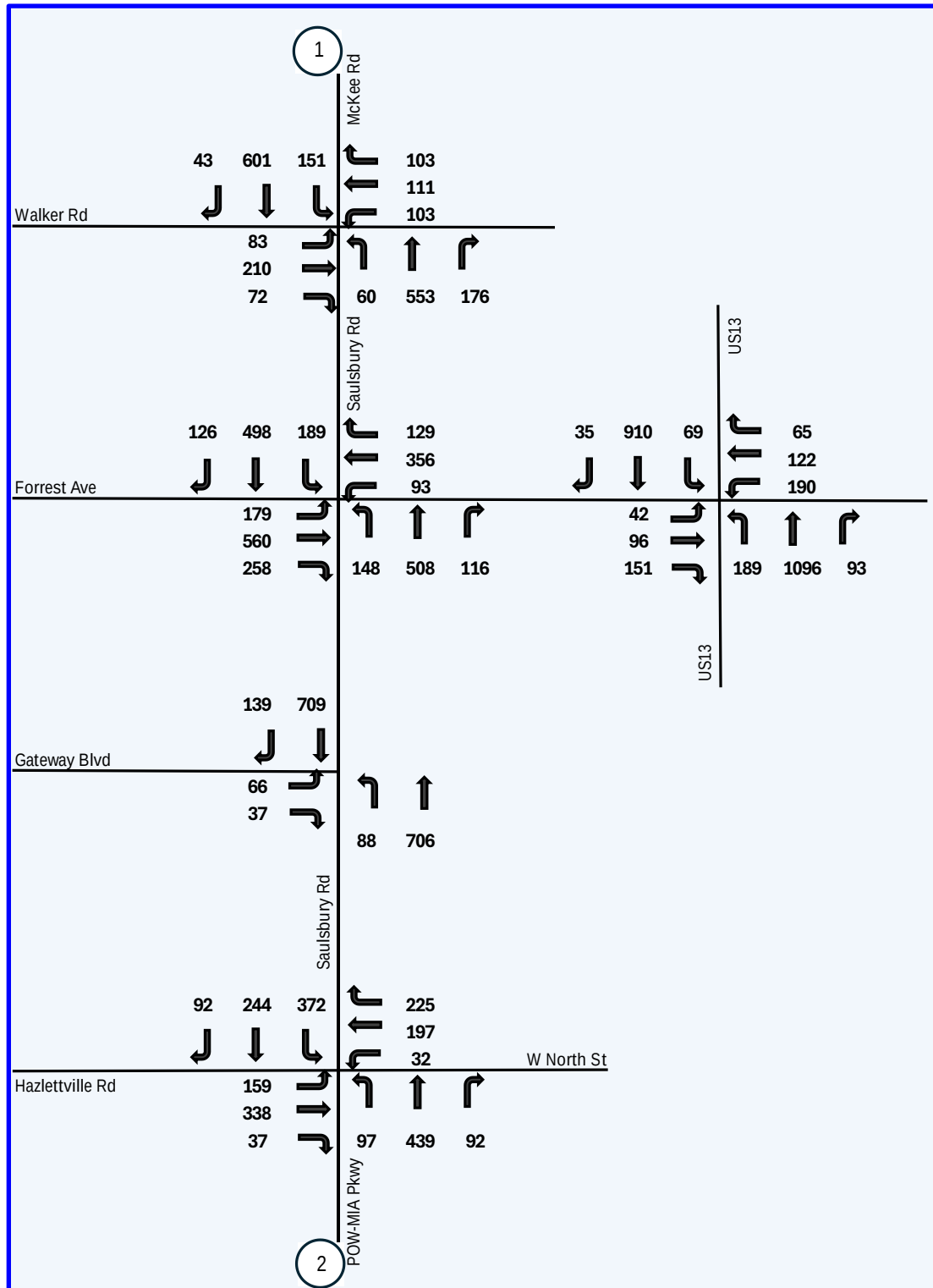


Figure 7: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

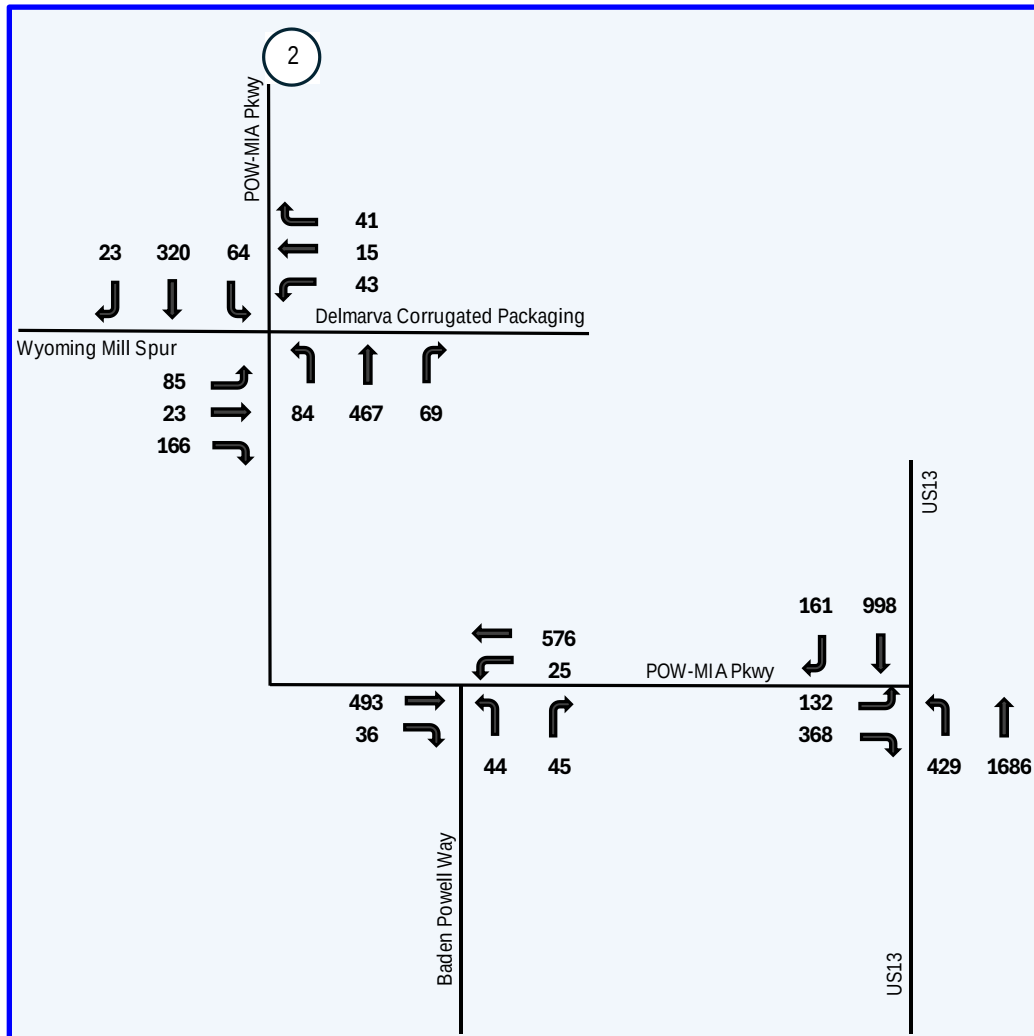


Figure 8: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – Trucks

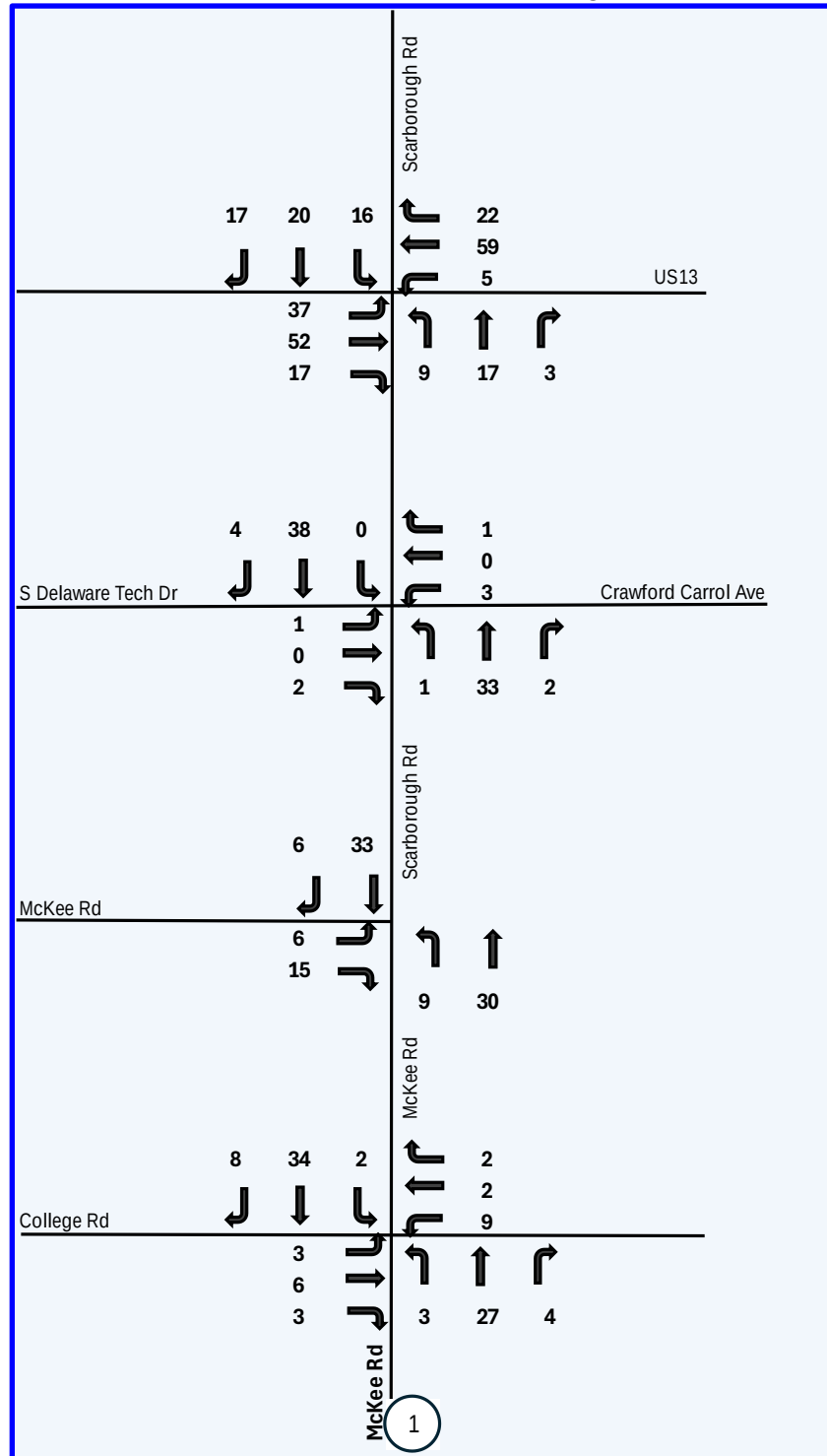


Figure 8: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

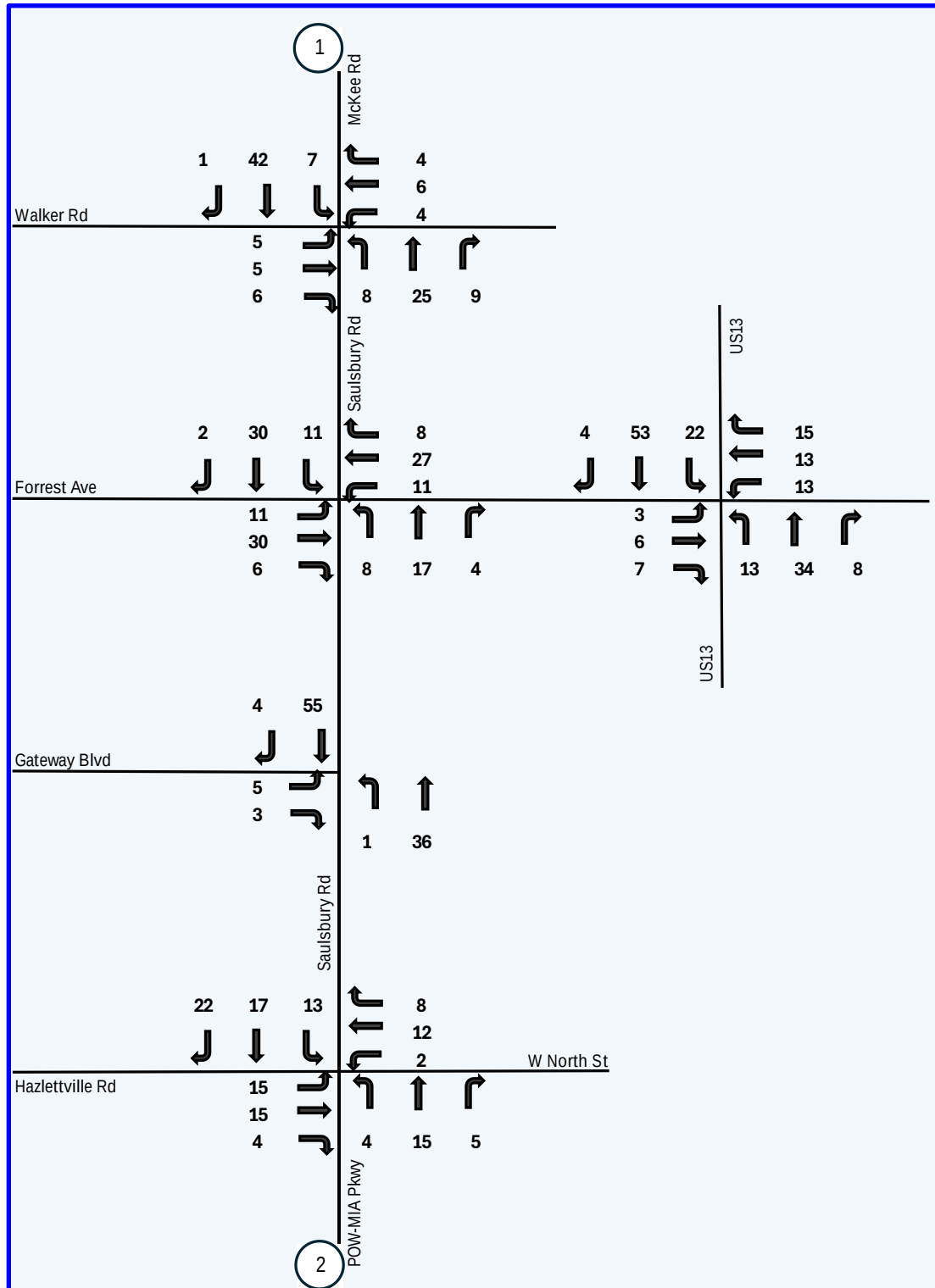


Figure 8: FIY 2025 without Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

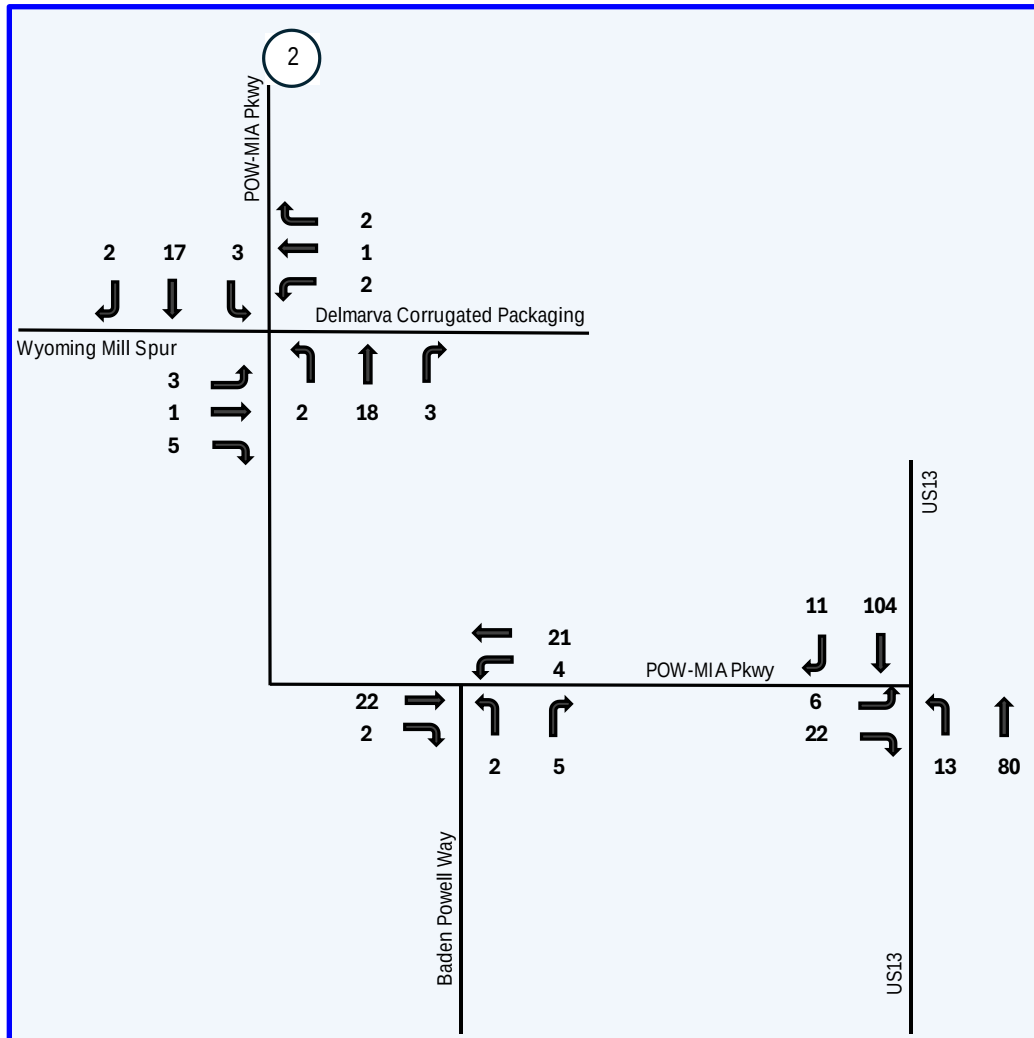


Figure 9: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles

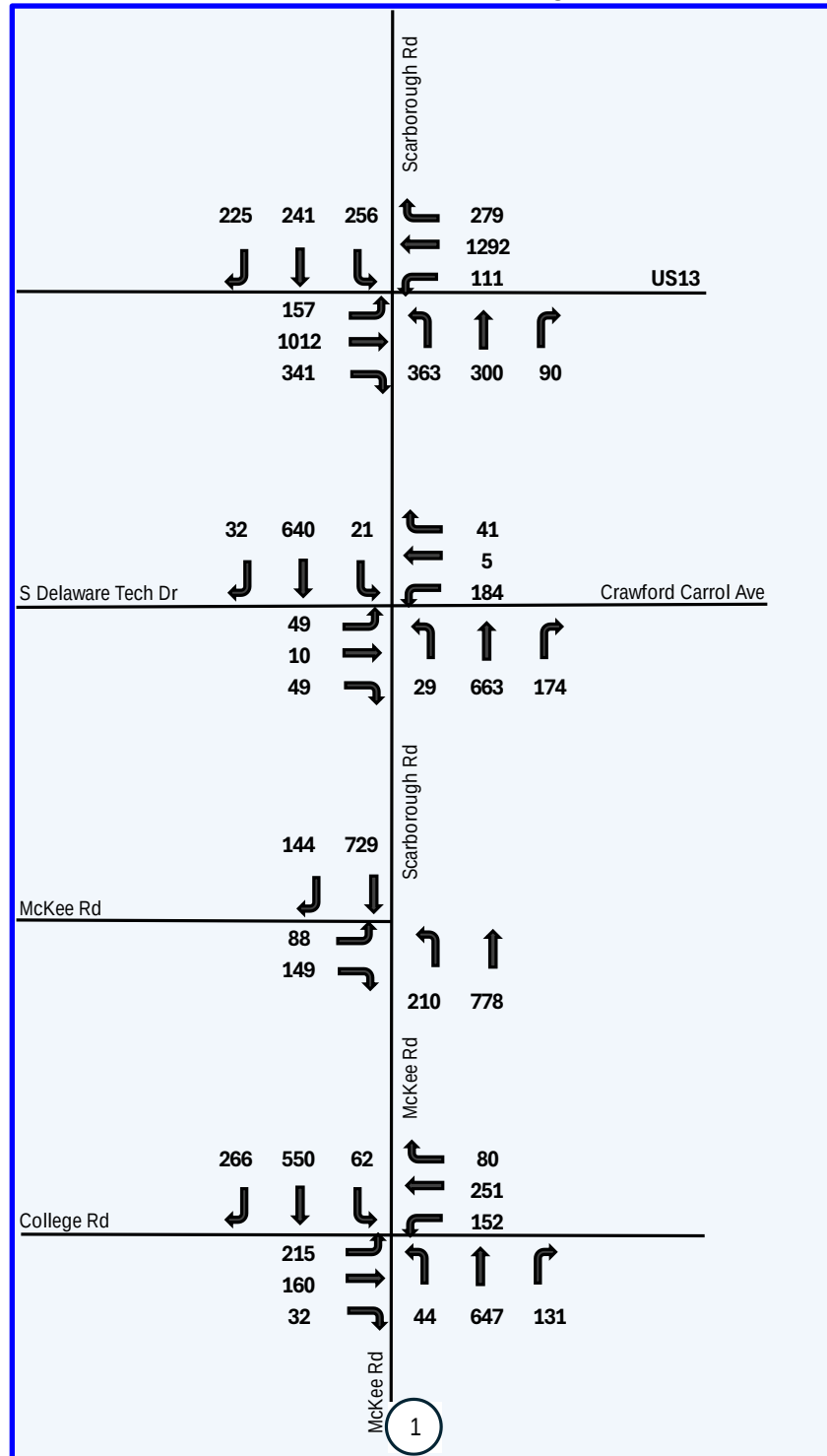


Figure 9: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

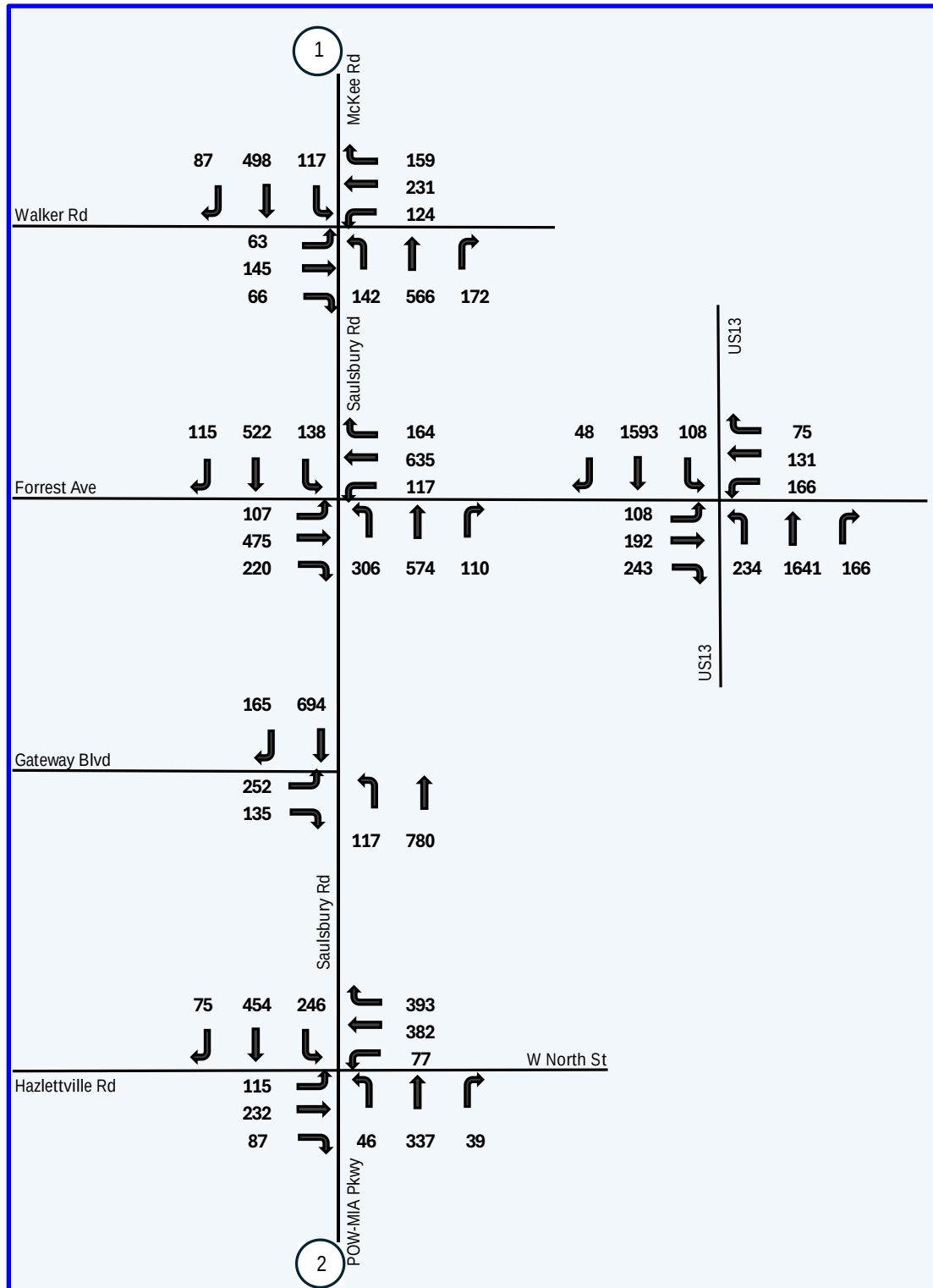


Figure 9: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

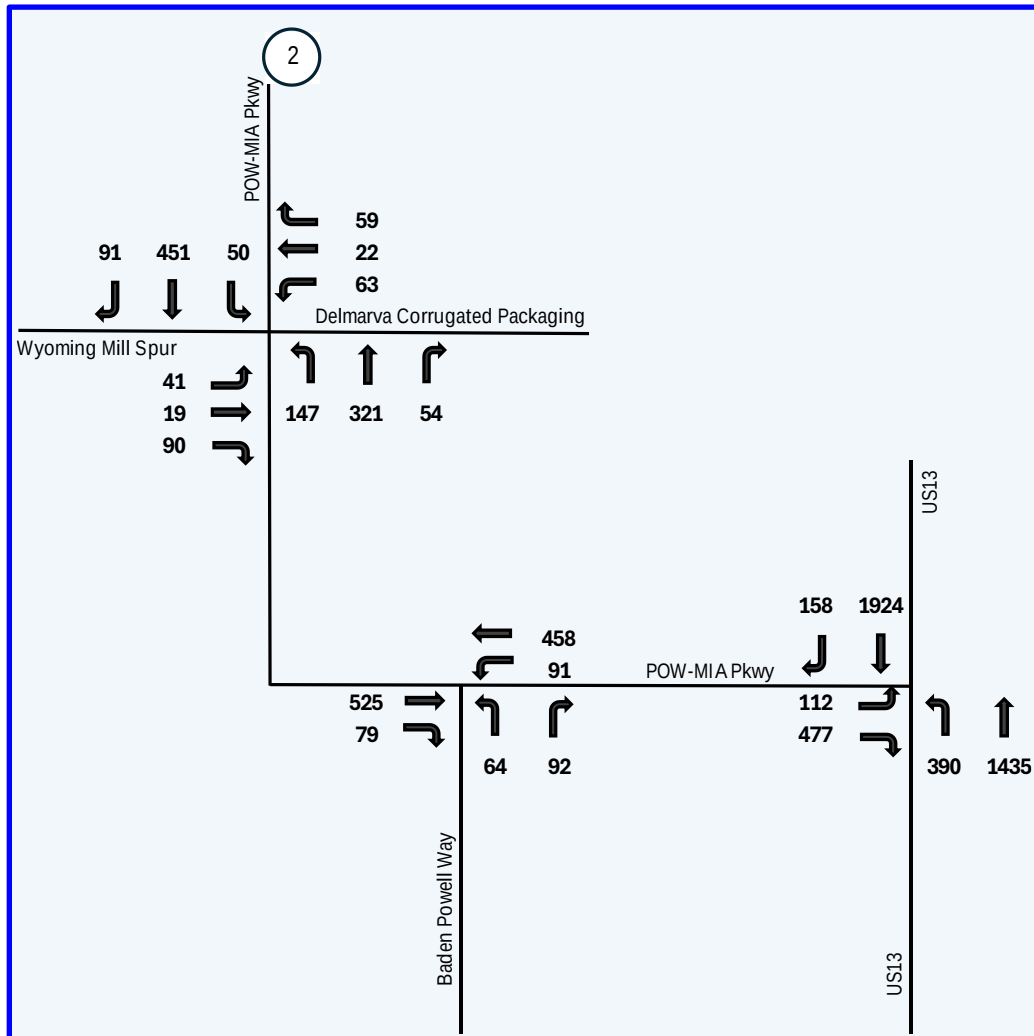


Figure 10: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – Trucks

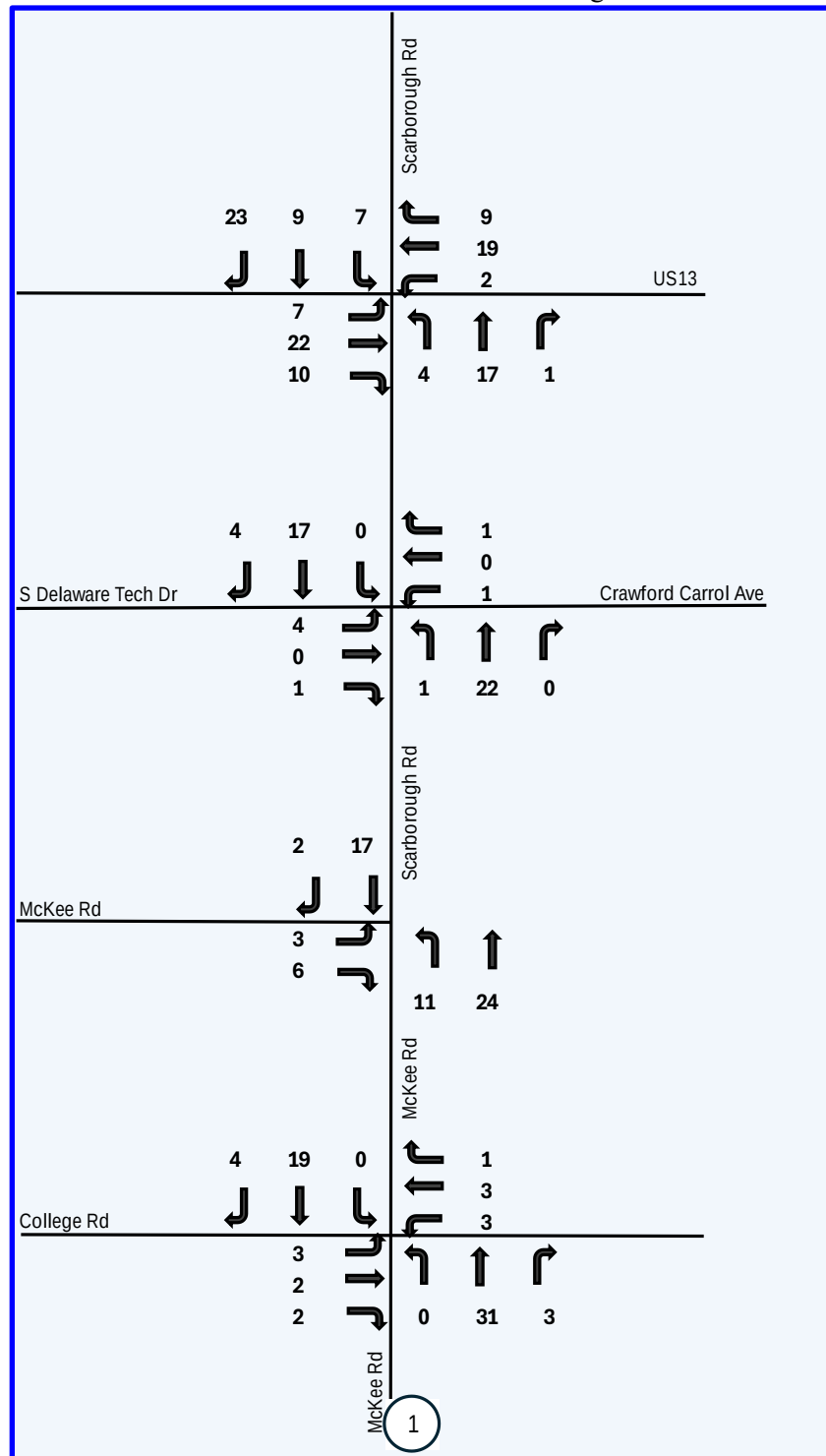


Figure 10: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

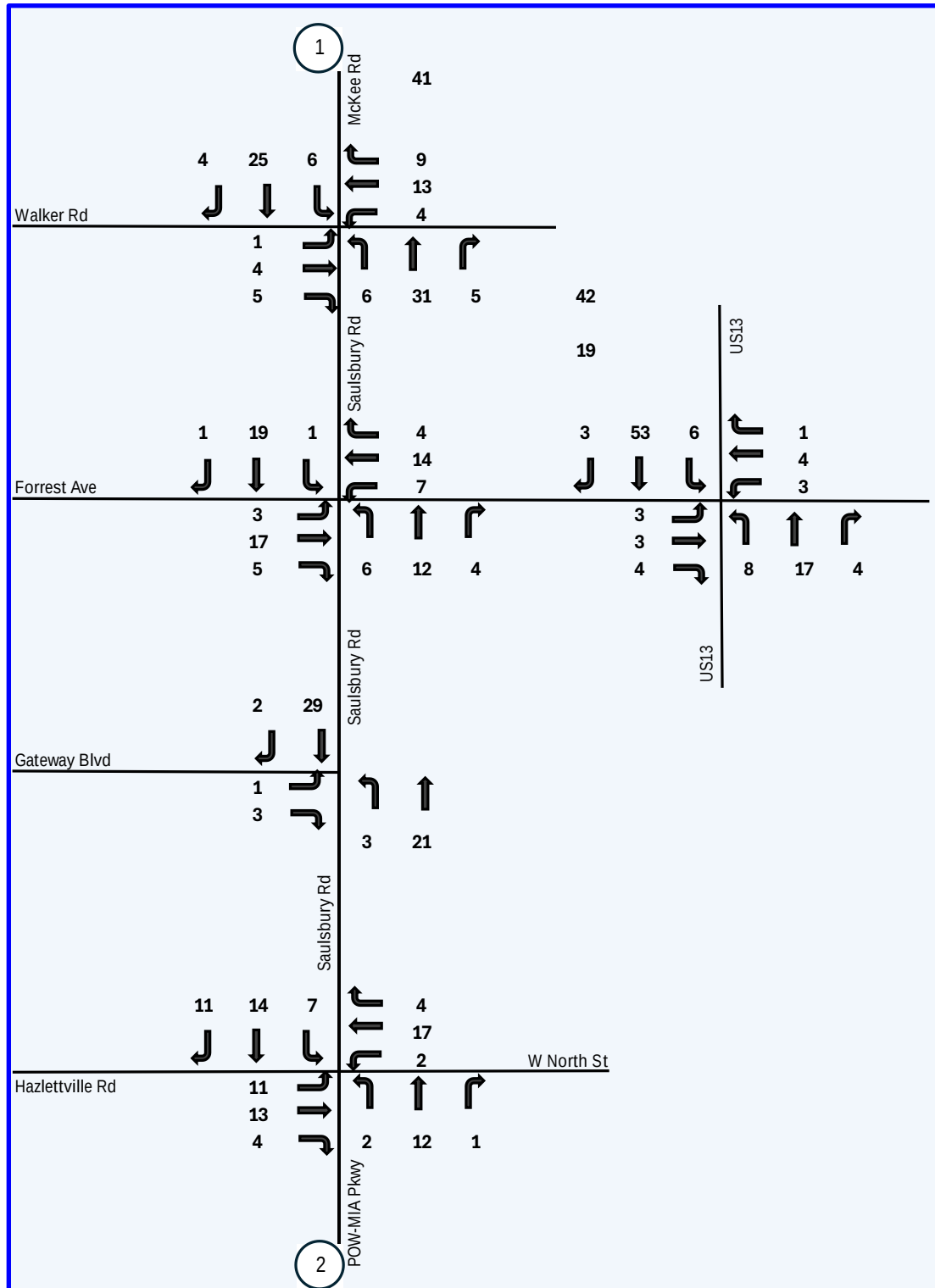


Figure 10: FIY 2025 without Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

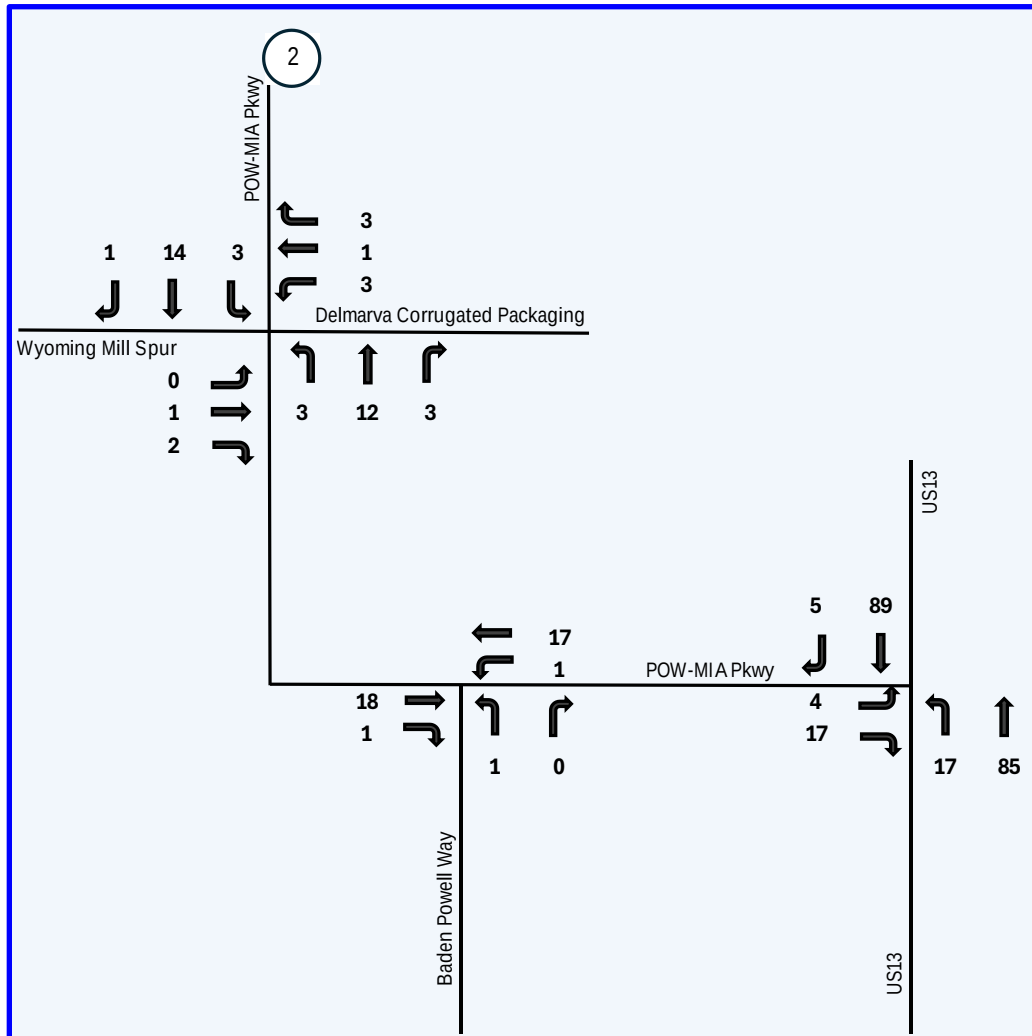


Figure 11: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles

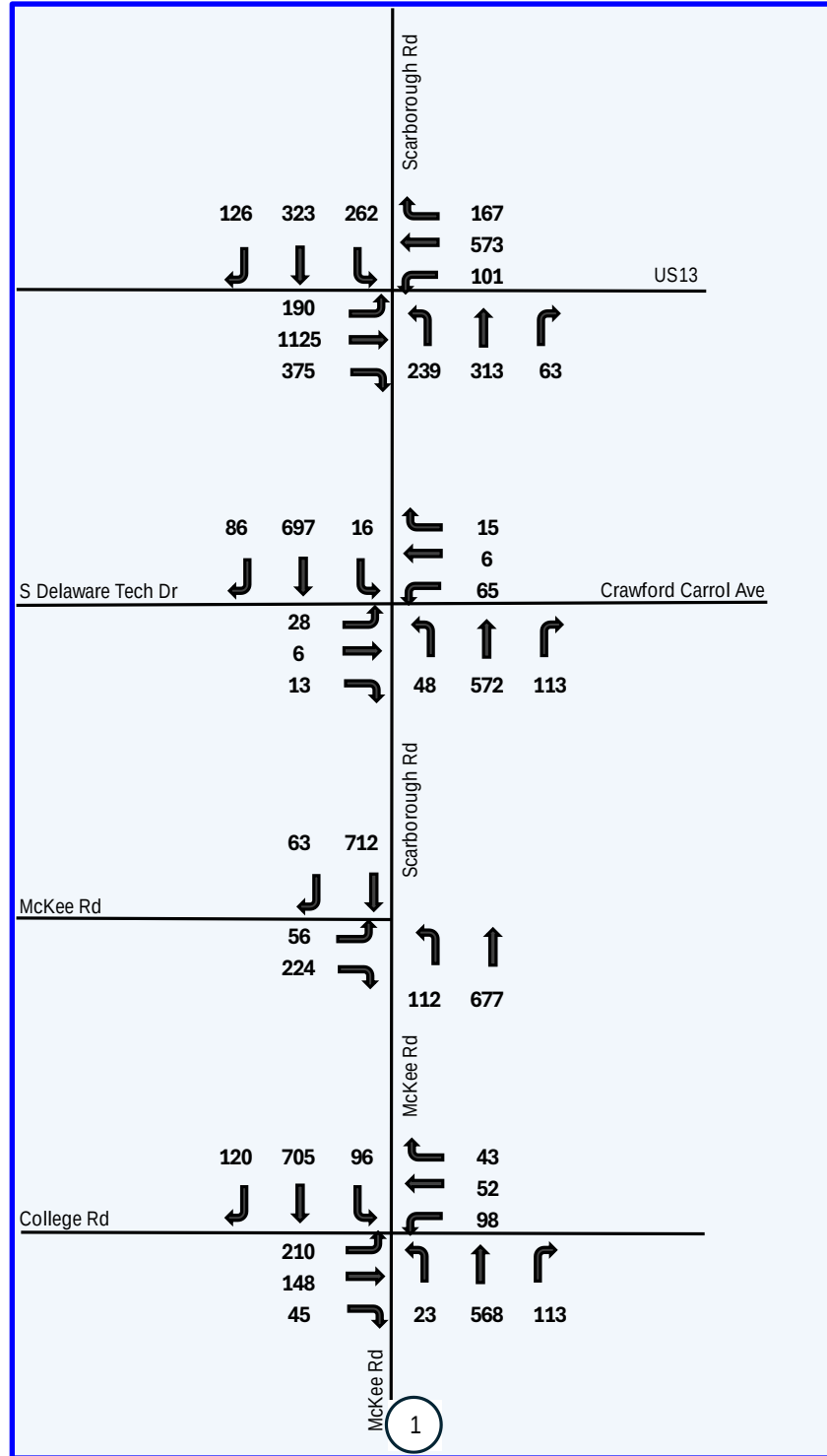


Figure 11: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

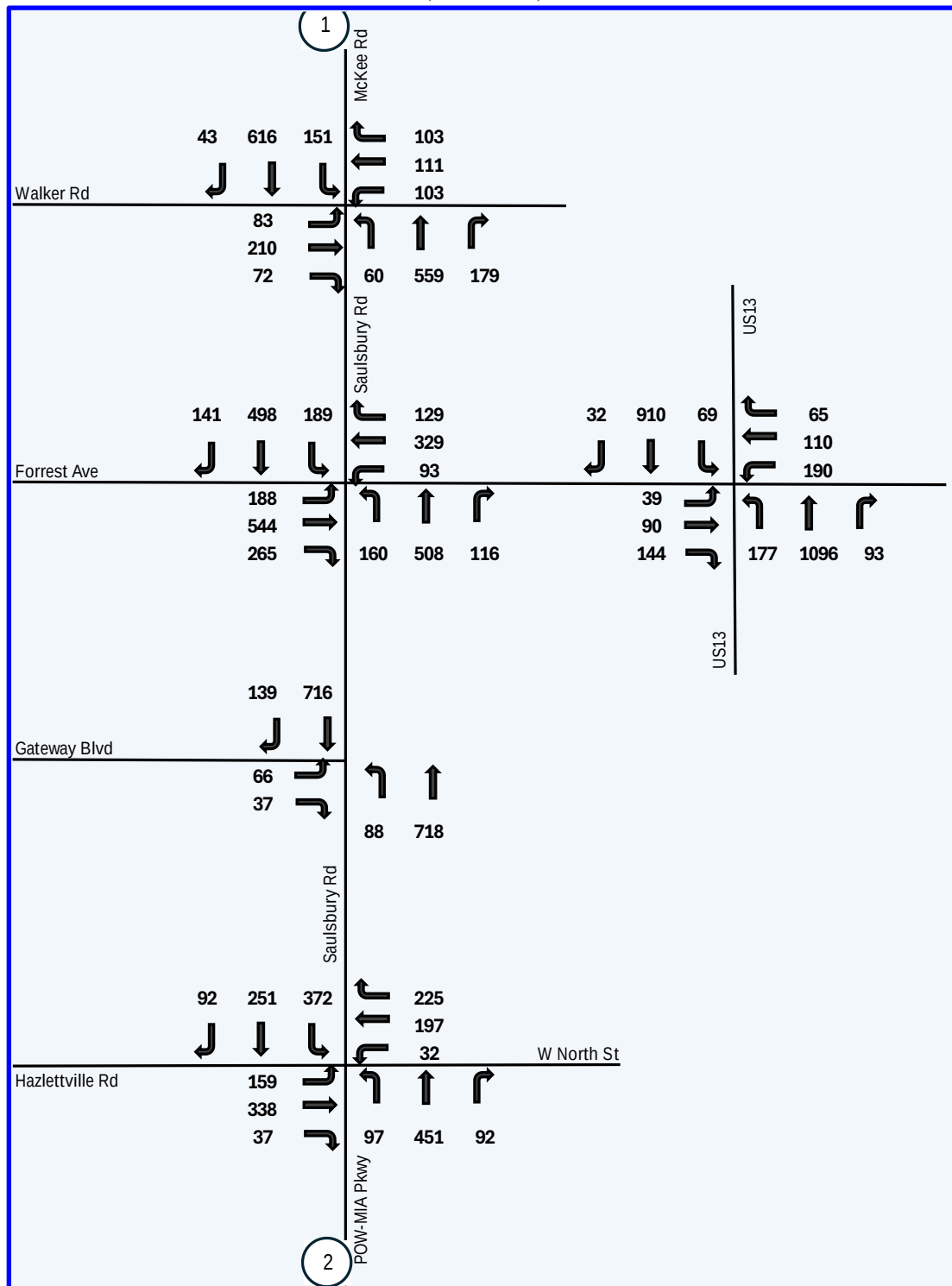


Figure 11: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

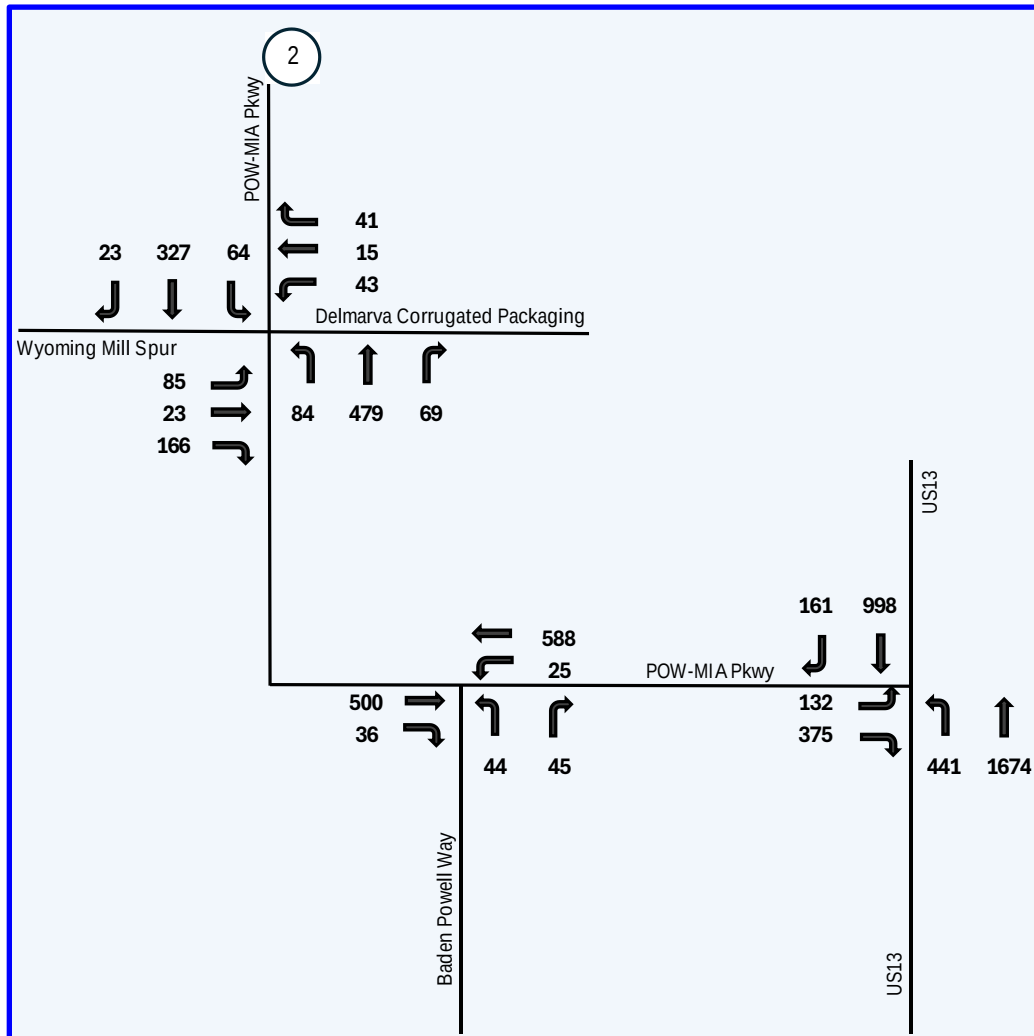


Figure 12: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – Trucks

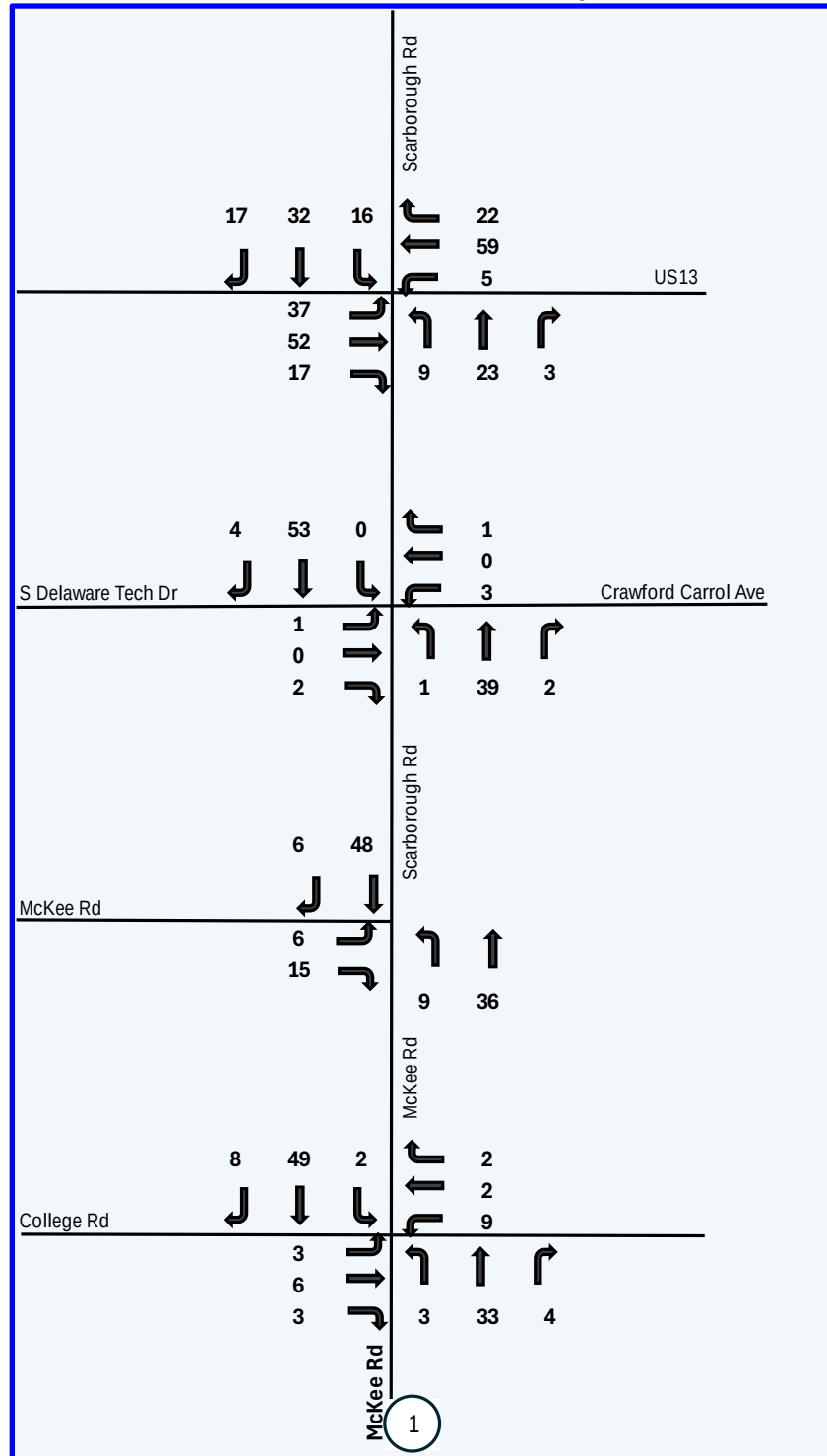


Figure 12: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

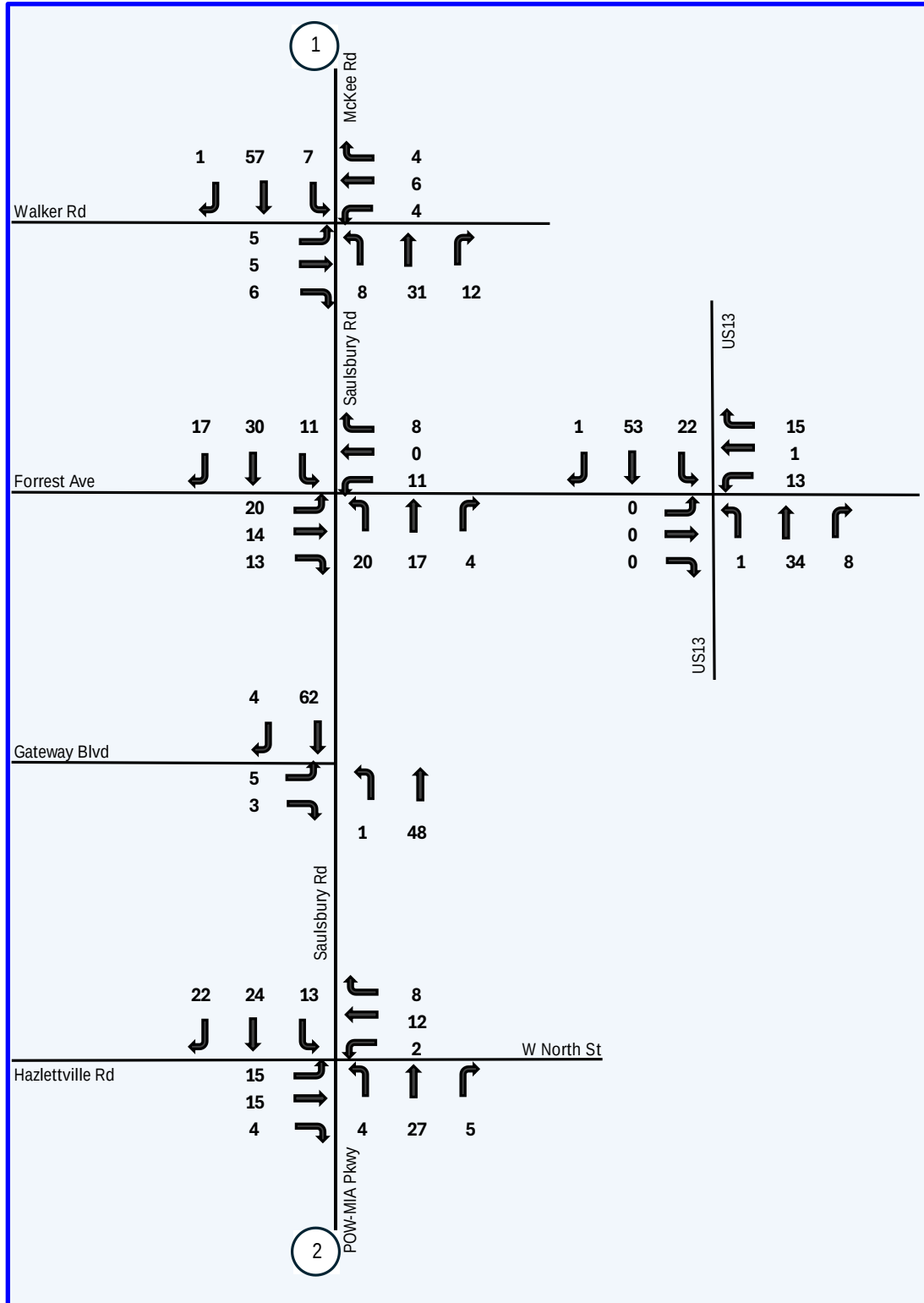


Figure 12: FIY 2025 with Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

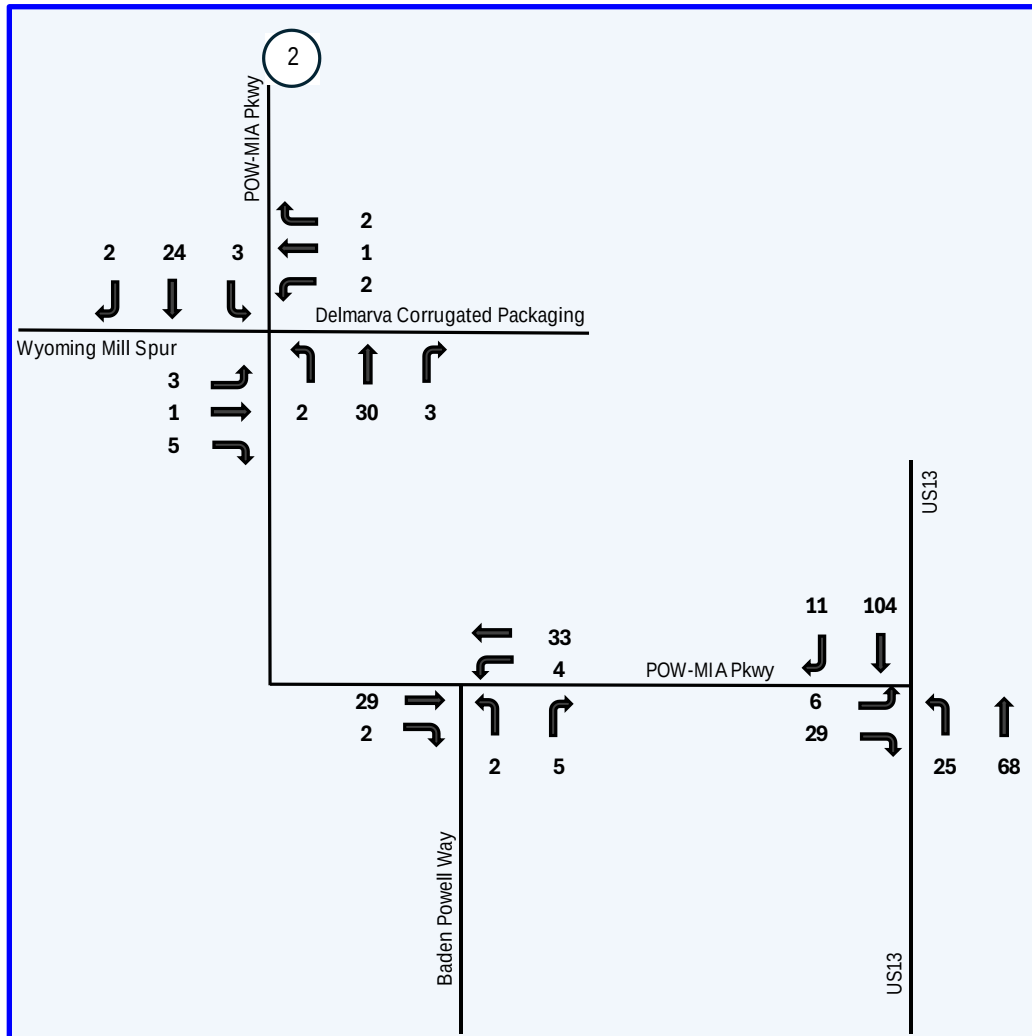


Figure 13: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles

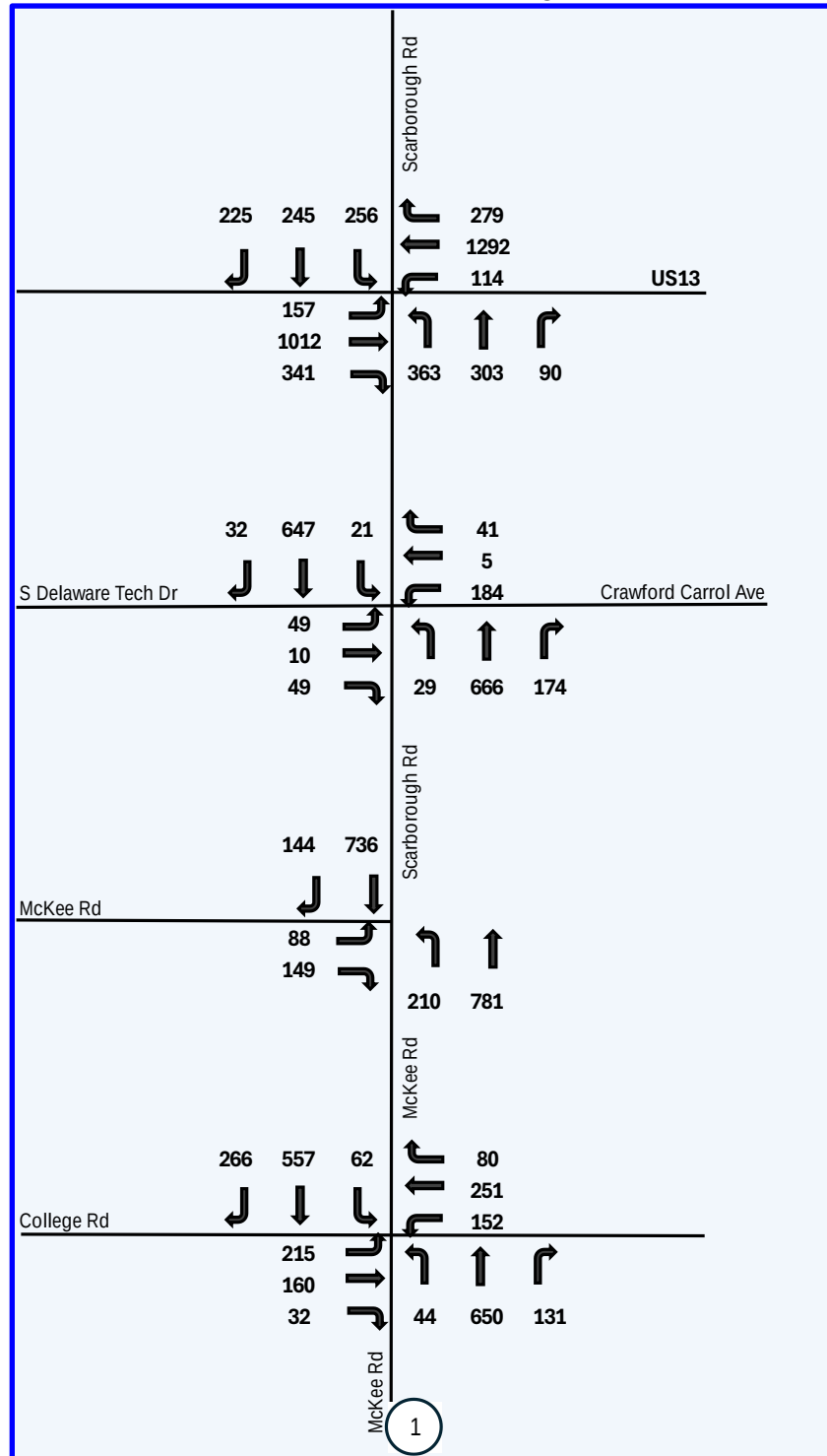
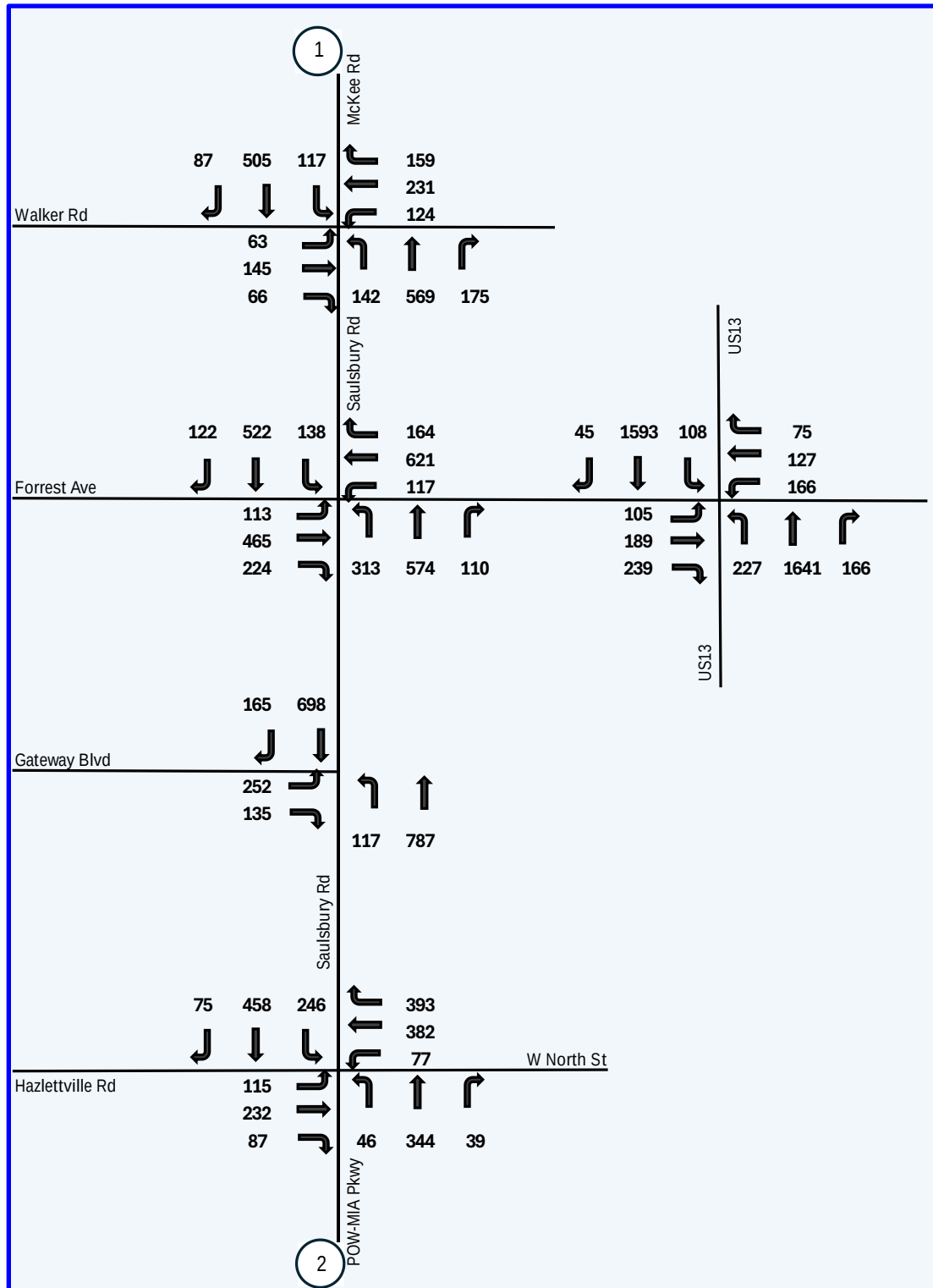


Figure 13: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)



Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

Figure 13: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

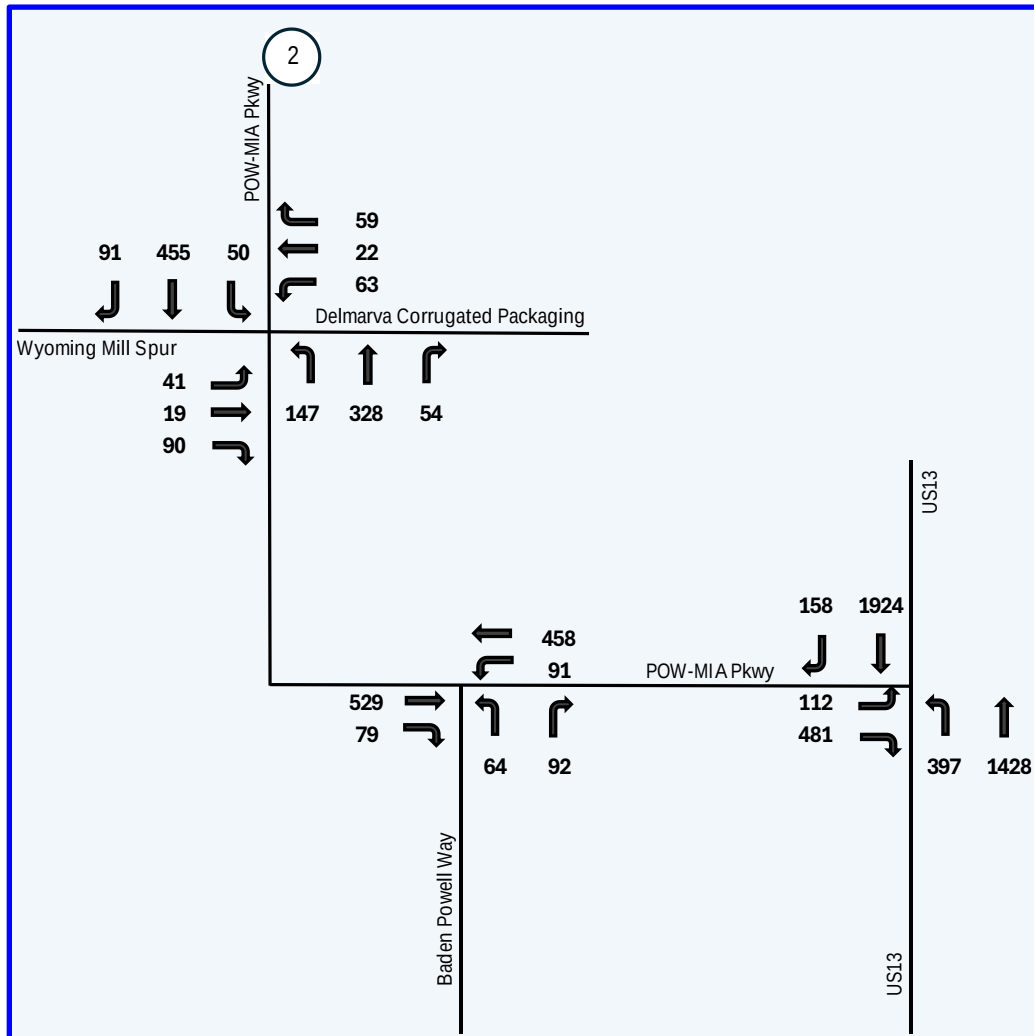


Figure 14: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – Trucks

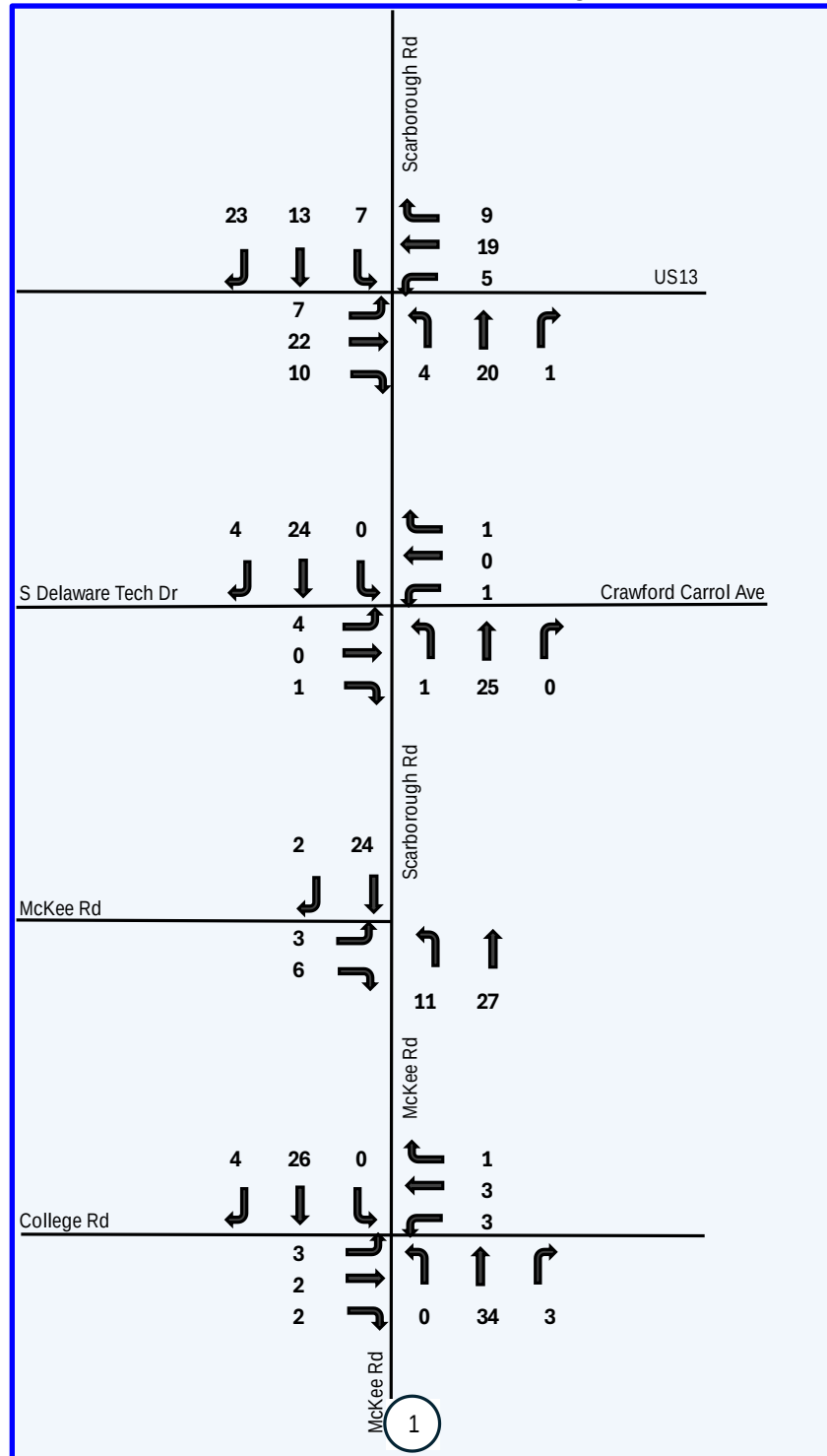


Figure 14: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

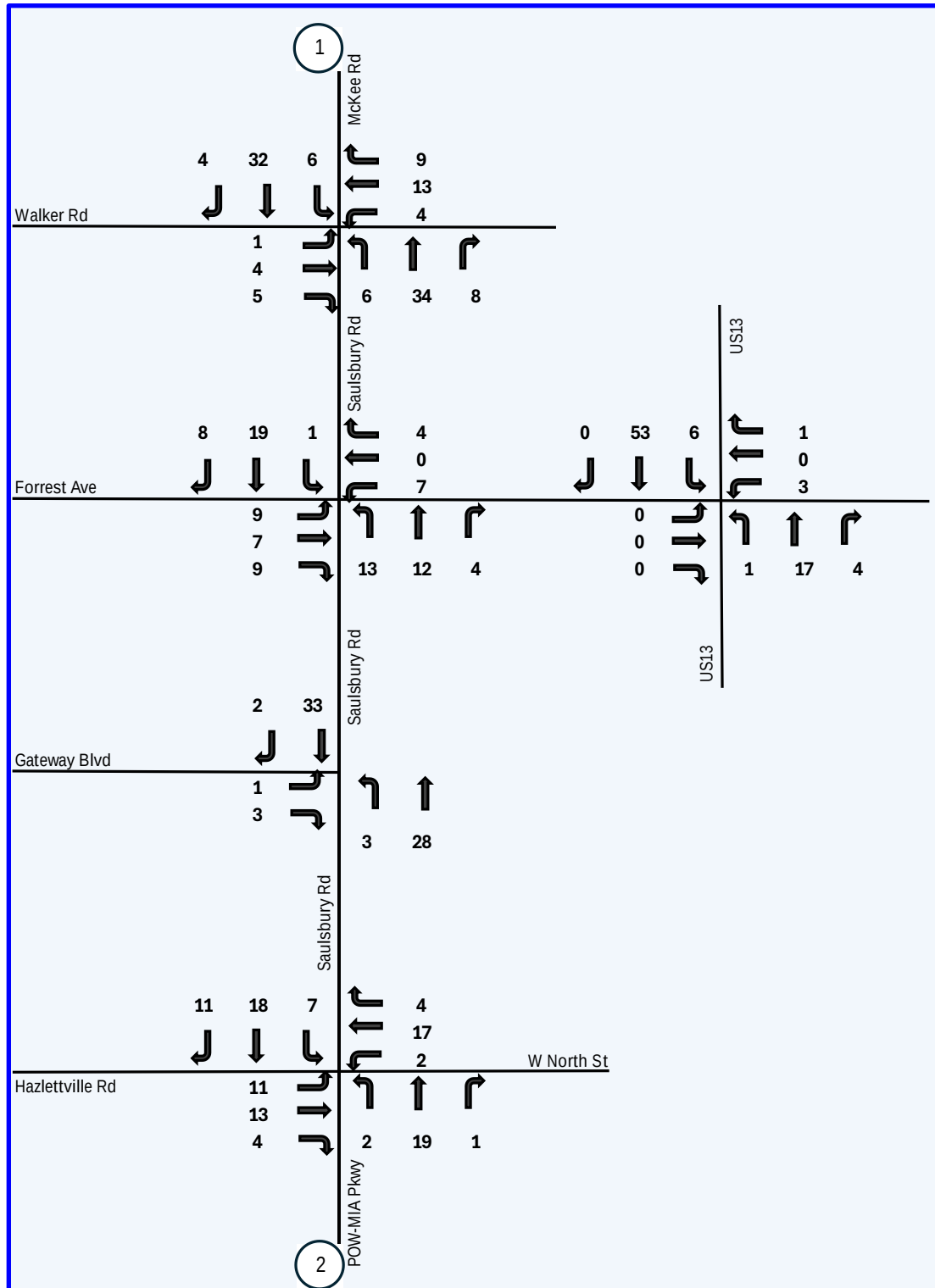


Figure 14: FIY 2025 with Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

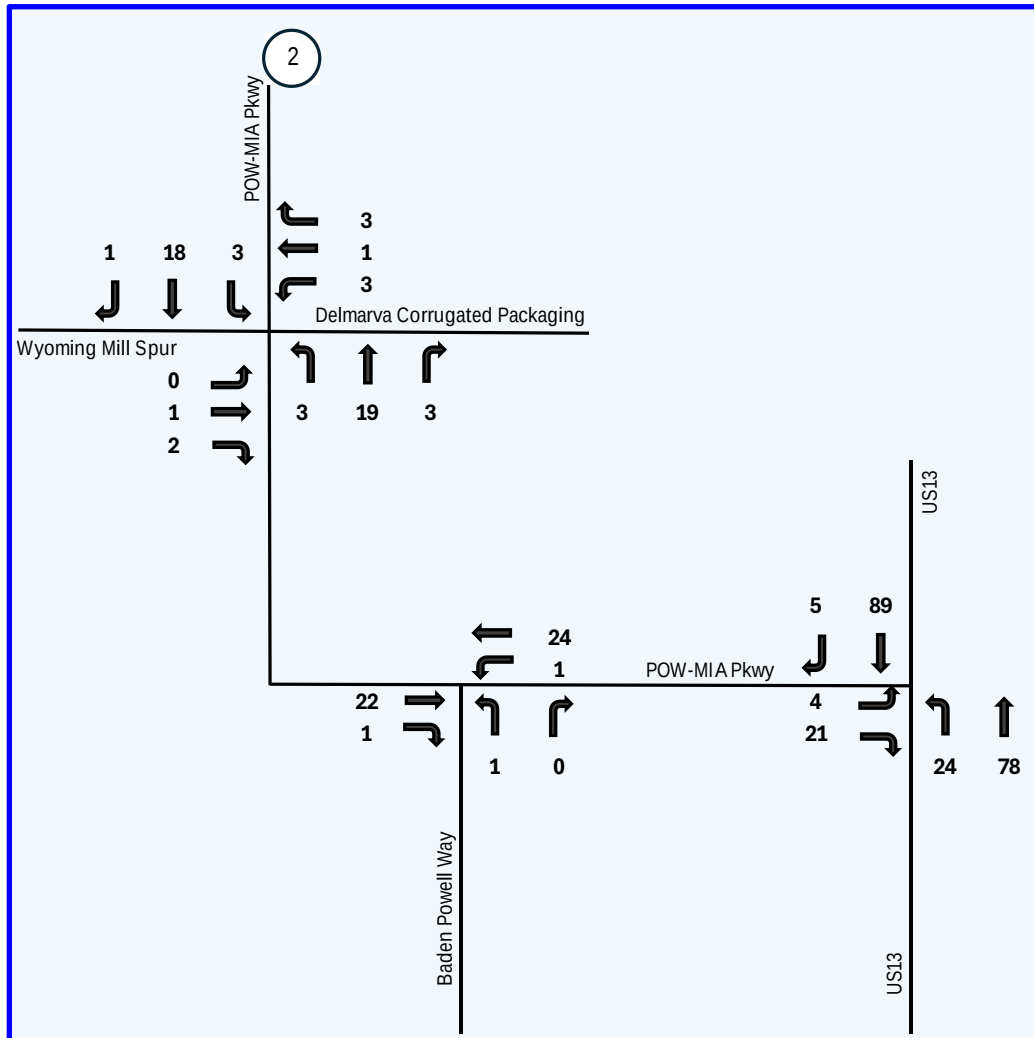


Figure 15: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles

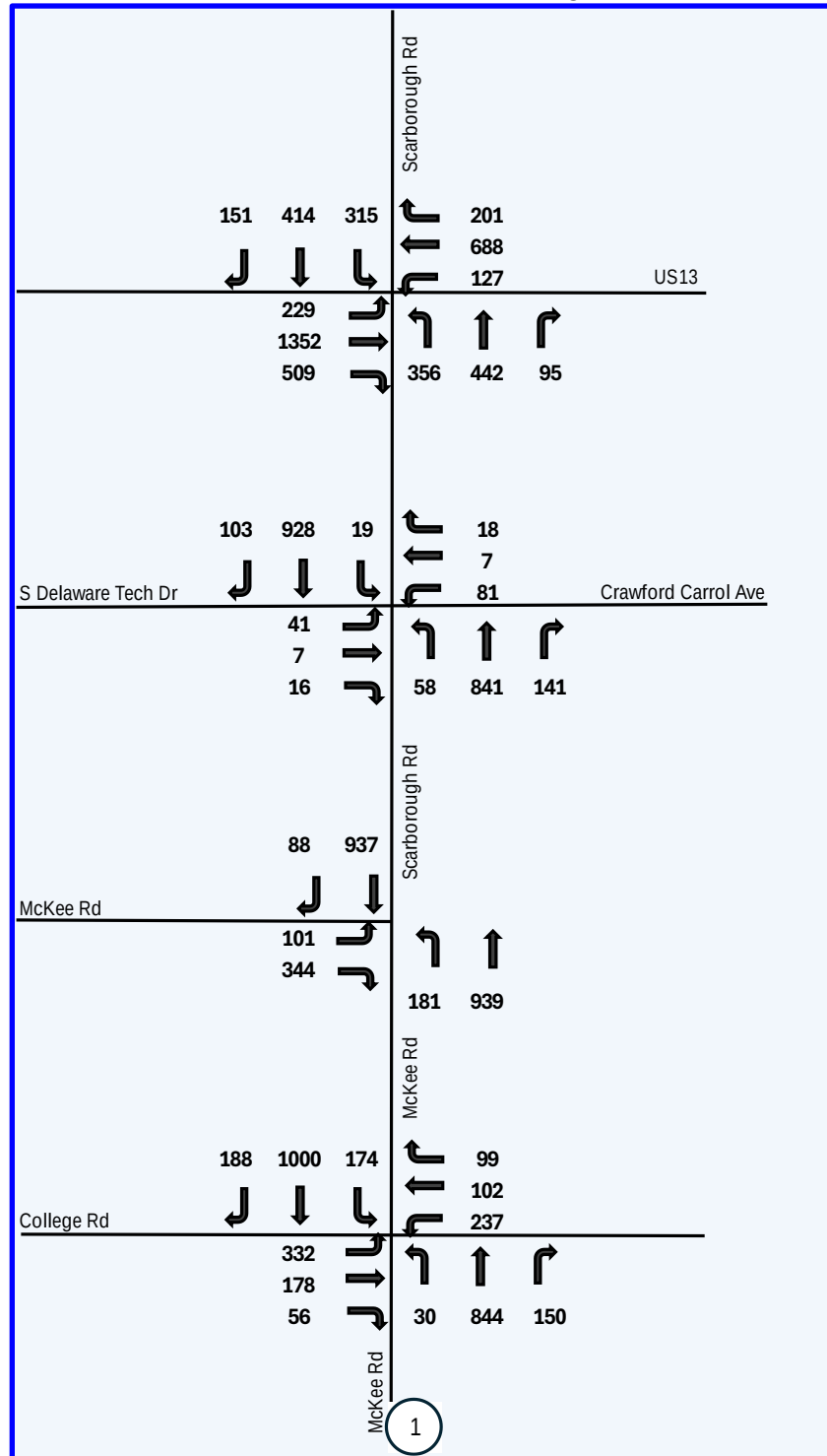


Figure 15: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

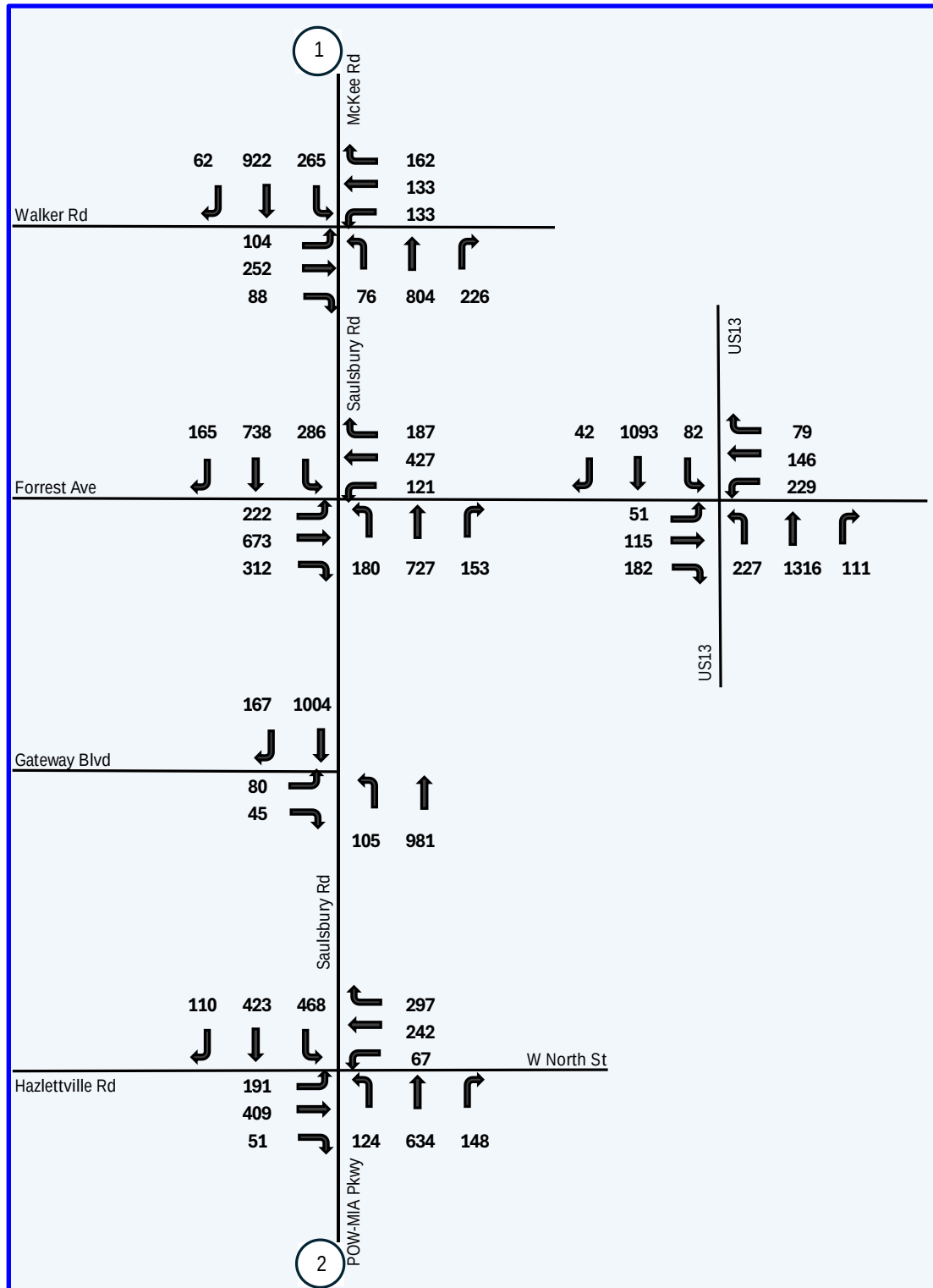


Figure 15: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

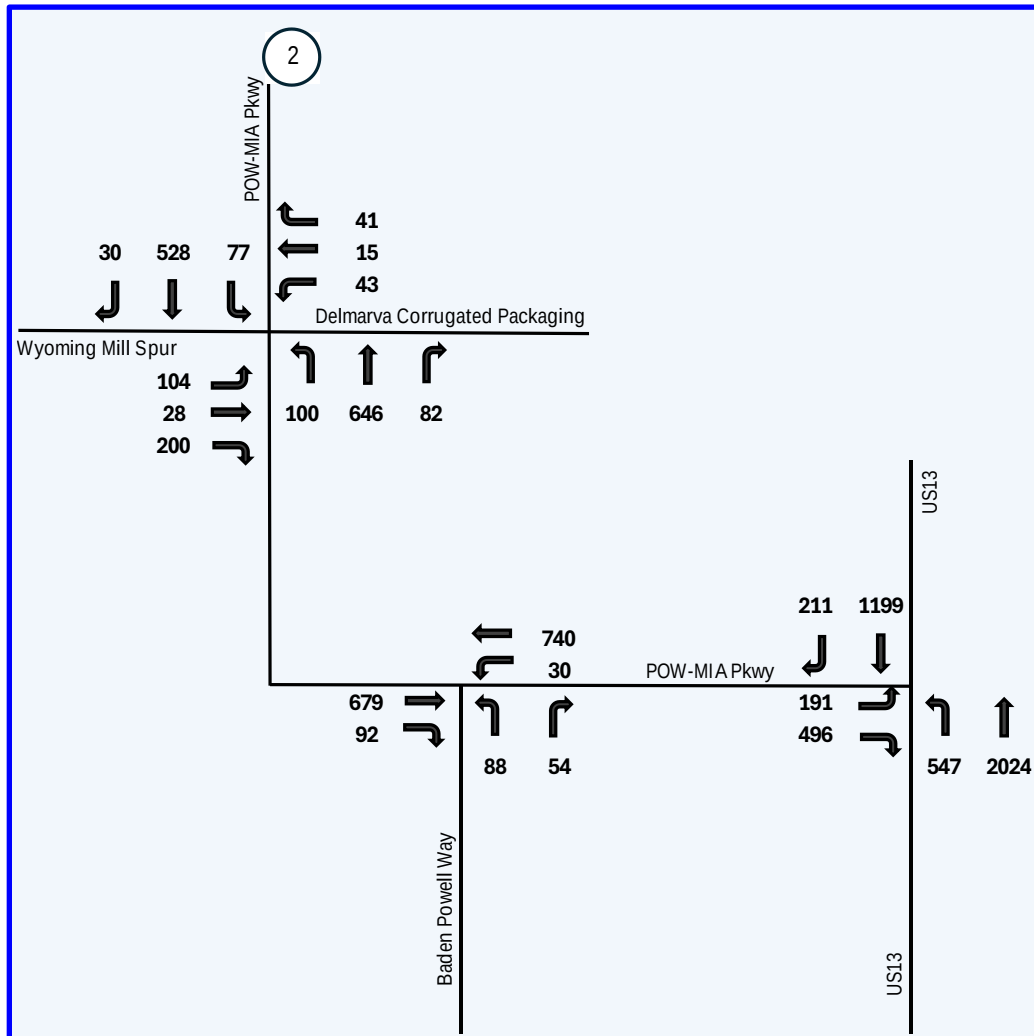


Figure 16: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – Trucks

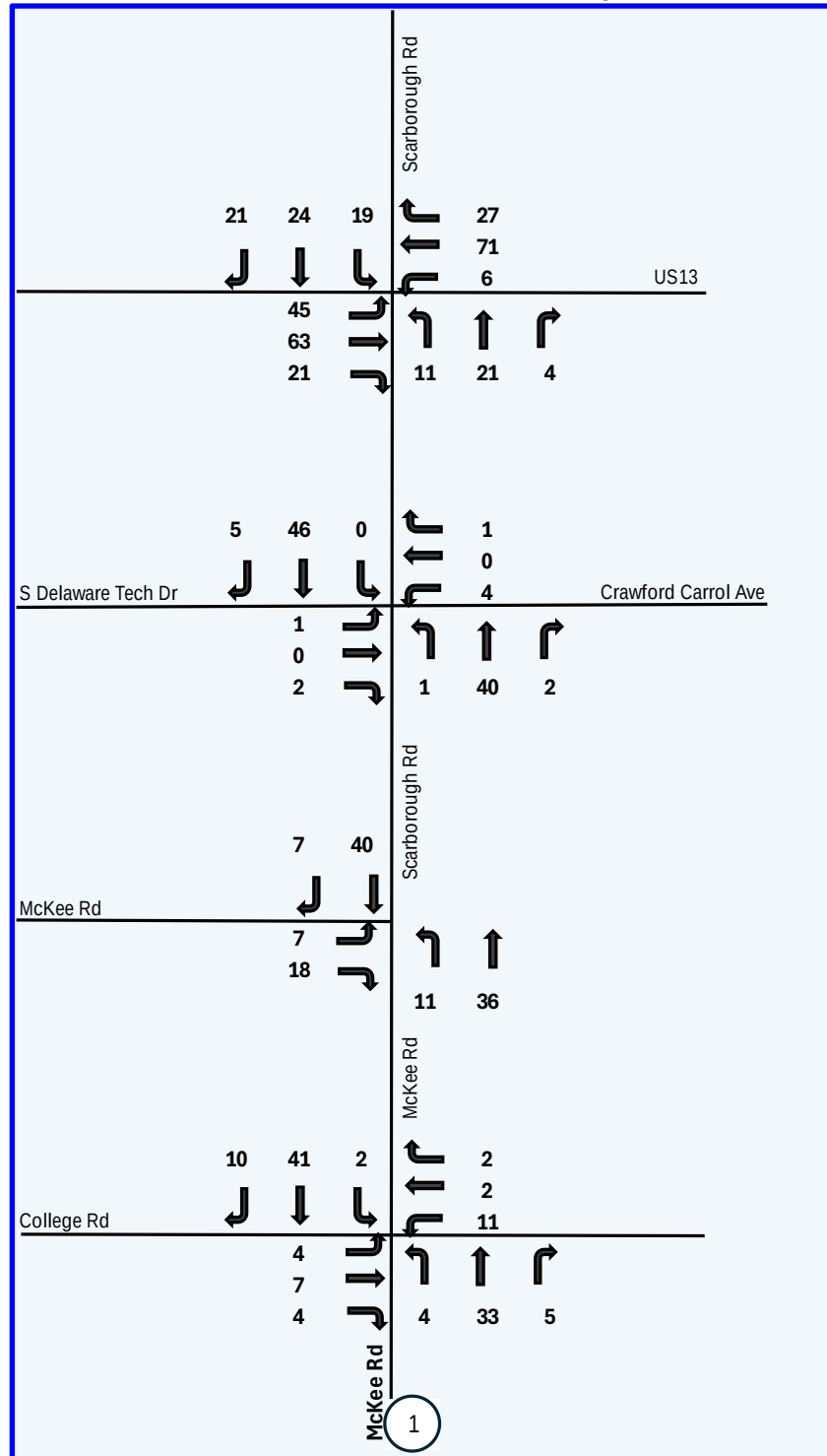


Figure 16: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – Trucks
(Continued)

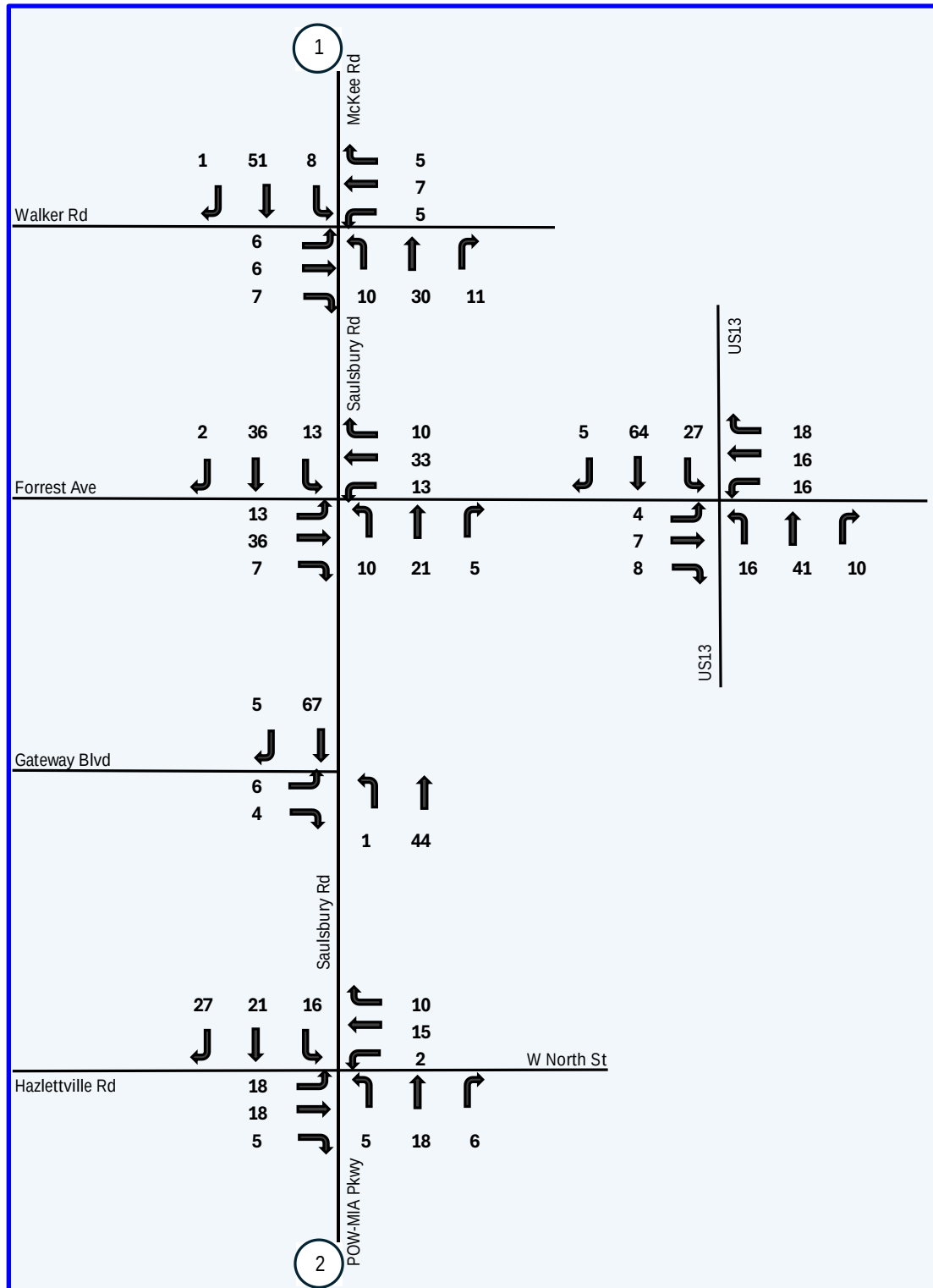


Figure 16: FUY 2052 without Truck Restriction A.M. Turning Movement Volumes – Trucks
(Continued)

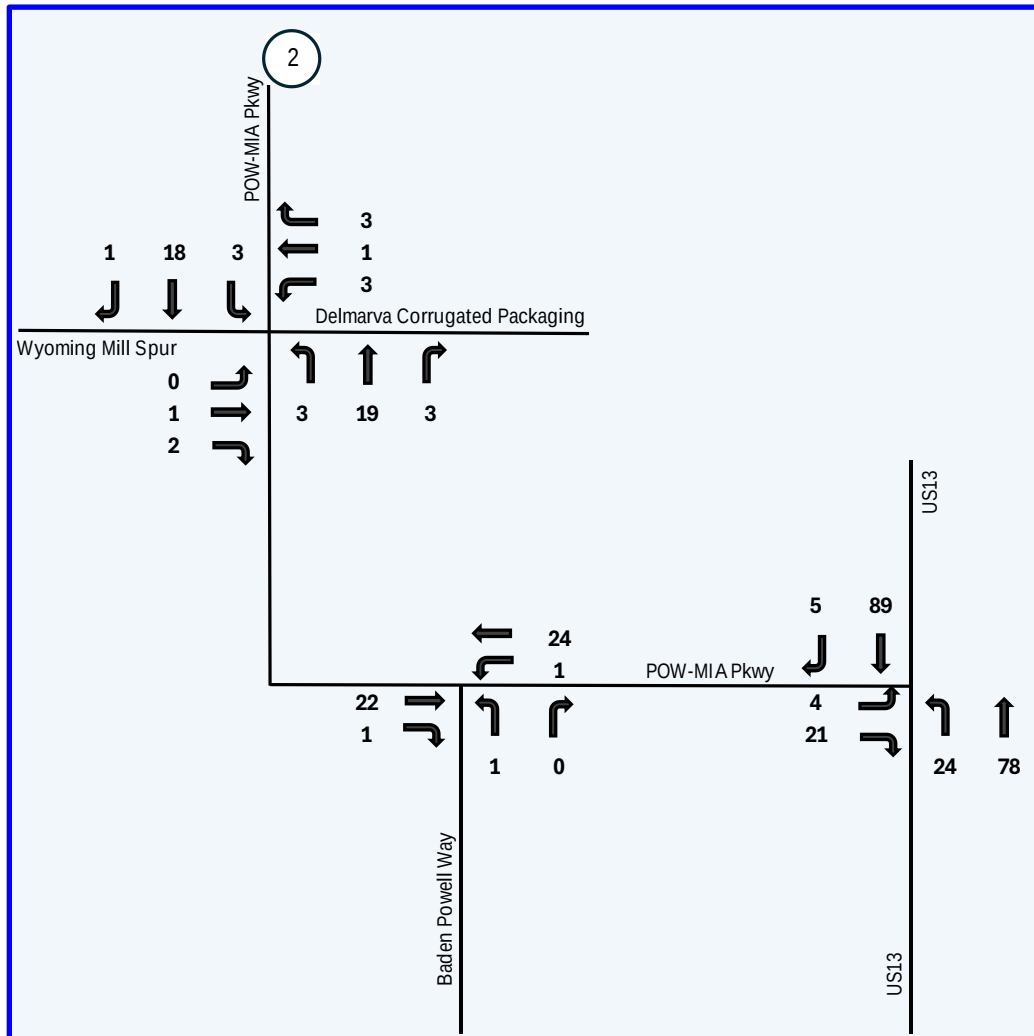


Figure 17: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles

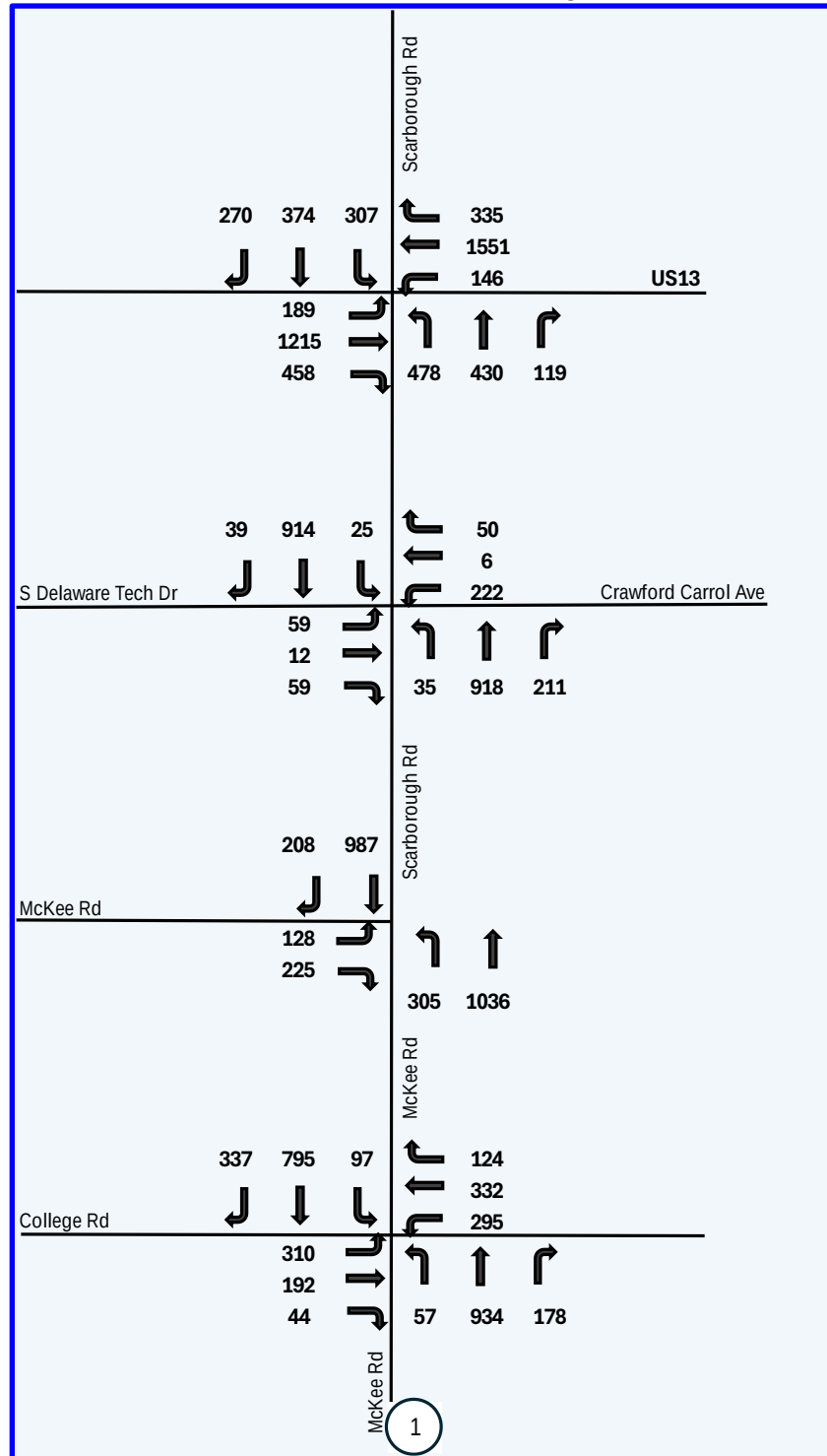


Figure 17: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

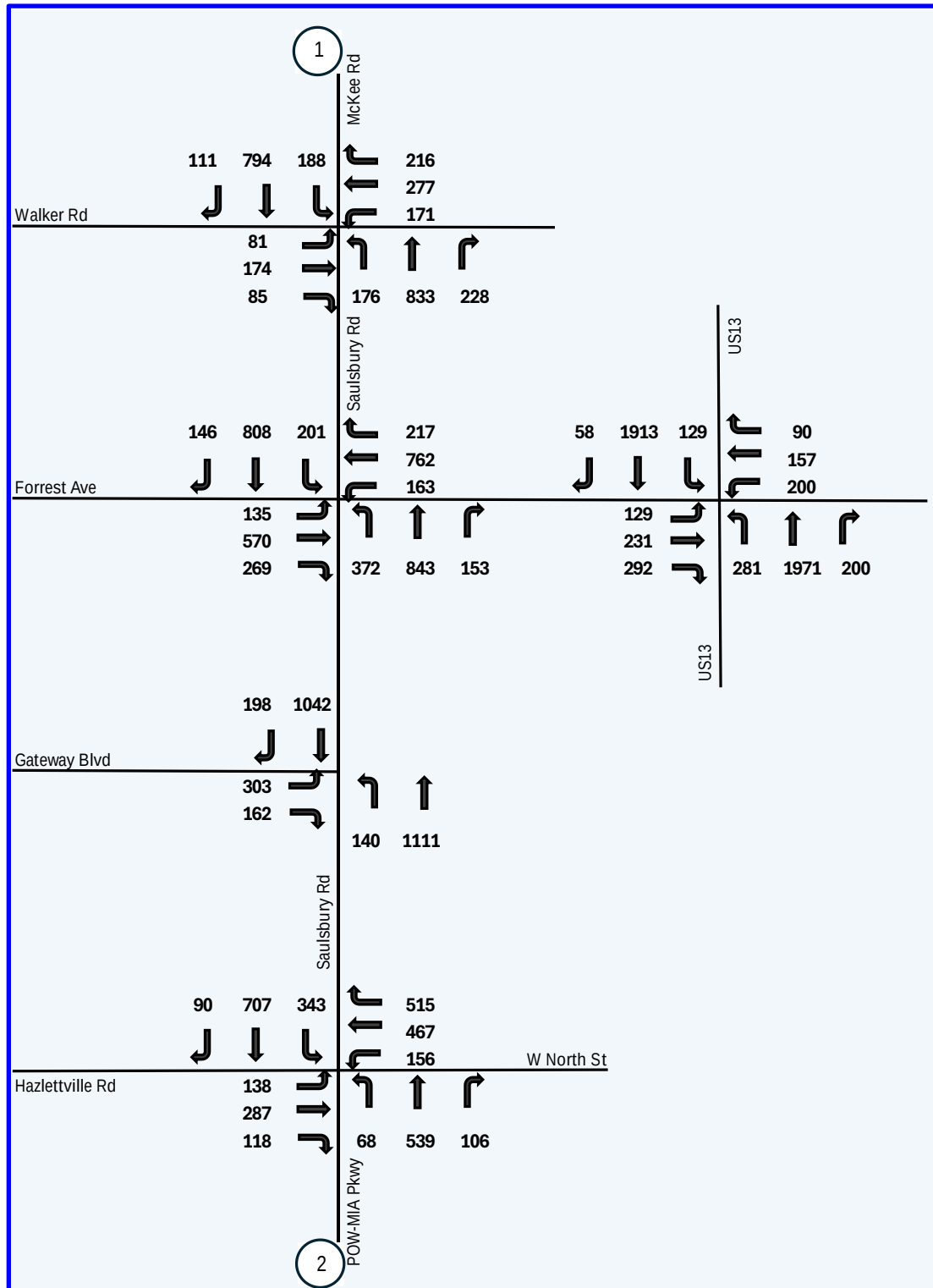


Figure 17: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

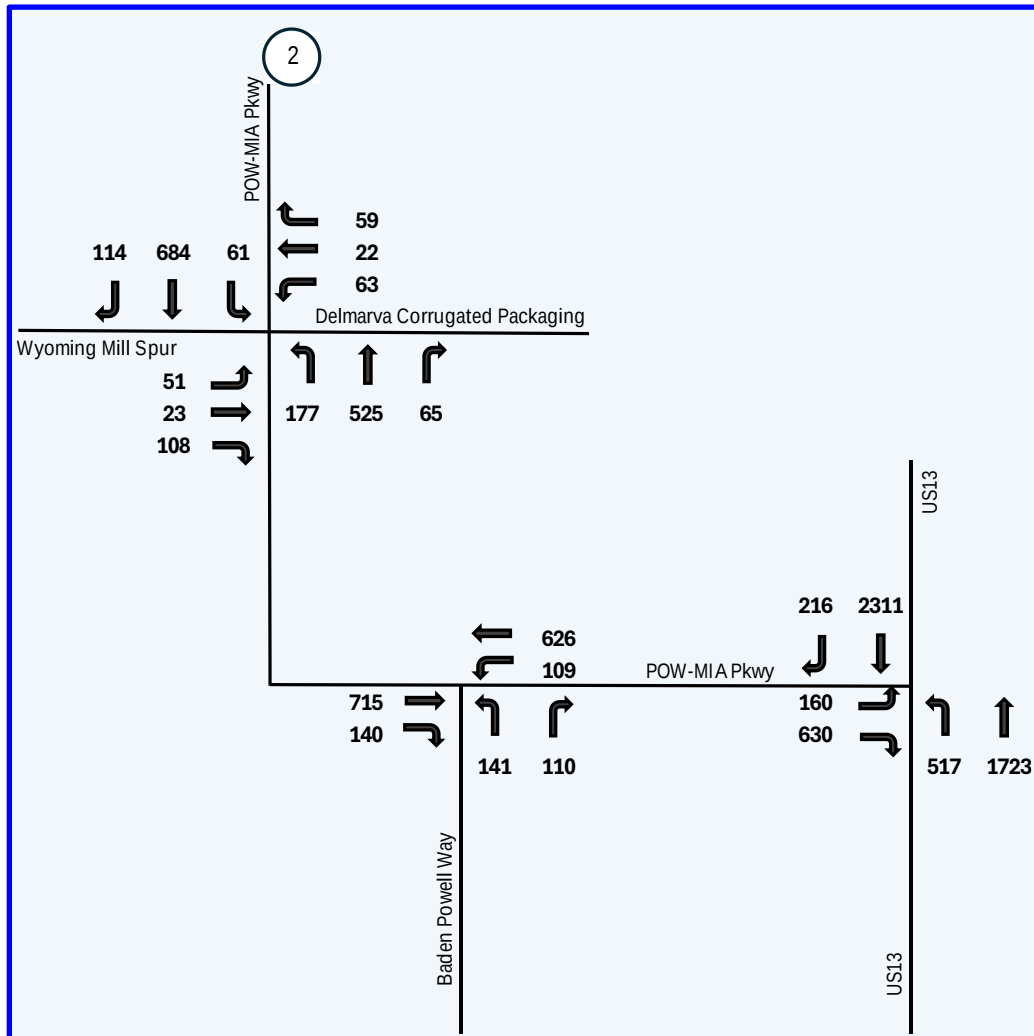


Figure 18: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – Trucks

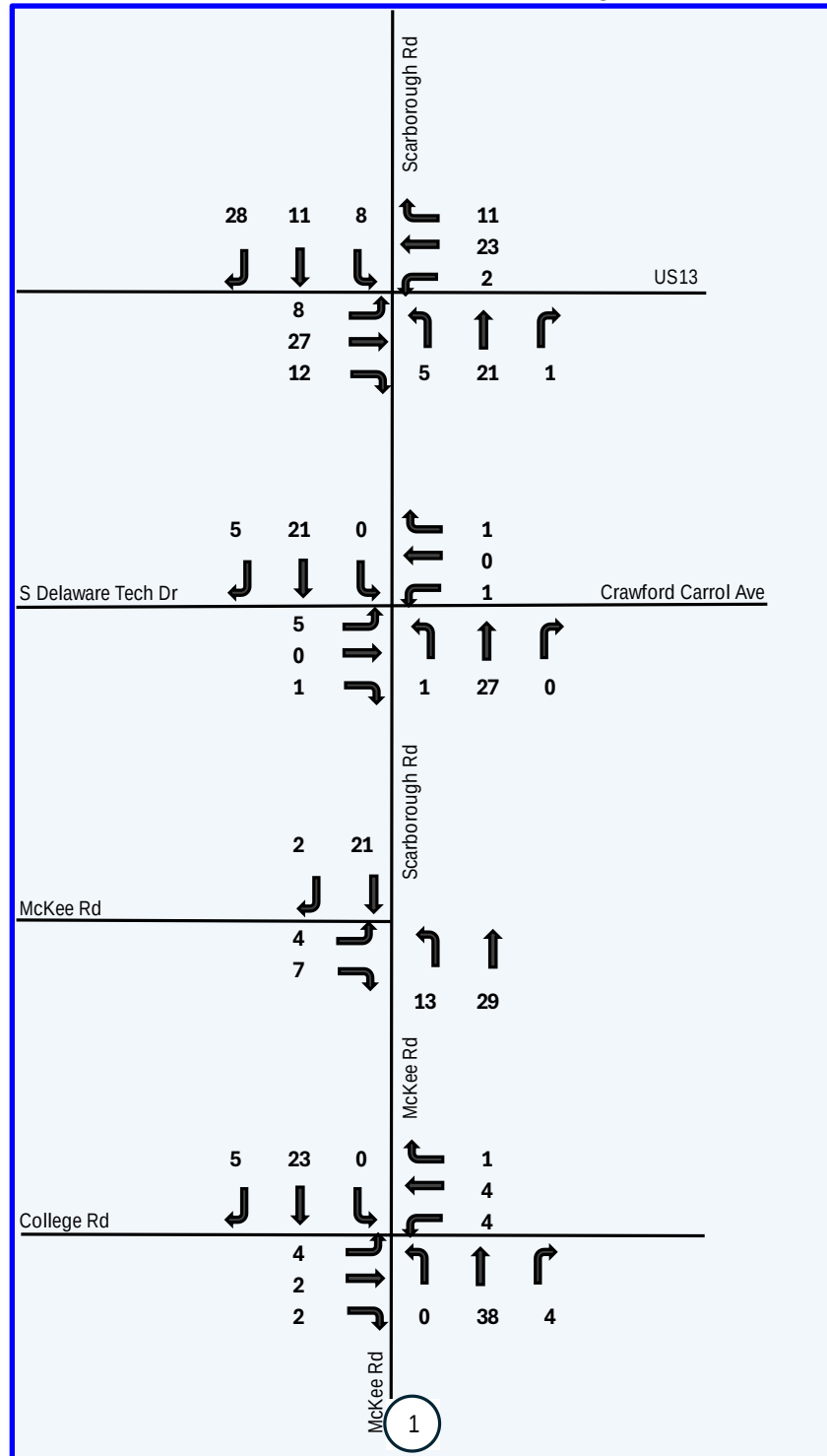


Figure 18: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

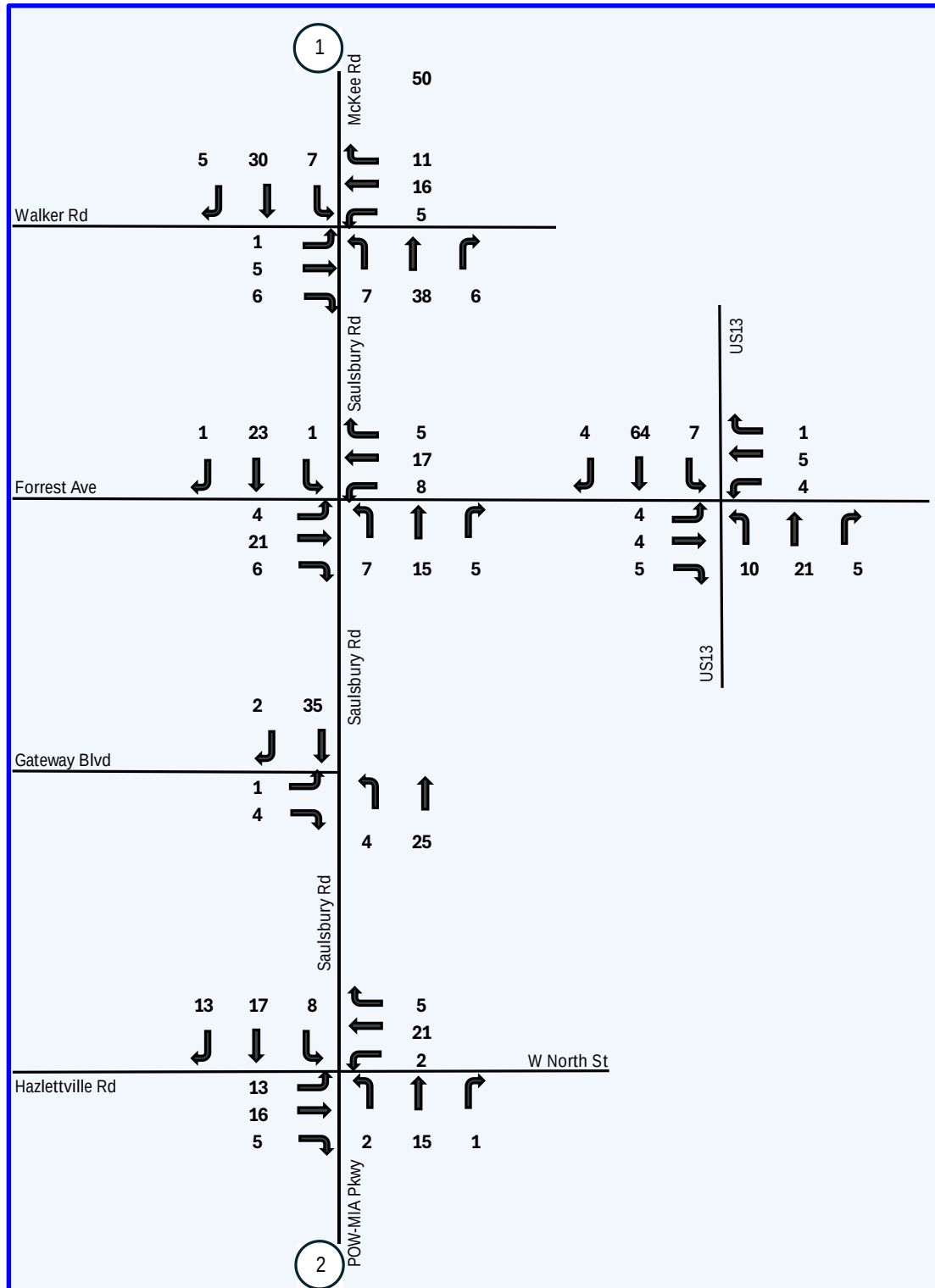


Figure 18: FUY 2052 without Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

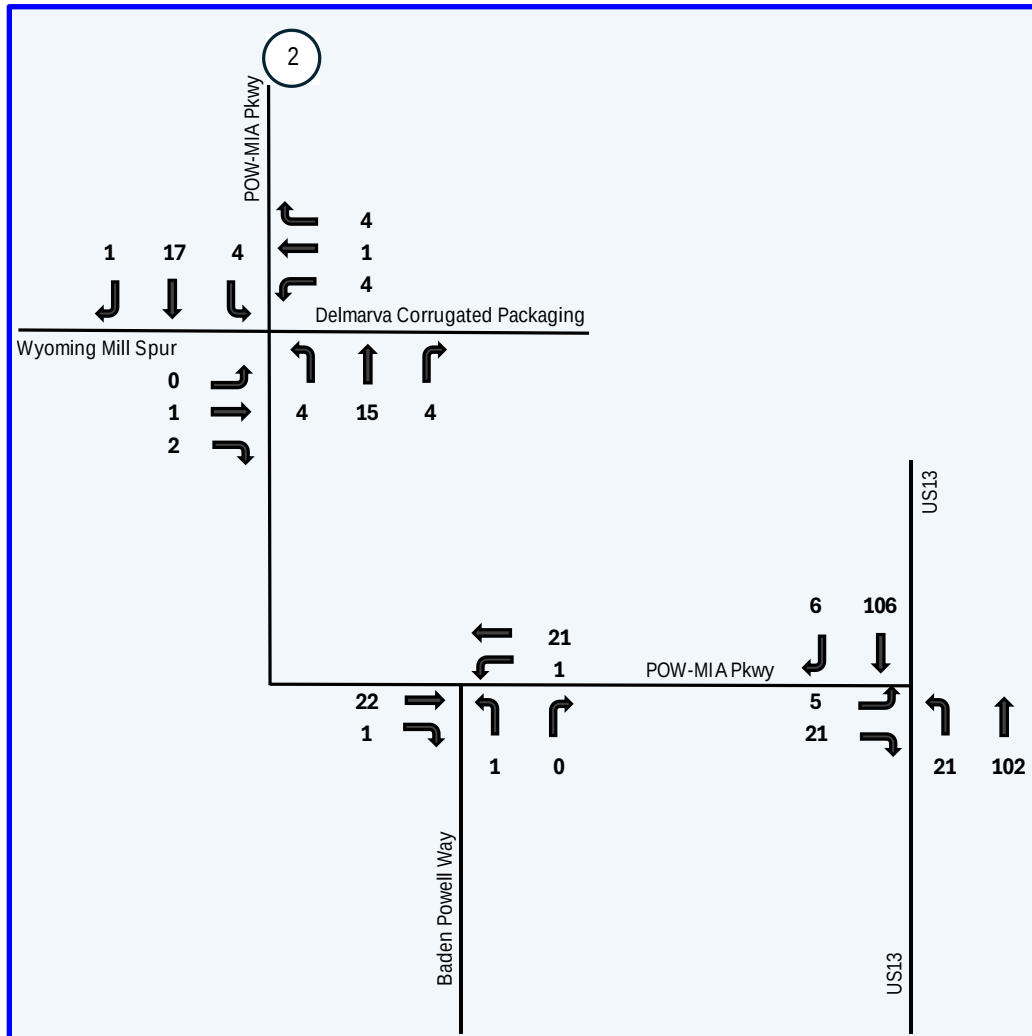


Figure 19: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles

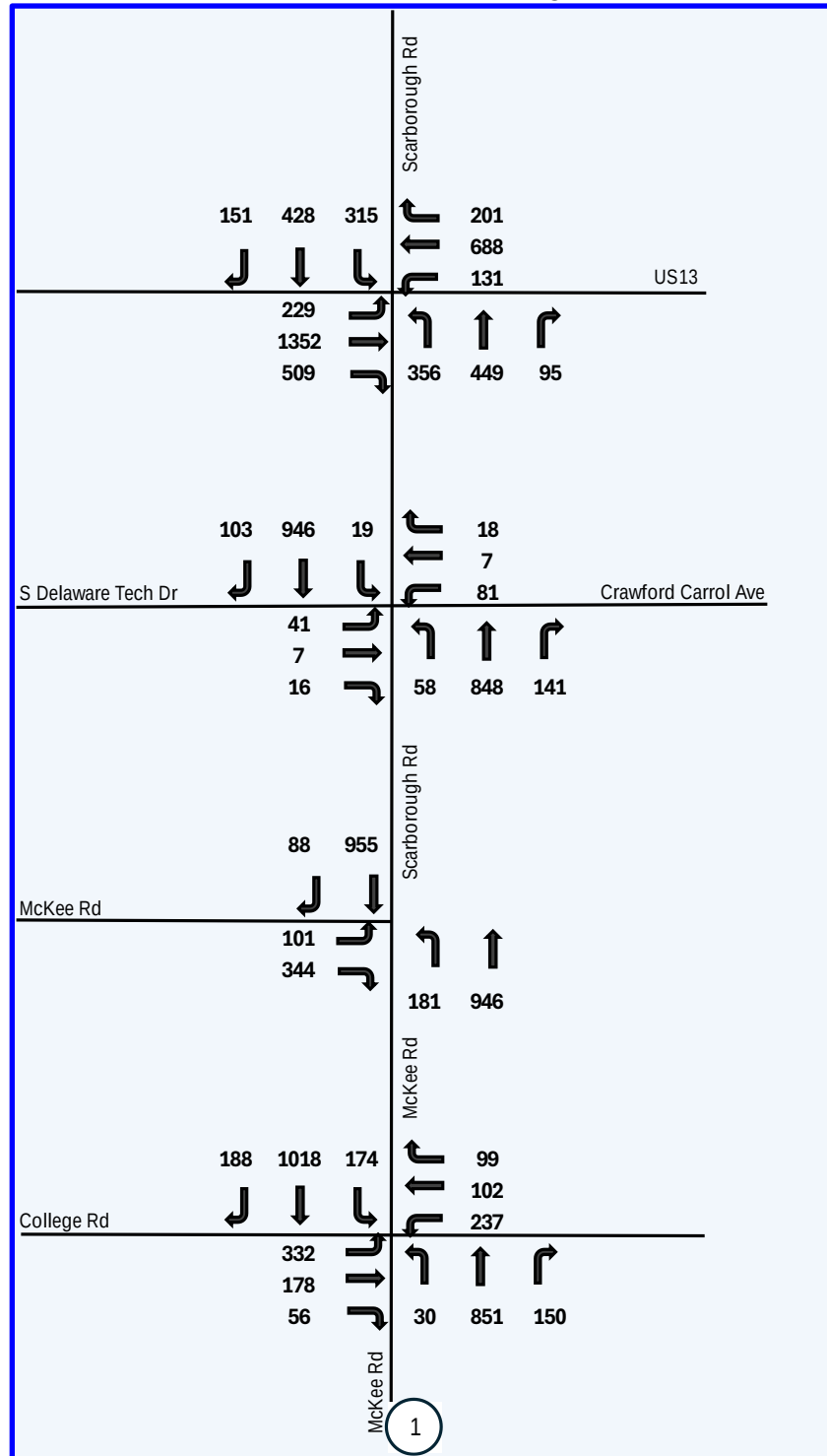


Figure 19: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

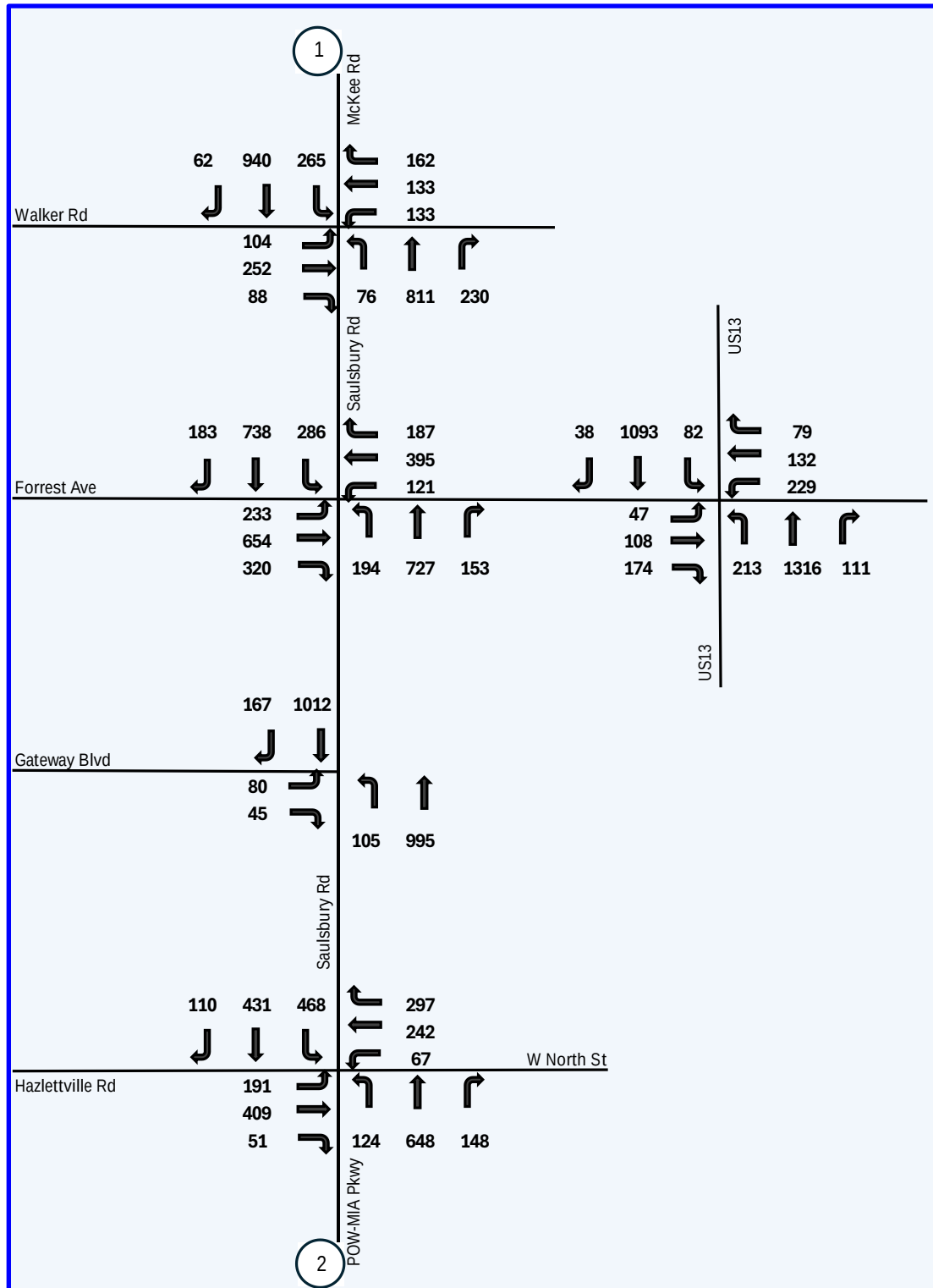


Figure 19: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – All Vehicles
(Continued)

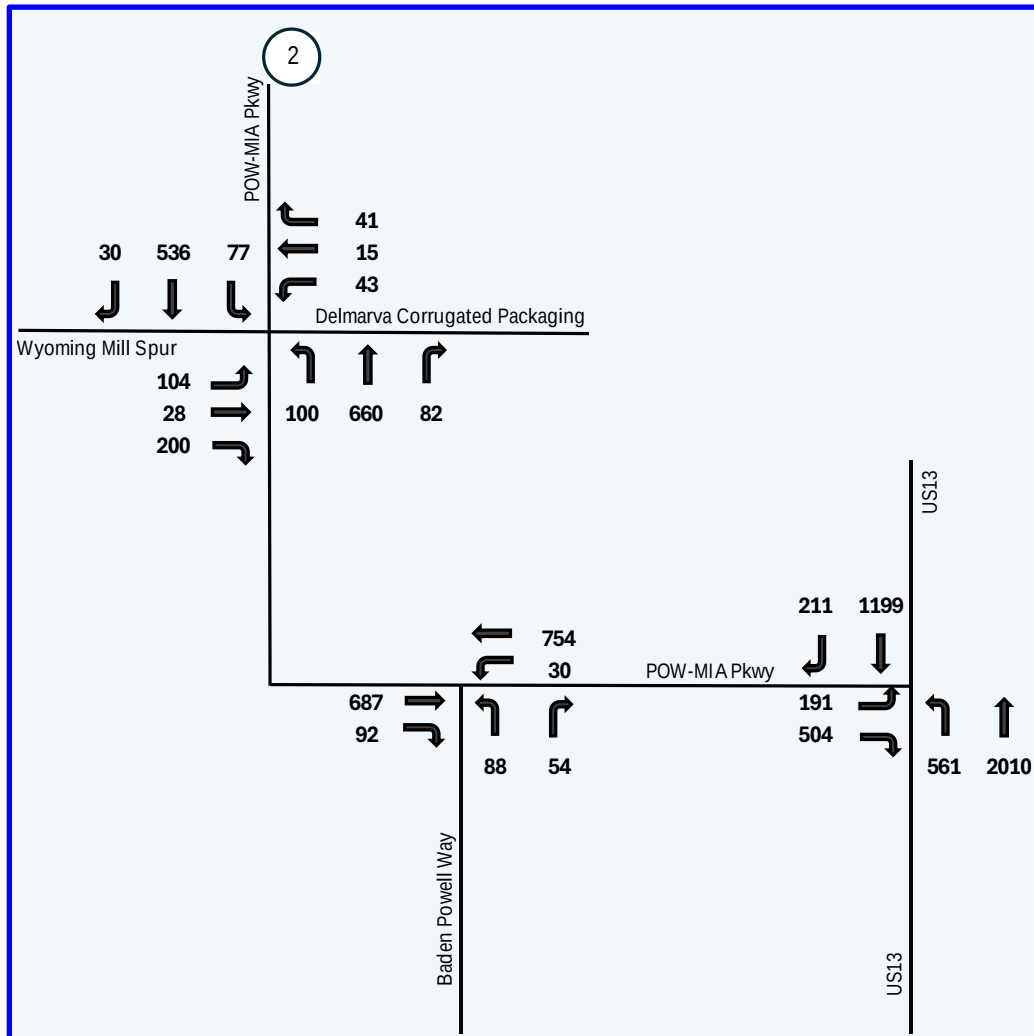


Figure 20: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – Trucks

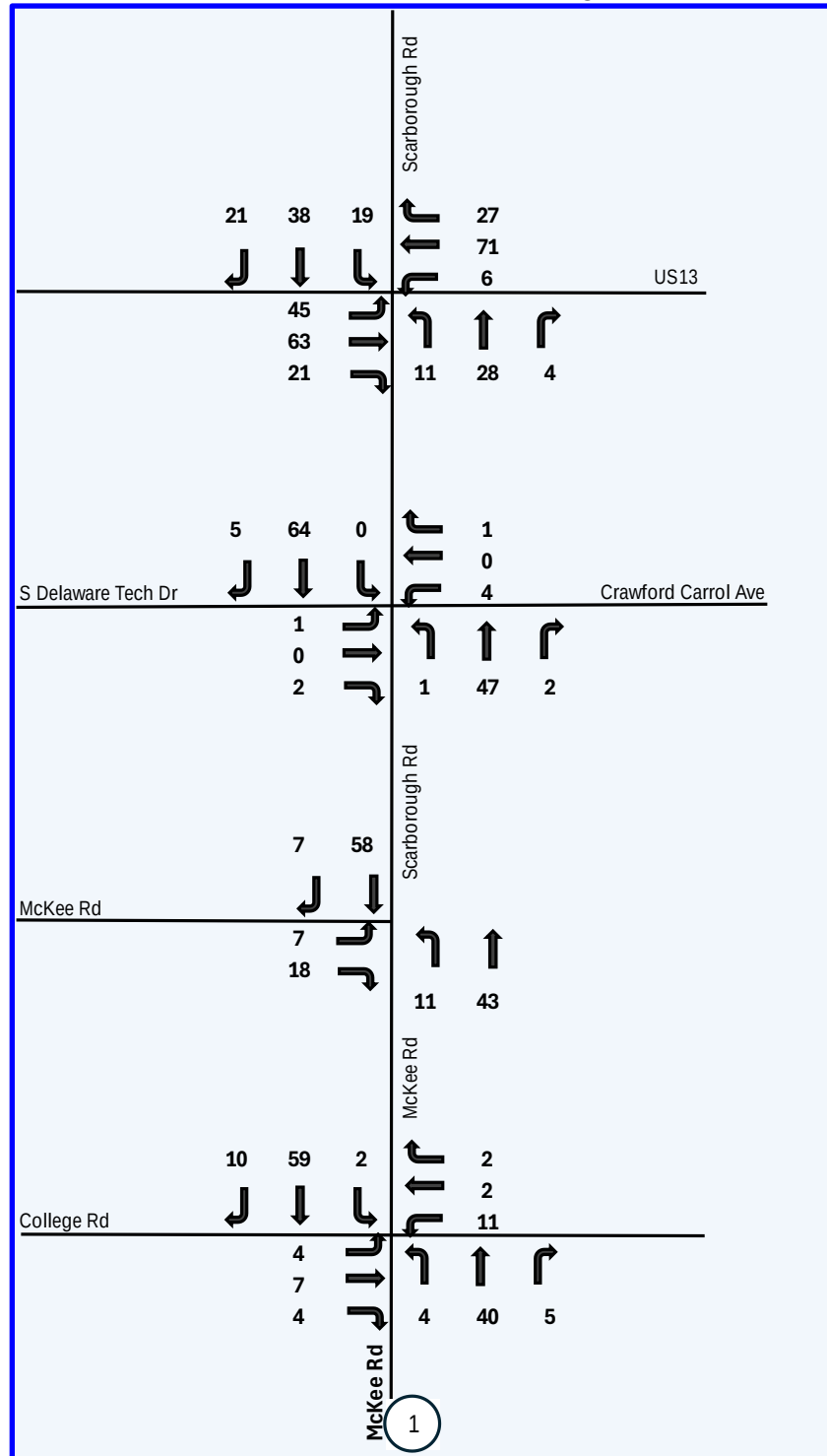


Figure 20: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

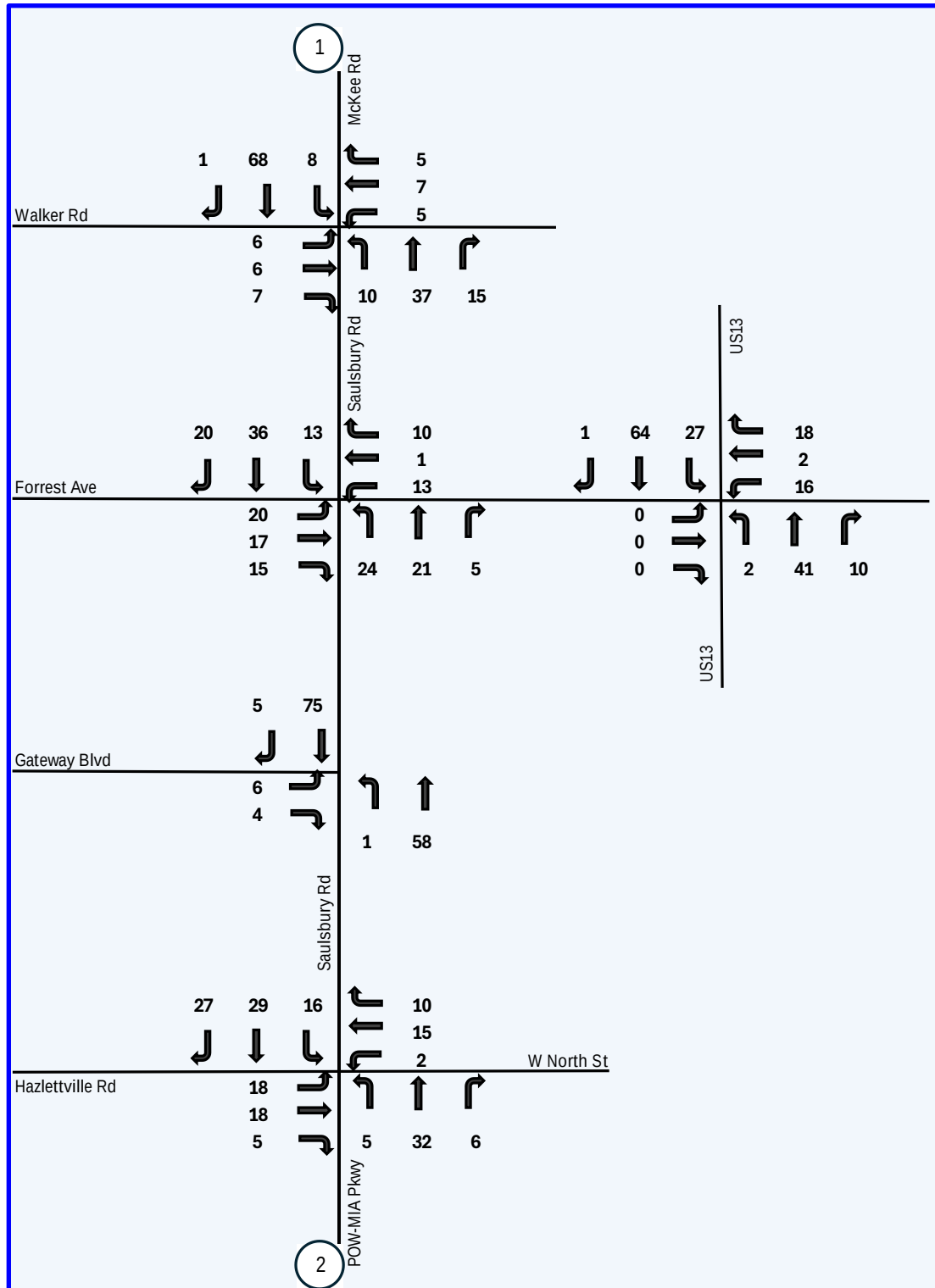


Figure 20: FUY 2052 with Truck Restriction A.M. Turning Movement Volumes – Trucks (Continued)

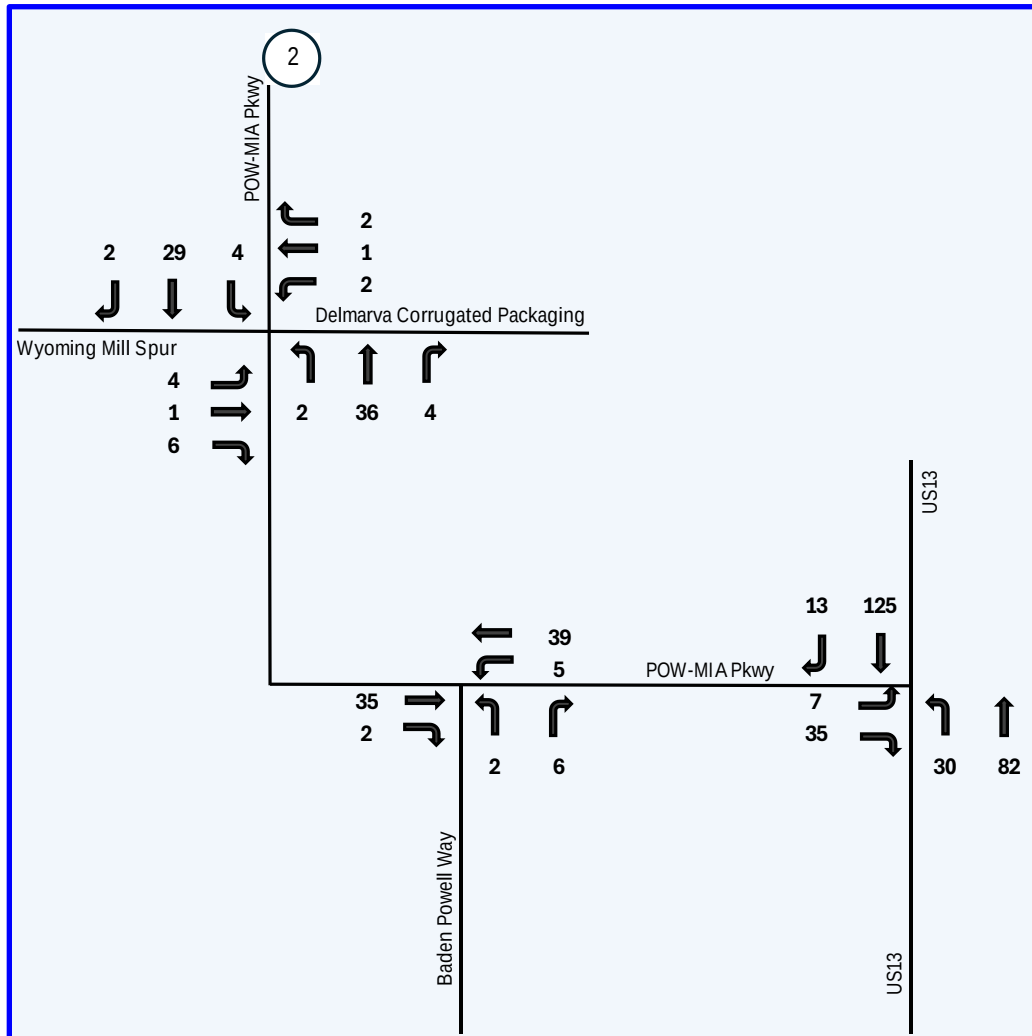
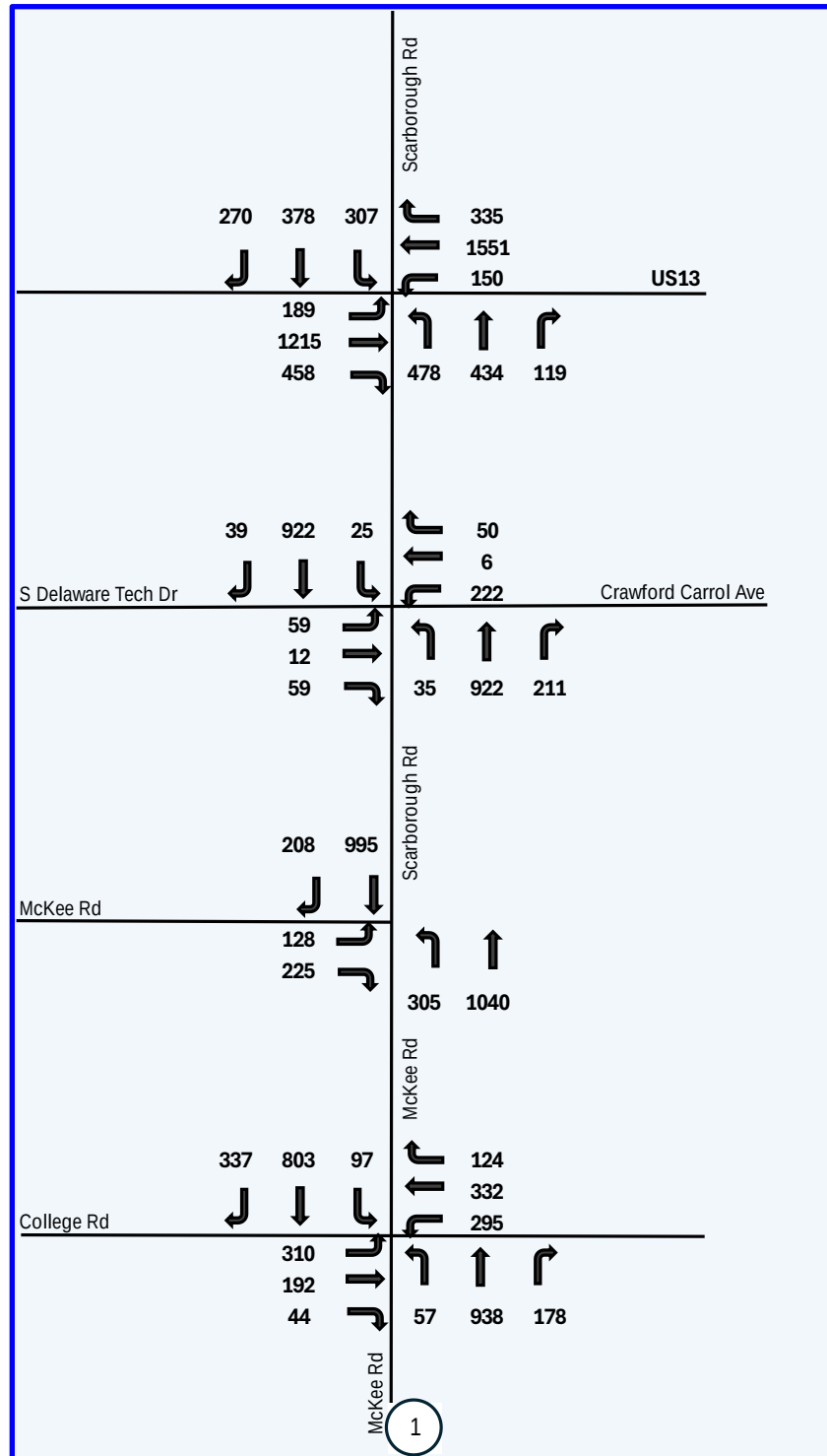


Figure 21: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles



Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

Figure 21: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

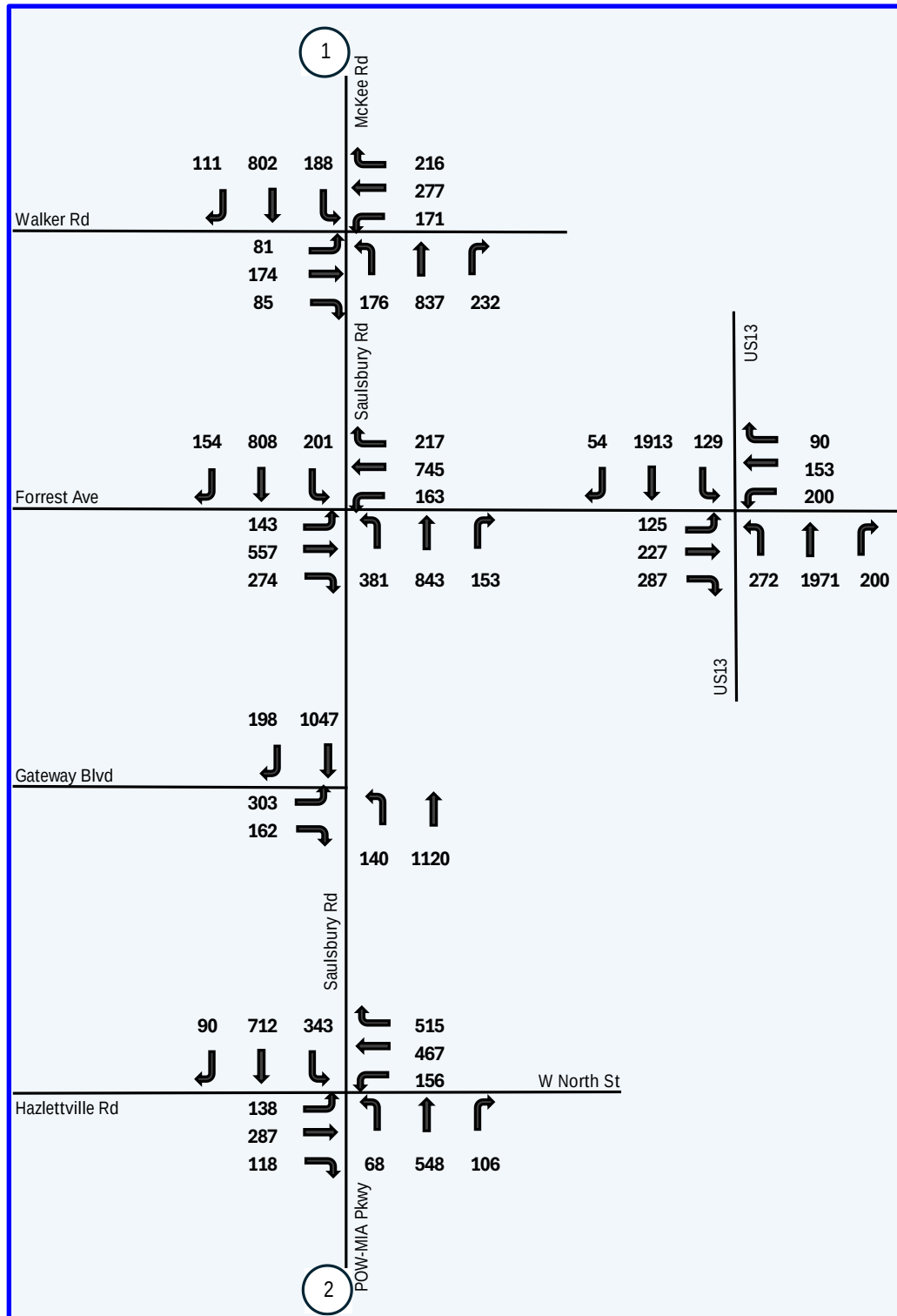


Figure 21: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – All Vehicles
(Continued)

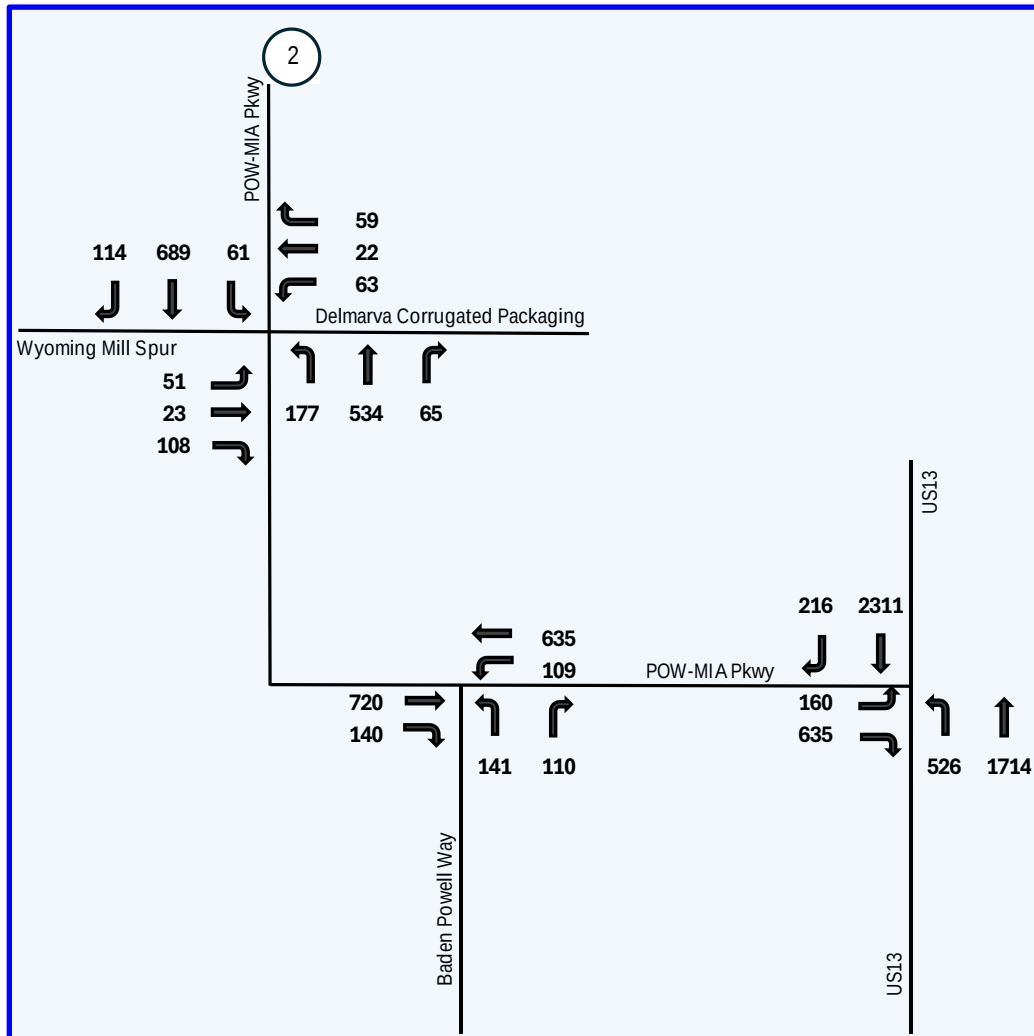


Figure 22: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – Trucks

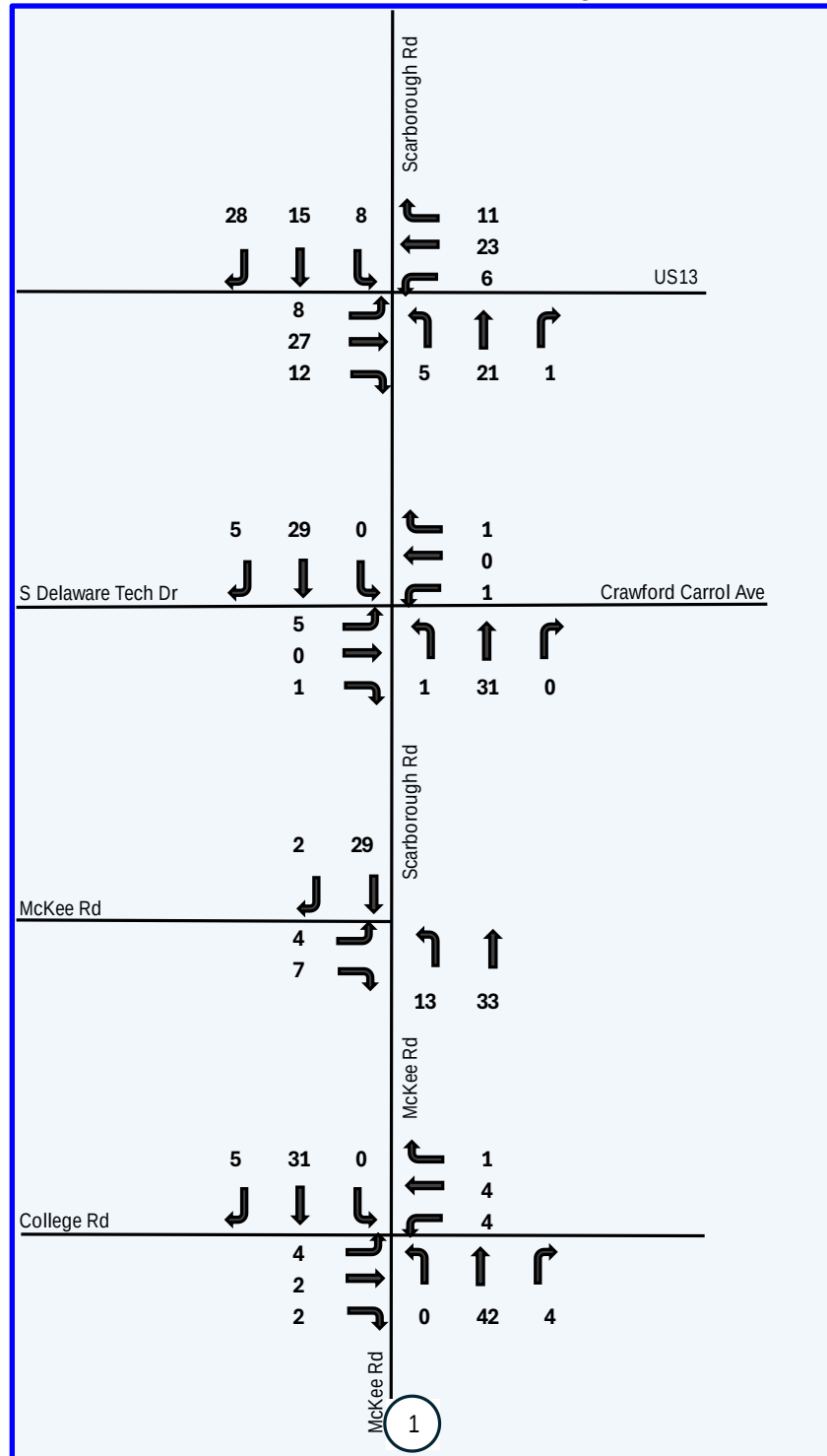


Figure 22: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)

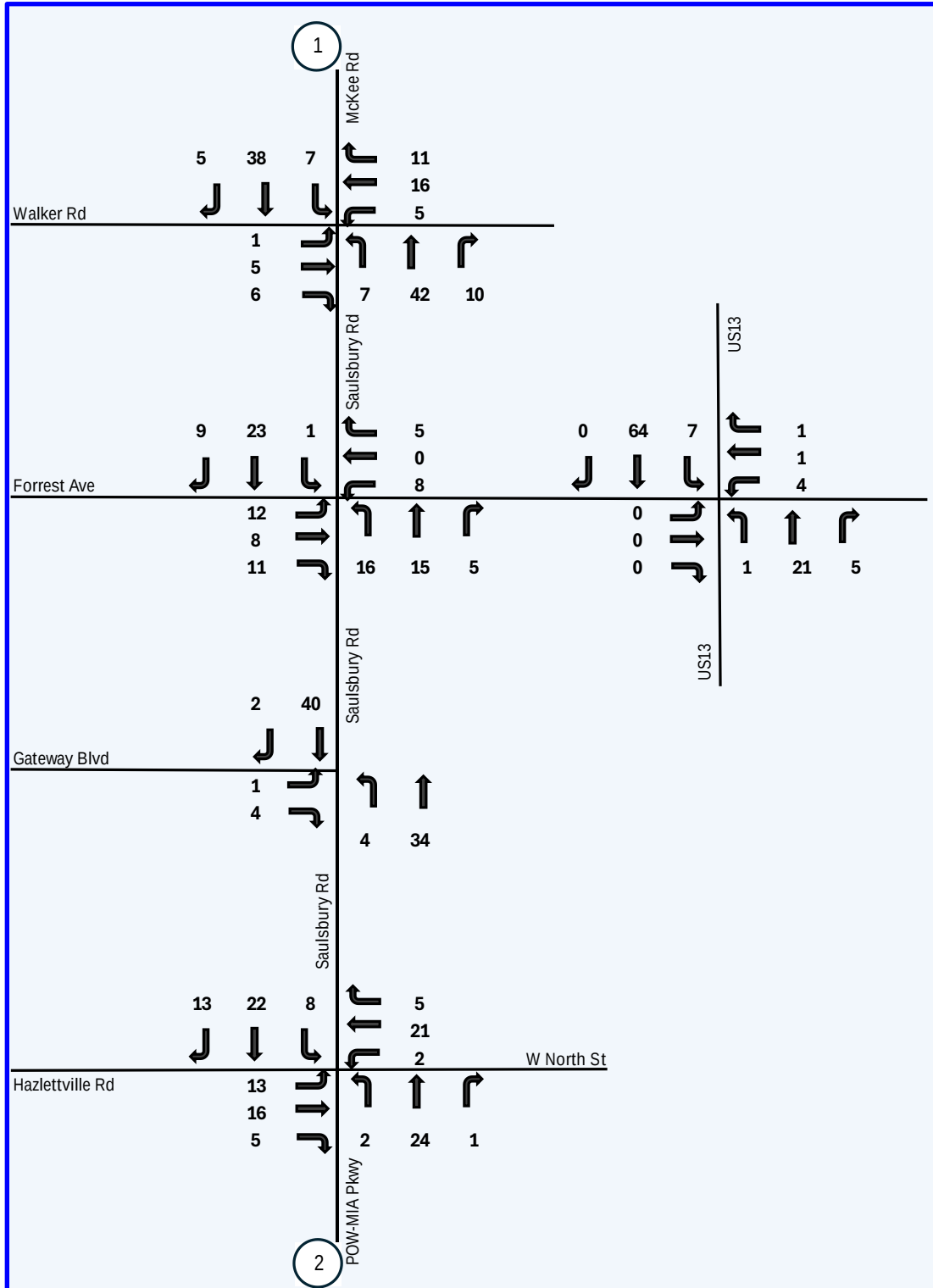
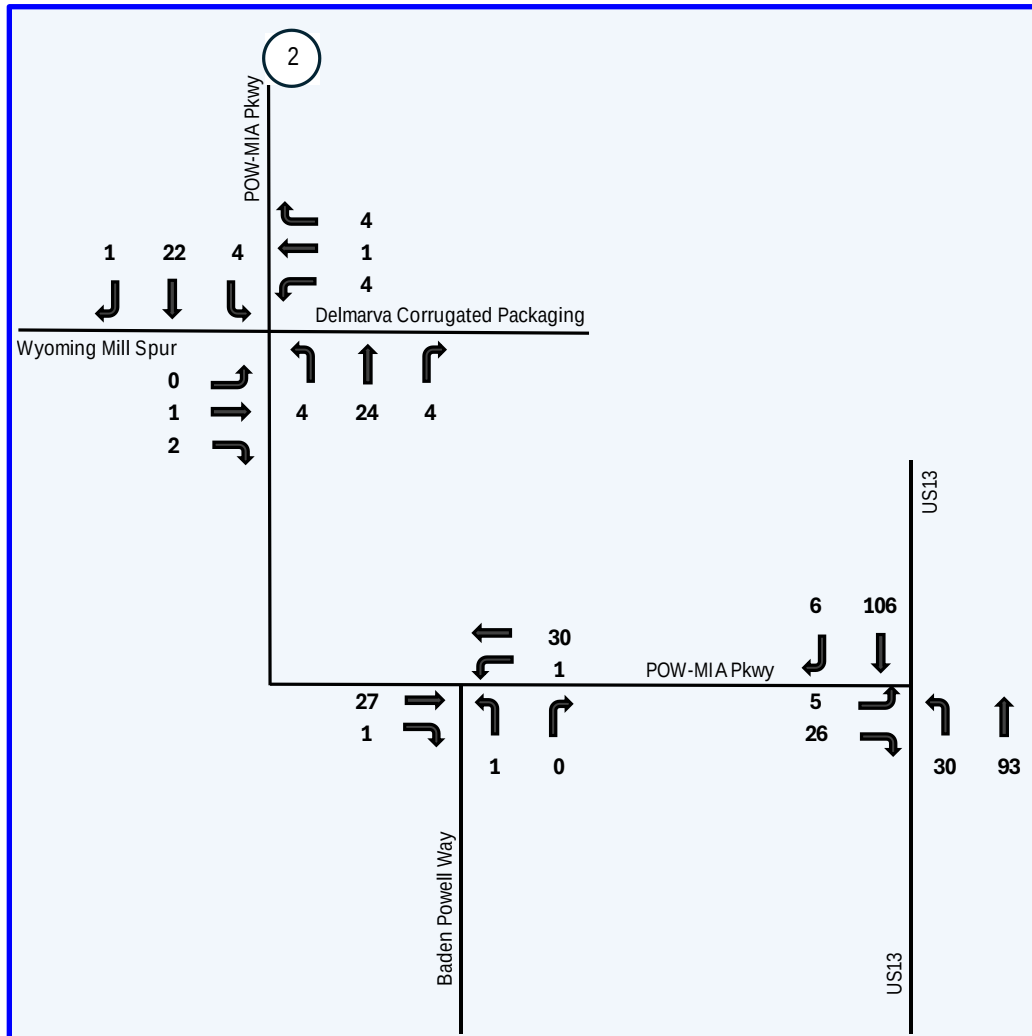


Figure 22: FUY 2052 with Truck Restriction P.M. Turning Movement Volumes – Trucks (Continued)



D. TRAFFIC ANALYSIS

1. Intersection Operational Analysis

A.M. and P.M. peak hour intersection operational analyses were performed for all the study area intersections under existing and future conditions using the traffic volumes presented in the preceding figures. The scenarios that were analyzed are as follows:

1. Existing Year 2024
2. FIY 2025 without proposed truck restriction
3. FIY 2025 with proposed truck restriction
4. FUY 2052 without truck restriction
5. FUY 2052 with truck restriction.

The operational analyses were performed with Synchro/SimTraffic 11 software. Existing signal timing, coordination, and time of day (TOD) data was obtained from the DelDOT Traffic Management Center (TMC) for use in the analysis to obtain as close to actual operating conditions as possible. The following recommended capacity improvements, identical to those in the Dover/Kent County MPO's McKee Road Corridor Study were implemented in the FUY 2052 traffic operational analyses:

1. One exclusive westbound right-turn lane on College Road with a tentative 175-foot storage, excluding taper
2. One additional northbound through lane along the proposed North Diverted Truck Route (refer to Figure 1) commencing from/tying into the two-lane end point of the currently completed DelDOT *HEP KC, SR8 and SR15 Intersection Improvements* on Saulsbury Road north of the intersection with SR8, and extending to the intersection of McKee Road and Gemstone Drive south of the intersection of McKee Road at Saulsbury Road
3. One additional southbound through lane along the proposed North Diverted Truck Route (refer to Figure 1) within the same limits identified in item number 2 above.
4. Associated signal timing adjustments as a result of the added capacity.

Additionally, DelDOT project HEP KC, US13, Lochmeath Way to Puncheon Run Connector (PRC) will provide a third lane in each direction of US13 from Lochmeath Way to the PRC. The project will therefore add capacity with associated signal timing upgrades at the study intersection of POW-MIA at US13, the southern limits of the study area. Per the DelDOT Projects website, the project construction start date is yet to be determined as of the date of this report. The third lane in each direction of US13 at the intersection is therefore only accounted for in the future ultimate year 2052 scenario but not in the future implementation year 2025 scenario for the truck restriction. This improvement was also accounted for in the MPO's McKee Corridor Study.

The final improvement implemented in the FUY 2052 scenarios that was not included in the Dover/Kent County MPO's McKee Road Corridor Study is the signalization of the intersection of POW/MIA at Wyoming Mill Spur/Delmarva Corrugated Packaging Entrance. The operational analyses output reports generated from Synchro are included in **Appendix D**.

2. Intersection Operational Analysis Results

Measures of effectiveness (MOE) results generated from the synchro traffic operational analyses are delay in seconds per vehicle and level of service (LOS). The LOS criteria are provided in **Table 1**.

The A.M. and P.M. peak hour MOE for 2024, FIY 2025 and FUY 2052 are presented in **Table 2** through **Table 6**. As shown in the tables except for the intersection of SR8 at US13, all the other study intersections would operate at LOS D or better for existing and all future traffic conditions with all the proposed and committed developments. The intersection of SR8 at US13 would operate at LOS E with 78.8 seconds delay and LOS E with 76.3 seconds delay for the P.M. peak hour respectively for FUY 2052 without the SR8 Truck Restriction and FUY 2052 with the SR8 Truck Restriction. It is expected that since the intersection is within DelDOT's coordinated signal system, the unsatisfactory LOS would be addressed as part of the wider DelDOT US13 Coordinated Signal Corridor Improvements.

Table 4 and **Table 6** respectively facilitate the comparison of FIY 2025 and FUY 2052 with and without the SR8 Truck Restriction implementation. The results indicate that there is no significant increase in delay and no change in LOS at the intersections along the North and South Truck Diverted Routes. For FIY 2025, the worst increase in delay would be 1.6 seconds and would be experienced during the P.M. peak hour at the intersection of POW / MIA at US13. For FUY 2052, the worst increase in delay would be 3.1 seconds and would be experienced during the A.M. peak hour at the intersection of McKee Road at Scarborough Road.

Similarly, improvements at the east and west limits intersections of the SR8 Truck Restriction segment from which trucks are diverted are also not significant. For FIY 2025 the best improvement would be a 2.3 second delay reduction experienced during the A.M. peak hour at the intersection of SR8 at US13. For FUY 2025 the best improvement, a 2.5 second delay reduction, would again be experienced at the intersection of SR8 at US13, but during the A.M. peak hour.

Table 1: Level of Service Criteria

LOS	Delay (Seconds per Vehicle)	
	Signalized	Unsignalized
A	0 to 10	0 to 10
B	>10 to 20	>10 to 15
C	>20 to 35	>15 to 25
D	>35 to 55	>25 to 35
E	>55 to 80	>35 to 50
F	>80 and/or V/C >1	>50 and/or V/C >1

Table 2: 2024 Signalized Intersection MOE

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	Delay	LOS	Delay	LOS
US13 at Scarborough Rd	39.0	D	40.6	D
Scarborough Road at Delaware Tech Dr / Crawford Carroll Ave	11.4	B	16.1	B
McKee Rd at Scarborough Rd	9.3	A	13.7	B
McKee Rd at College Rd	19.0	B	31.1	C
McKee Rd / Saulsbury Rd at Walker Rd	26.9	C	22.5	C
Saulsbury Rd at SR8	39.3	D	34.8	C
SR8 at US13	35.4	D	46.8	D
Saulsbury Rd at Gateway Blvd	13.8	B	22.7	C
Saulsbury Rd / POW/MIA Pkwy at North St / Hazletville Rd	35.5	D	30.2	C
POW/MIA Pkwy at Baden Powell Way	9.7	B	12.6	B
POW / MIA Pkwy at US13	24.1	C	48.4	D

Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

Table 3: 2024 Unsignalized Intersection MOE

POW / MIA Pkwy at Wyoming Mill Spur / Delmarva Corrugated Packaging	A.M. Peak Hour		P.M. Peak Hour	
	Delay	LOS	Delay	LOS
POW / MIA Pkwy NB Left	8.2	A	8.9	A
POW / MIA Pkwy SB Left	9.0	A	8.3	A
EB Wyoming Mill Spur Approach	62.3	F	45.9	E
WB Corrugated Delmarva Packaging Approach	64.4	F	140.4	F

Table 4: FIY 2025 Signalized Intersection MOE

Intersection	Without Proposed SR8 Truck Restriction				With Proposed SR8 Truck Restriction			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
US13 at Scarborough Rd	39.1	D	40.8	D	39.7	D	41.0	D
Scarborough Road at Delaware Tech Dr / Crawford Carrol Ave	11.4	B	16.1	B	11.6	B	16.1	B
McKee Rd at Scarborough Rd	9.3	A	14.0	B	9.3	A	14.6	B
McKee Rd at College Rd	19.2	B	31.5	C	19.7	B	31.9	C
McKee Rd / Saulsbury Rd at Walker Rd	27.2	C	22.7	C	28.0	C	22.9	C
Saulsbury Rd at SR8	39.4	D	35.0	D	39.3	D	35.2	D
SR8 at US13	35.0	D	46.9	D	32.7	D	46.6	D
Saulsbury Rd at Gateway Blvd	13.7	B	22.9	C	13.6	B	23.0	C
Saulsbury Rd / POW/MIA Pkwy at North St / Hazletville Rd	35.5	D	30.4	C	35.8	D	30.5	C
POW/MIA Pkwy at Baden Powell Way	9.7	A	12.6	B	10.0	A	12.8	B
POW / MIA Pkwy at US13	24.6	C	49.6	D	24.6	C	51.2	D

Table 5: FIY 2025 Unsignalized Intersection MOE

POW / MIA Pkwy at Wyoming Mill Spur / Delmarva Corrugated Packaging	A.M. Peak Hour		P.M. Peak Hour	
	Delay	LOS	Delay	LOS
POW / MIA Pkwy NB Left	8.2	A	8.9	A
POW / MIA Pkwy SB Left	9.0	A	8.4	A
EB Wyoming Mill Spur Approach	65.6	F	46.5	E
WB Corrugated Delmarva Packaging Approach	67.1	F	148.0	D

Traffic Analysis for SR8, Downtown Dover Truck Restriction East/West Freight Routes Study

Table 6: FUY 2052 Signalized Intersection MOE

Intersection	Without Proposed SR8 Truck Restriction				With Proposed SR8 Truck Restriction			
	A.M. Peak Hour		P.M. Peak Hour		A.M. Peak Hour		P.M. Peak Hour	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
US13 at Scarborough Rd	50.0	D	53.4	D	51.5	D	54.2	D
Scarborough Road at Delaware Tech Dr / Crawford Carrol Ave	12.2	B	17.0	B	12.3	B	17.2	B
McKee Rd at Scarborough Rd	26.5	C	27.0	C	29.6	C	28.3	C
McKee Rd at College Rd	23.0	C	25.4	C	23.1	C	25.3	C
McKee Rd / Saulsbury Rd at Walker Rd	29.0	C	25.4	C	29.2	C	25.2	C
Saulsbury Rd at SR8	52.6	D	51.6	D	51.7	D	50.2	D
SR8 at US13	41.9	D	78.8	E	40.3	D	76.3	E
Saulsbury Rd at Gateway Blvd	16.0	B	28.4	C	15.7	B	28.3	B
Saulsbury Rd / POW/MIA Pkwy at North St / Hazlettville Rd	44.6	D	37.4	D	47.6	D	37.6	D
POW/MIA Pkwy at EB Wyoming Mill Spur / Delmarva Corrugated Metal	29.5	C	41.6	D	31.8	C	43.6	D
POW/MIA Pkwy at Baden Powell Way	15.0	B	27.1	C	15.6	B	28.9	C
POW / MIA Pkwy at US13	38.0	D	51.2	D	40.9	D	52.6	D

The operational analysis results are also presented in **Figure 23** through **Figure 32** for all the aforementioned scenarios. The figures present the intersection MOE on maps of the study area for ease of reference.

Figure 23: Existing 2024 A.M. Operational Analysis MOE

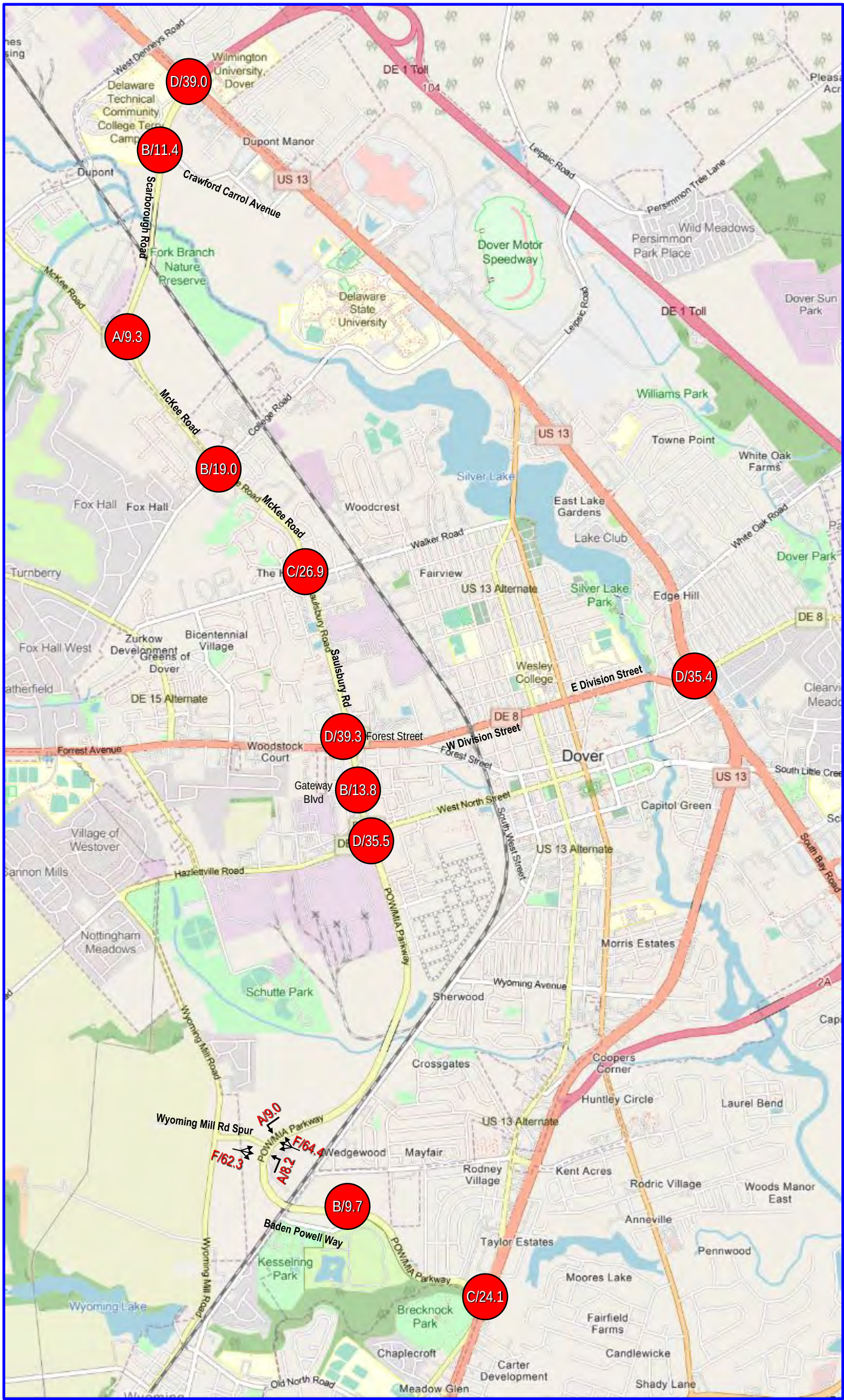


Figure 24: Existing 2022 P.M. Operational Analysis MOE

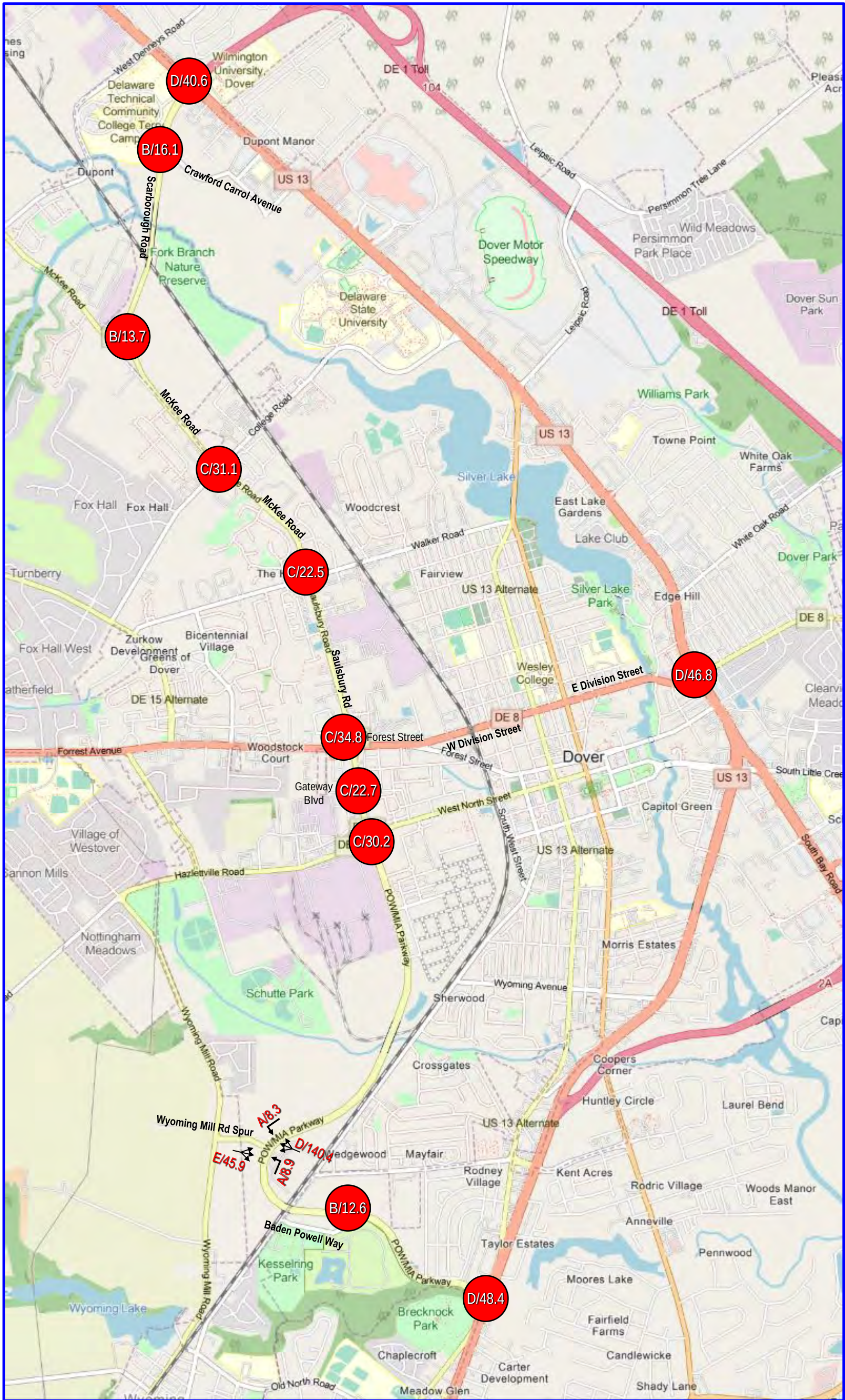


Figure 25: 2025 A.M. Without SR8 Truck Restriction Operational Analysis MOE

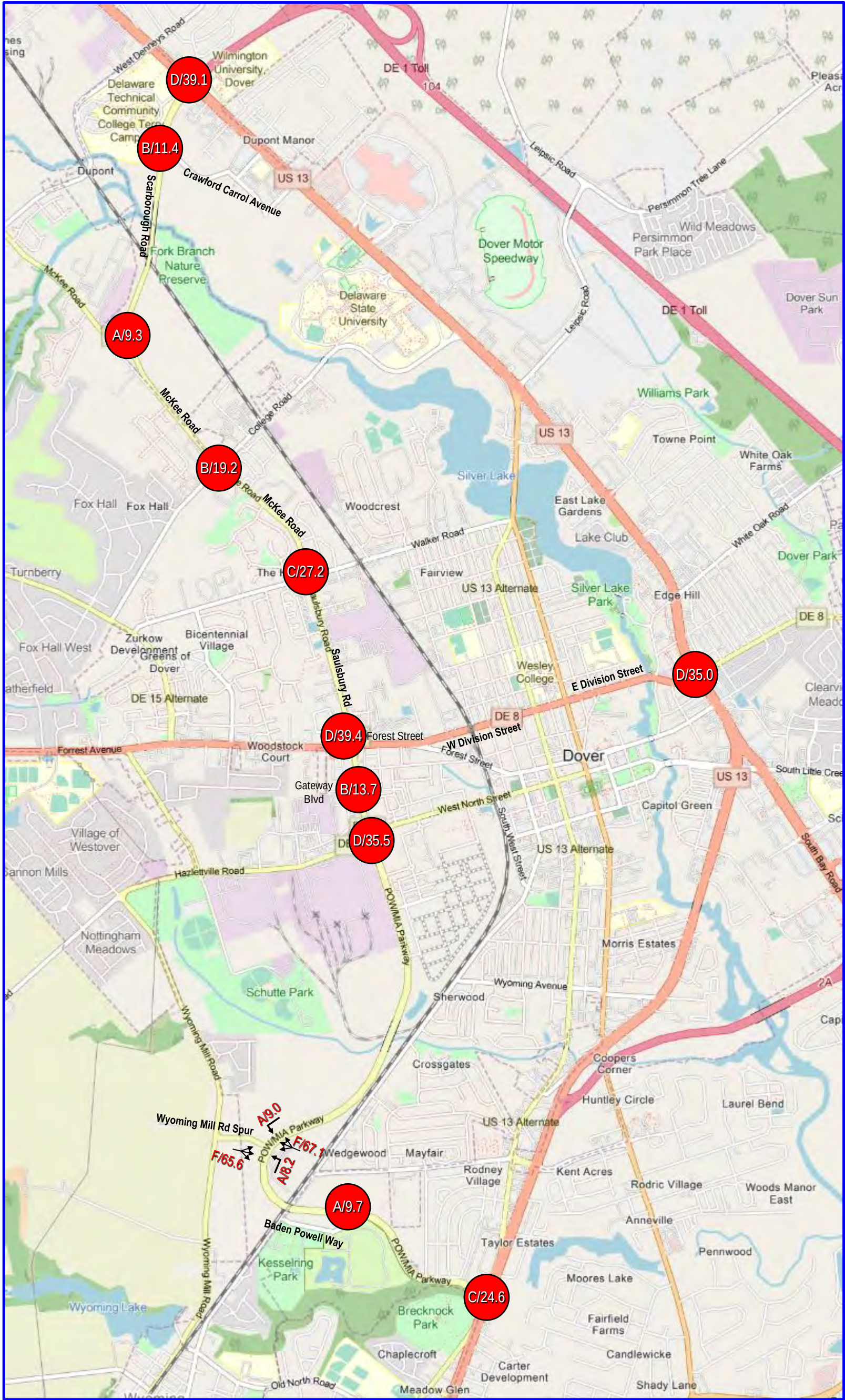


Figure 26: 2025 A.M. With SR8 Truck Restriction Operational Analysis MOE

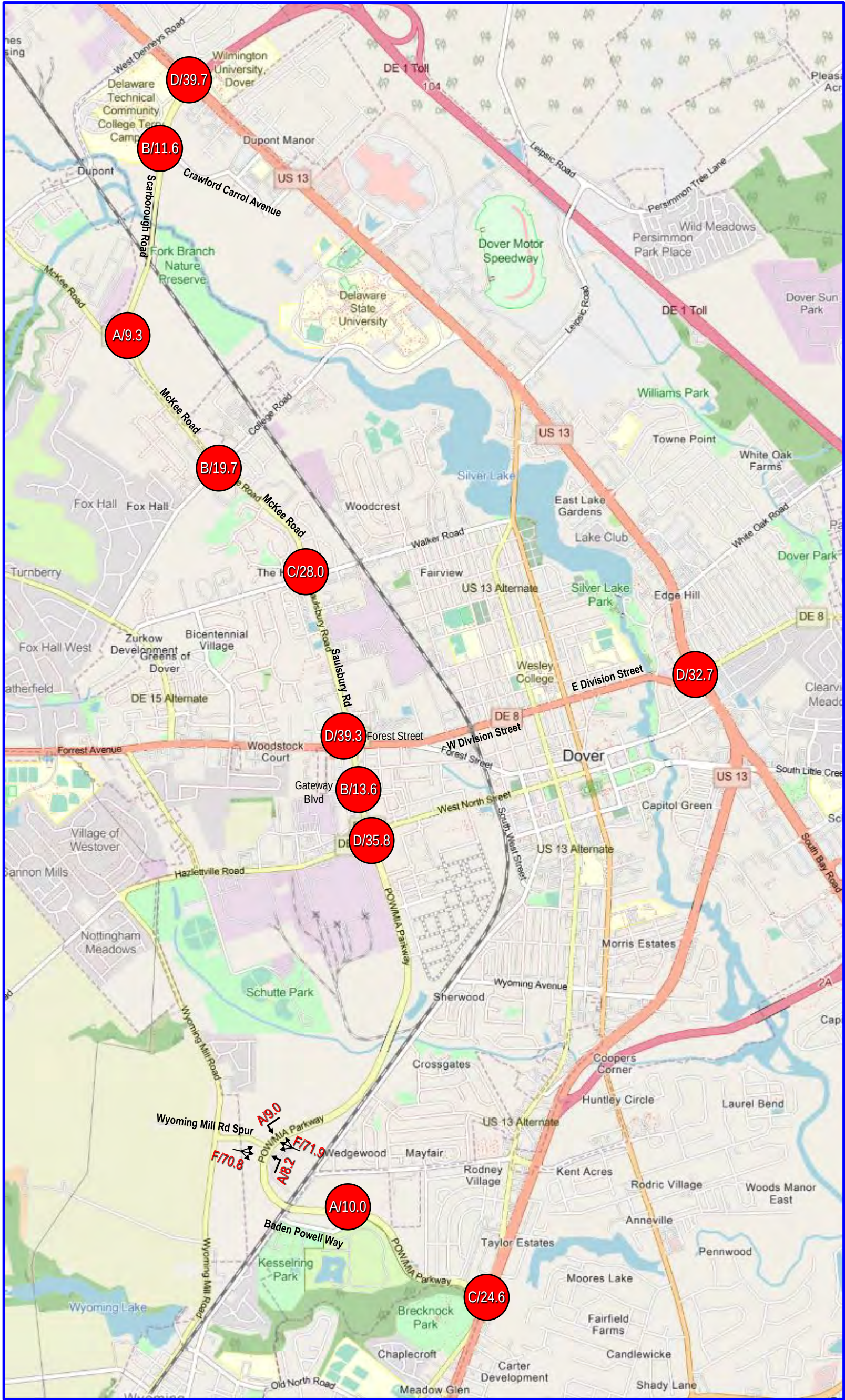
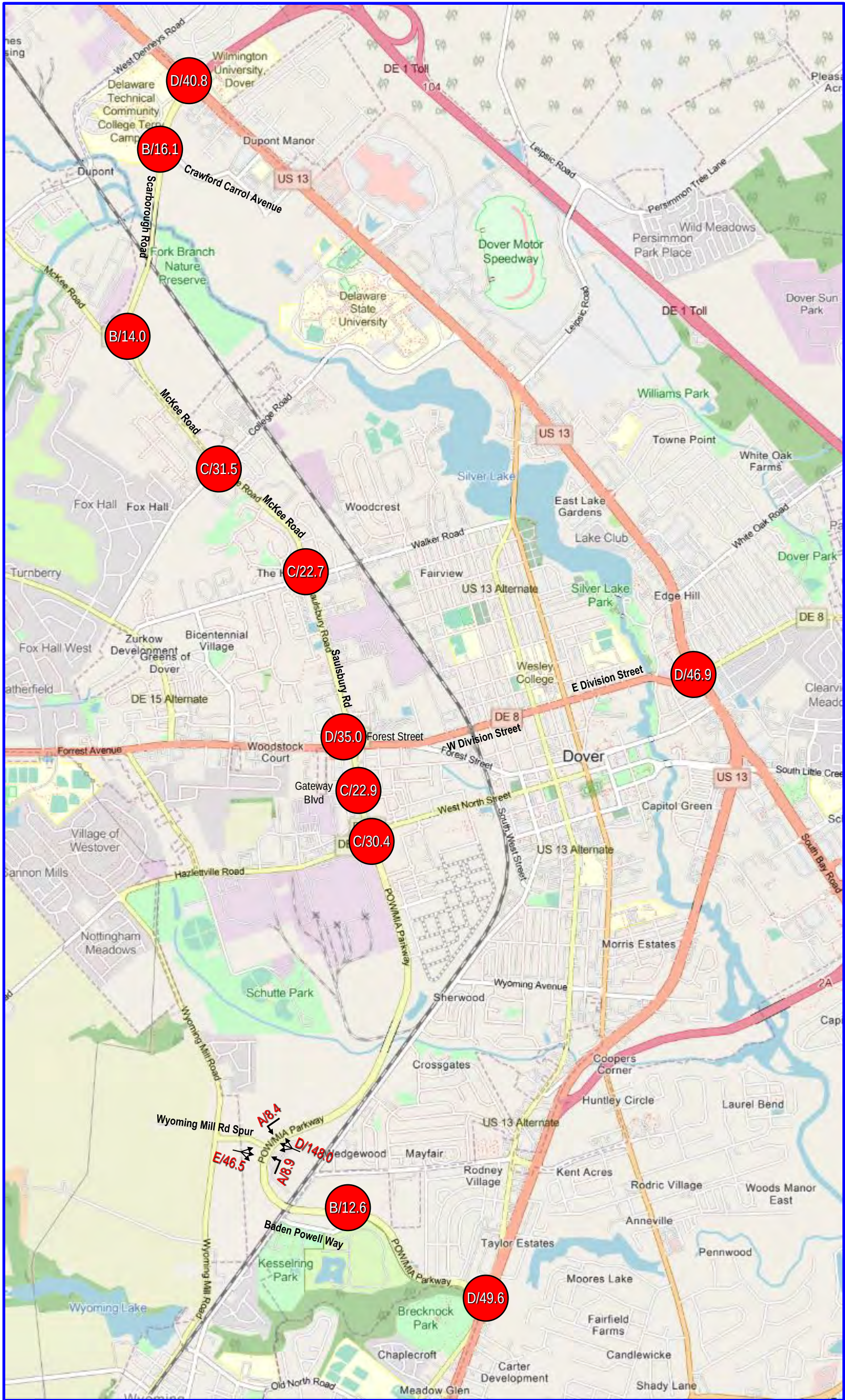


Figure 27: 2025 P.M. Without SR8 Truck Restriction Operational Analysis MOE



The map displays the Dover, Delaware region with various roads and landmarks. Red circles mark proposed toll locations with the following labels: D/41.0, B/16.1, B/14.6, C/31.9, C/22.9, D/35.2, C/23.0, C/30.5, D/46.6, A/8.4, E/48.1, A/9.0, B/12.8, and D/51.2. Major roads shown include US 13, DE 8, DE 15, and DE 1. Landmarks such as Delaware State University, Silver Lake, and various parks are also visible.

Figure 29: 2052 A.M. Without SR8 Truck Restriction Operational Analysis MOE

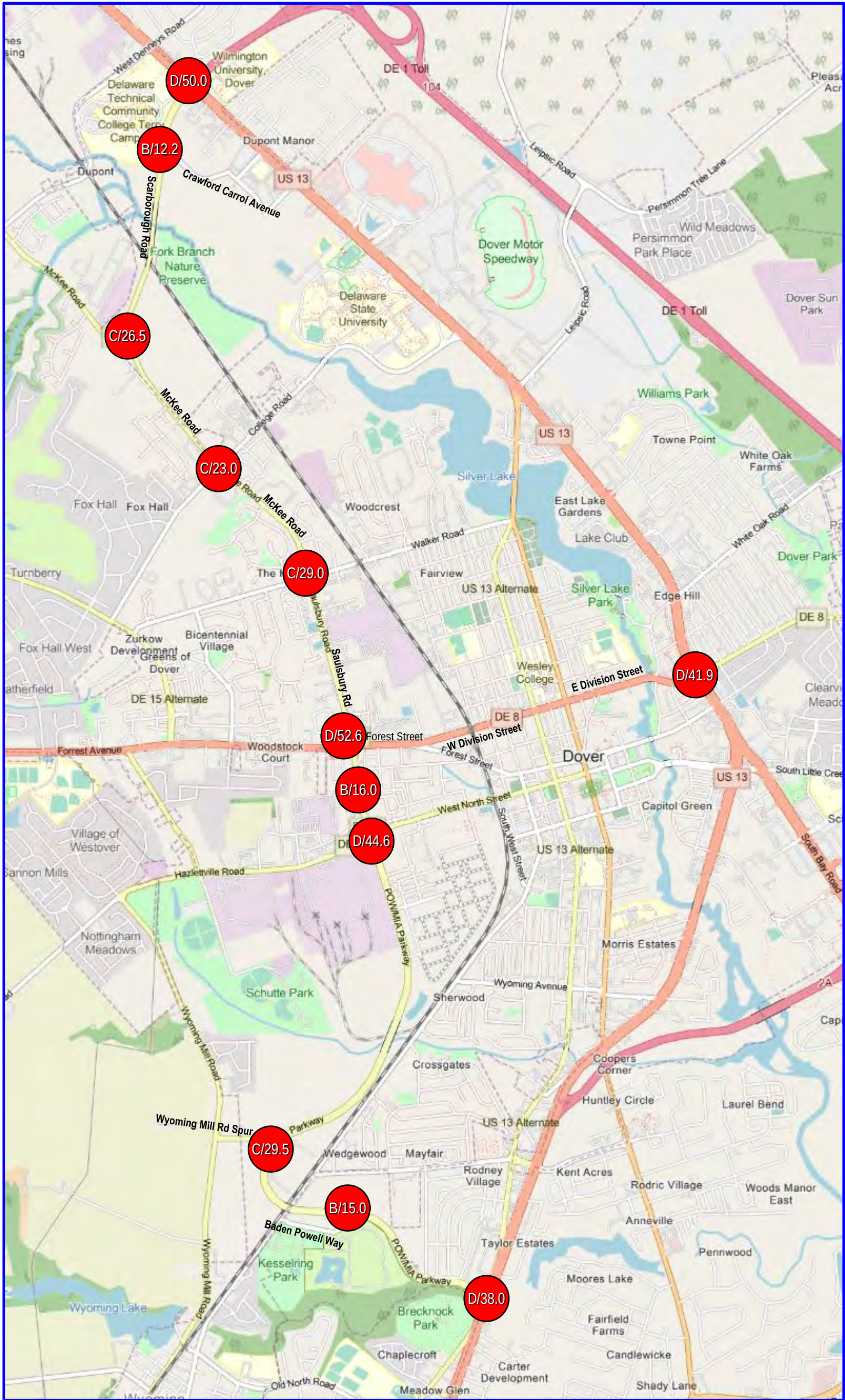


Figure 30: 2052 A.M. With SR8 Truck Restriction Operational Analysis MOE

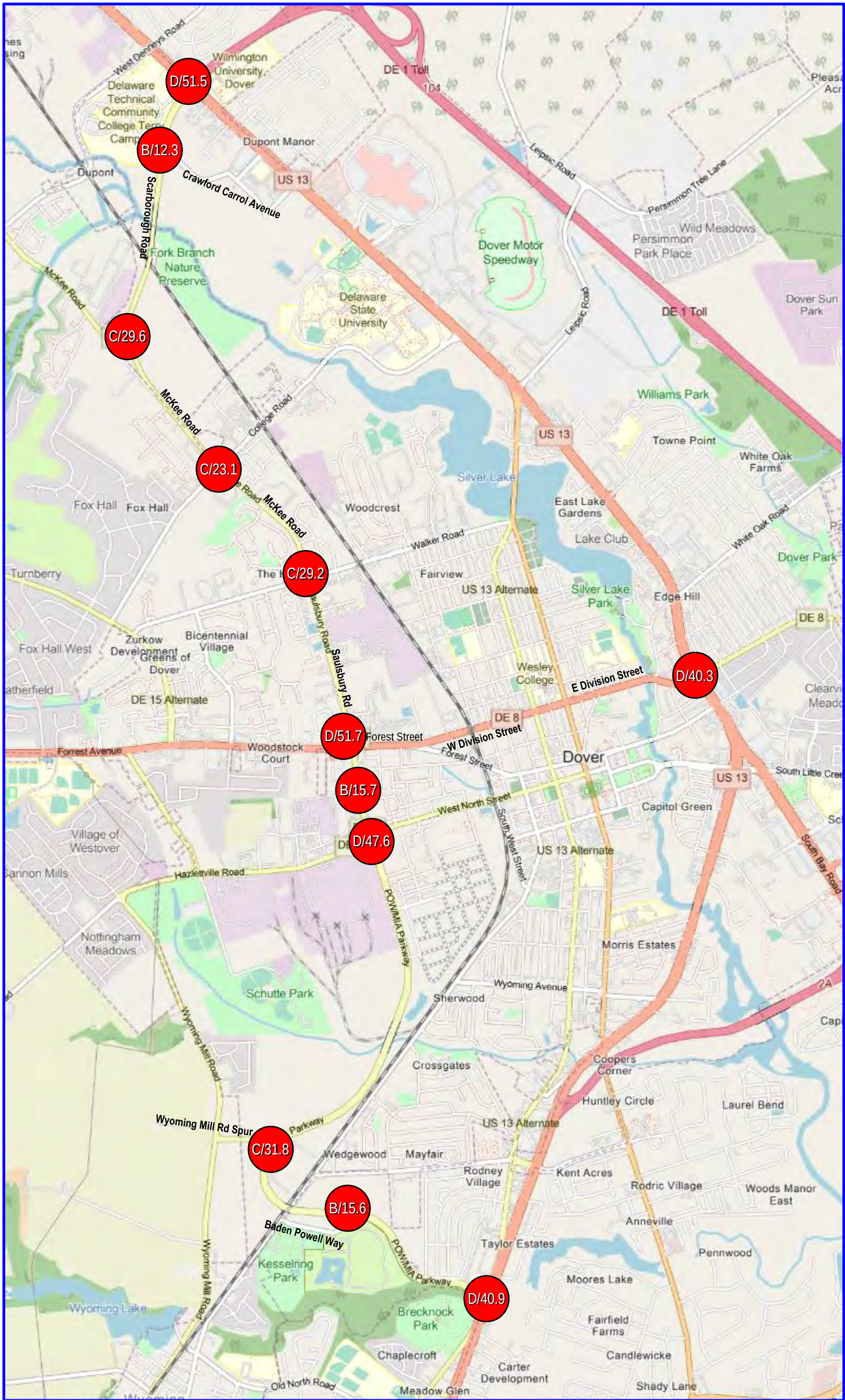


Figure 31: 2052 P.M. Without SR8 Truck Restriction Operational Analysis MOE

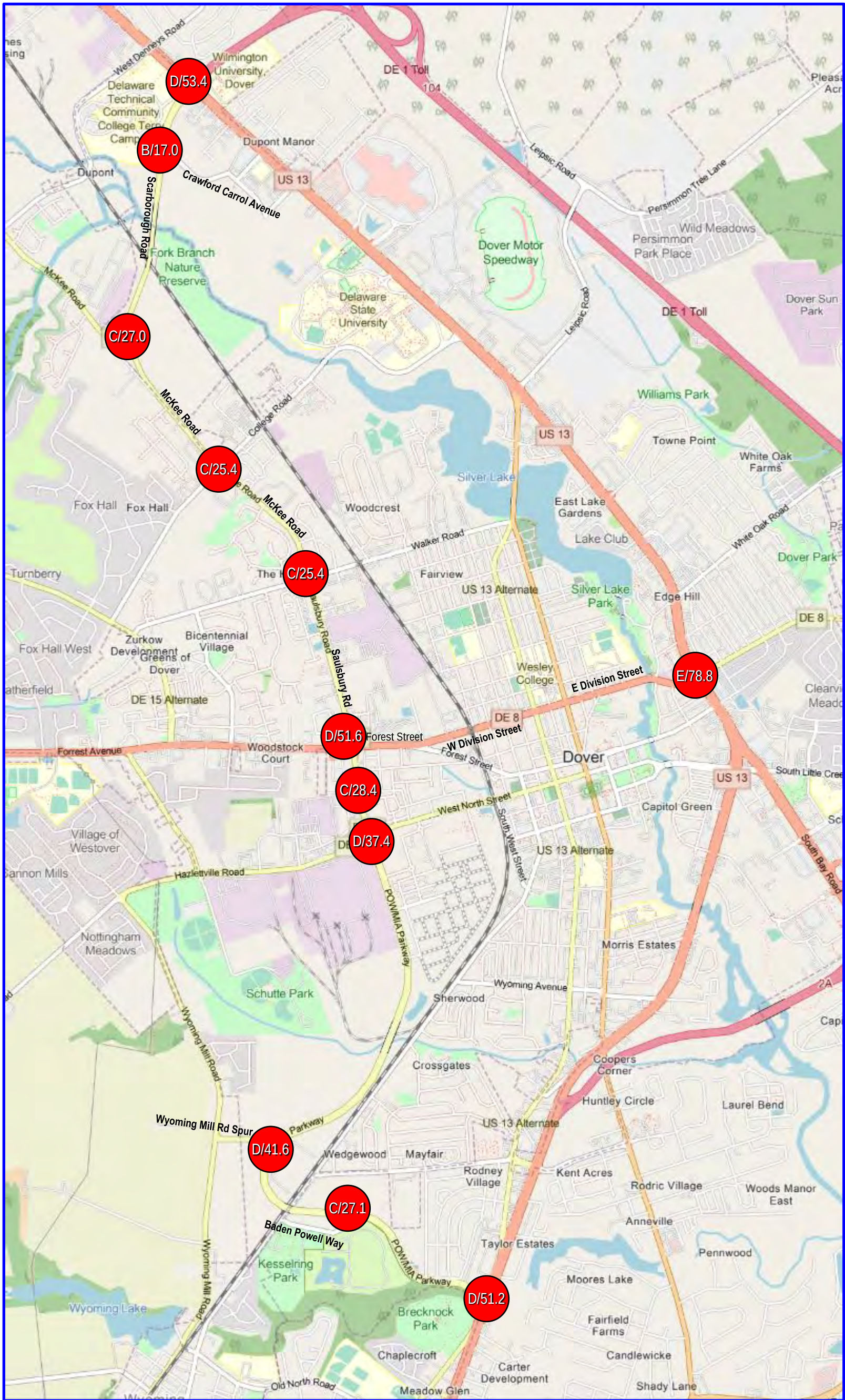
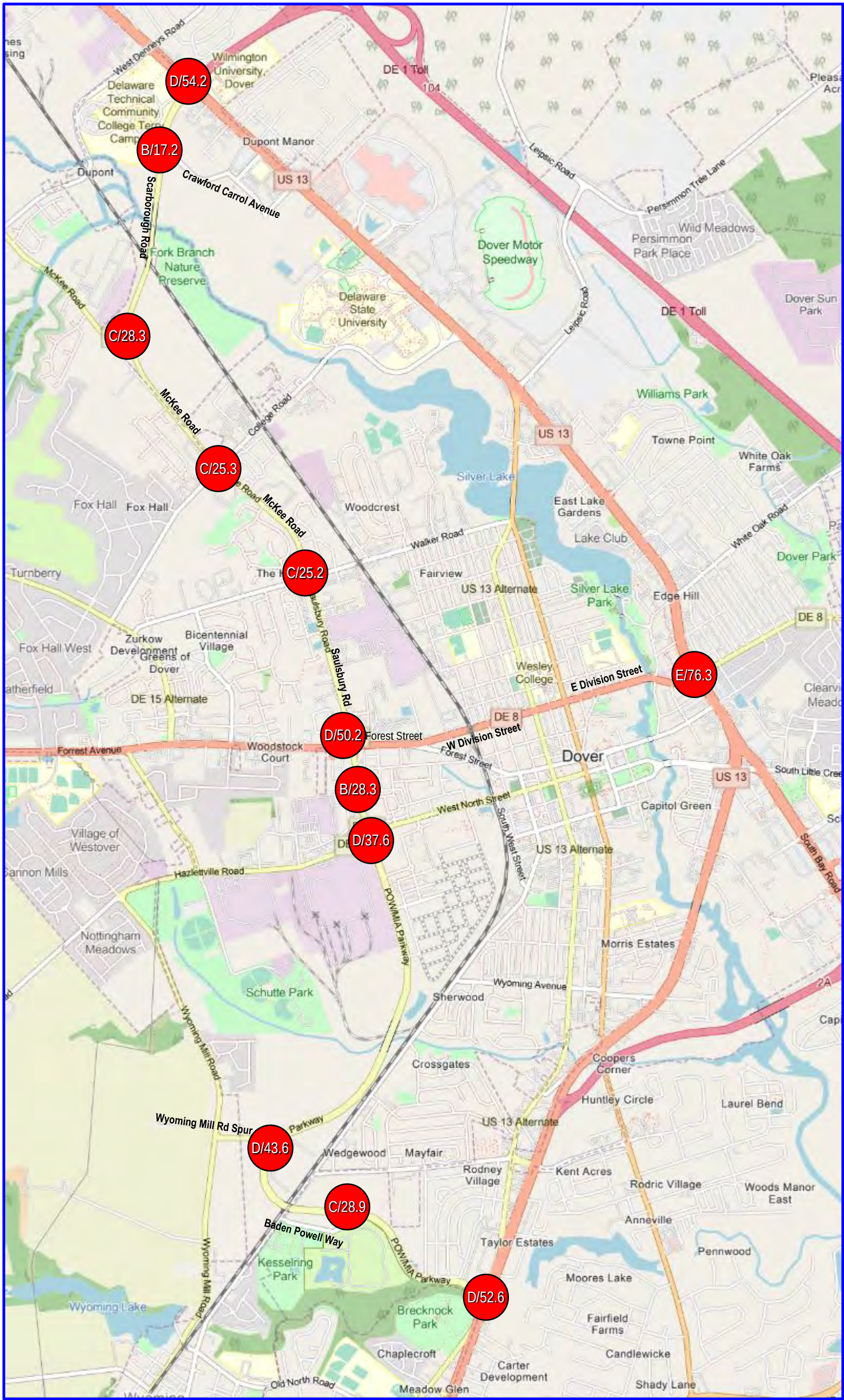


Figure 32: 2052 P.M. With SR8 Truck Restriction Operational Analysis MOE



E. TRAVEL TIME ASSESSMENT

Eight signalized intersections exist between the east and west limit intersections of the proposed SR 8 Truck Restriction segment through Downtown Dover for which no recent turning movement traffic counts exist. To enable the generation of sound travel time for the segment from the Synchro analysis models used in the analyses for the study, A.M. and P.M. turning movement traffic counts would have had to be obtained for each of those eight intersections.

DelDOT maintains a system of Bluetooth devices at some of the signalized intersections within the study limits from which travel time between the devices are generated. To facilitate a cost-effective study, travel time data from applicable Bluetooth devices was obtained for use from DelDOT to eliminate the need for the additional traffic data collection. A.M. and P.M. peak hour travel times for the proposed truck restricted SR8 segment were derived from Bluetooth devices located at the intersections of SR 8 with US 13, N / S State Street and Saulsbury Road. For the proposed North Diverted Truck Route, A.M. and P.M. peak hour travel times were derived from Bluetooth devices located at the intersections of SR 8 and Saulsbury Road, and at the intersection of Scarborough Road and US 13. A.M. and P.M. peak hour travel times for the South Diverted Truck Route were derived from Bluetooth devices located at the intersections of SR 8 at Saulsbury Road, and at the intersection of POW / MIA Parkway and US 13.

Table 7 and **Table 8** present the travel time comparison for trucks traveling the current SR 8 truck route through Downtown Dover, and the travel times along the associated applicable diverted truck routes. As shown in the tables the highest increase in travel time of 1.98 minutes, would be experienced by westbound trucks that would have to divert to the North Diverted Truck Route under A.M. peak hour traffic conditions.

Table 7: A.M. Peak Hour Travel Time Comparison

SR8 at US13 Turning Movement	Without SR8 Truck Restriction		With SR8 Truck Restriction		Travel Time Difference (Proposed - Original)
	Truck Source/Destination	Travel Time	Proposed Diverted Truck Route	Travel Time	
Eastbound Left	SR8 at Saulsbury Road Eastbound Through	5.57	Northbound North Route	6.84	1.27
Eastbound Through			Northbound North Route	6.84	1.27
Eastbound Right			Southbound South Route	4.95	-0.62
Northbound Left	SR8 at Saulsbury Road Westbound	4.86	Northbound South Route	5.59	0.73
Westbound Through			Southbound North Route	6.84	1.98
Southbound Right			Southbound North Route	6.84	1.98

Table 8: P.M. Peak Hour Travel Time Comparison

SR8 at US13 Turning Movement	Without SR8 Truck Restriction		With SR8 Truck Restriction		Travel Time Difference (Proposed - Original)
	Truck Source/Destination	Travel Time	Proposed Diverted Truck Route	Travel Time	
Eastbound Left	SR8 at Saulsbury Road Eastbound Through	6.62	Northbound North Route	6.57	-0.05
Eastbound Through			Northbound North Route	6.57	-0.05
Eastbound Right			Southbound South Route	6.02	-0.60
Northbound Left	SR8 at Saulsbury Road Westbound	5.67	Northbound South Route	5.88	0.21
Westbound Through			Southbound North Route	7.04	1.37
Southbound Right			Southbound North Route	7.04	1.37

F. CONCLUSIONS

Traffic Operations

Based on the operational analyses, except for the intersection of SR8 at US13, all the other study intersections would operate at LOS D or better for existing and all future traffic conditions with all the proposed and committed developments. The intersection of SR 8 at US13 would operate at LOS E with 78.8 seconds delay and LOS E with 76.3 seconds delay for the P.M. peak hour respectively for FUY 2052 without the SR 8 Truck Restriction and FUY 2052 with the Truck Restriction. It is expected that since the intersection is within DelDOT's coordinated signal system, the unsatisfactory LOS would be addressed as part of the wider DelDOT US13 Coordinated Signal Corridor Improvements.

Comparison of FIY 2025 and FUY 2052 with and without the SR8 Truck Restriction implementation indicate that there is no significant increase in delay and no change in LOS at the intersections along the North and South Truck Diverted Routes. For FIY 2025, the worst increase in delay would be 1.6 seconds and would be experienced during the P.M. peak hour at the intersection of POW / MIA at US13. For FUY 2052, the worst increase in delay would be 3.1 seconds and would be experienced during the A.M. peak hour at the intersection of McKee Road at Scarborough Road.

Similarly, improvements at the east and west limits intersections of the SR8 Truck Restriction segment from which trucks are diverted are also not significant. For FIY 2025 the best improvement would be a 2.3 second delay reduction experienced during the A.M. peak hour at the intersection of SR8 at US13. For FUY 2025 the best improvement, a 2.5 second delay reduction, would again be experienced at the intersection of SR8 at US13, but during the A.M. peak hour.

It is therefore concluded that based on results of the operational analyses, the ***impacted intersections within the study limits would not experience any detrimental decline in traffic operations as a result of the SR8 Truck Restriction through Downtown Dover.***

Travel Time

Based on the travel time assessment performed as part of this study, trucks diverted as a result of implementing the SR8 Truck Restriction through Downtown Dover would not experience an increase in travel time exceeding two (2) minutes under current A.M. or P.M. peak hour traffic conditions. Only trucks westbound trucks that would have to divert to the North Diverted Truck Route would experience the highest additional travel time for the A.M. peak hour traffic conditions. Assuming that traffic increases fairly uniformly throughout West Dover as confirmed by the growth rate provided for by DelDOT Planning for the McKee Road Corridor Study, and which was used to generate future traffic for this study, it is logical to assume that with things like signal timing adjustments being equal, the ***difference*** in travel times between the proposed Truck Restricted SR8 segment, and the proposed Diverted Truck Routes, should not vary significantly from the current difference.

It is therefore concluded that based on results of the travel time assessment, ***diverted trucks within the study limits would not experience unreasonable increase in travel time as a result of the SR8 Truck Restriction through Downtown Dover.***

Appendix A: Raw Turning Movement Traffic Counts

Century Engineering, LLC

A Kleinfelder Company

550 S Bay Rd, Dover DE
Phone: 302-734-9188 | Fax: 302-734-4589

Intersection: SR8 @ SR15

Counted By: MG & TH

Date: 5/29/2024

Weather: 61, Sunny AM; 78 Overcast PM

File Name : DE8 & DE15

Site Code : 00000000

Start Date : 5/29/2024

Page No : 1

Groups Printed- Cars - Heavies - Bike

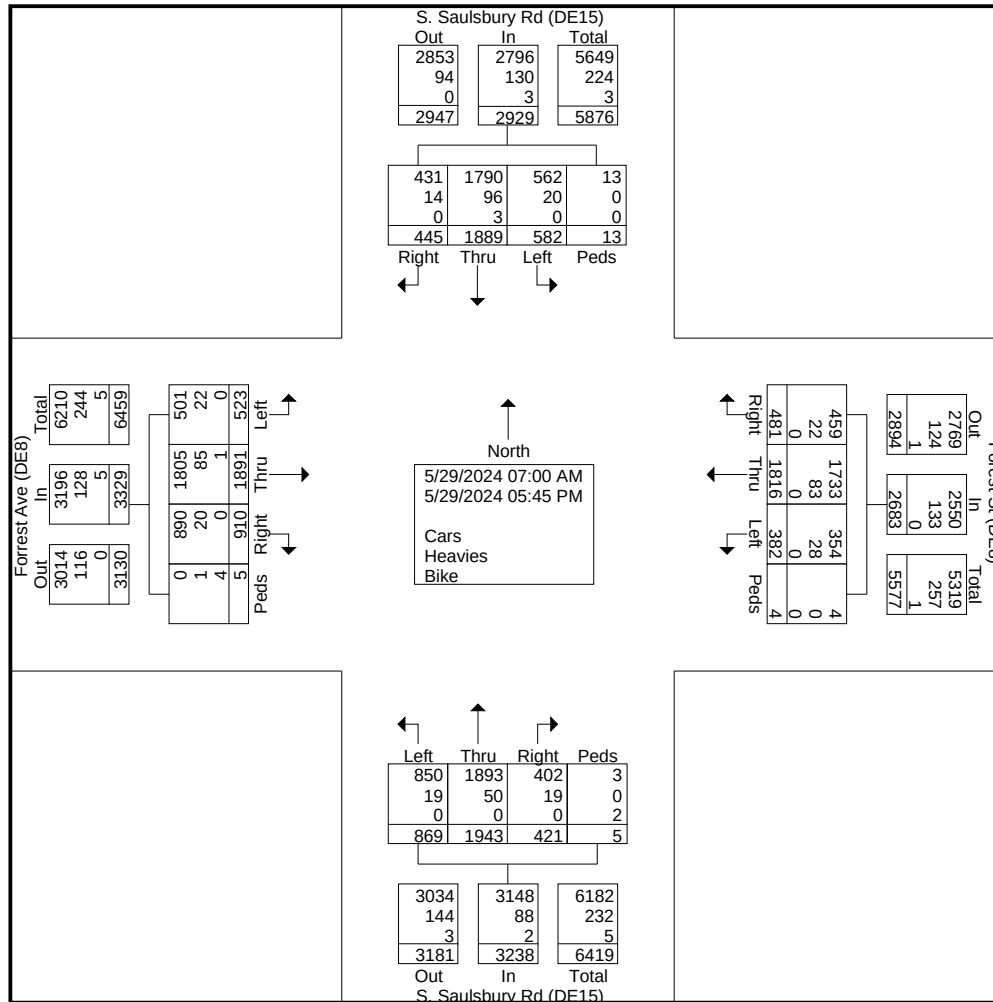
	S. Saulsbury Rd (DE15) From North					Forest St (DE8) From East					S. Saulsbury Rd (DE15) From South					Forrest Ave (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	24	108	13	1	146	12	74	15	1	102	26	97	15	0	138	23	98	55	0	176	562
07:15 AM	26	106	22	0	154	14	35	17	1	67	27	117	26	1	171	39	141	66	0	246	638
07:30 AM	46	124	30	1	201	18	86	35	0	139	34	133	24	1	192	47	139	51	0	237	769
07:45 AM	52	153	35	1	241	23	79	30	0	132	37	137	34	0	208	42	187	85	0	314	895
Total	148	491	100	3	742	67	274	97	2	440	124	484	99	2	709	151	565	257	0	973	2864
08:00 AM	41	115	30	1	187	28	120	34	0	182	34	121	32	0	187	44	113	67	0	224	780
08:15 AM	49	102	30	0	181	23	68	29	1	121	42	113	25	1	181	45	117	53	0	215	698
08:30 AM	40	99	35	2	176	13	69	32	0	114	43	102	17	0	162	29	118	54	0	201	653
08:45 AM	36	130	36	1	203	28	99	26	0	153	52	114	20	0	186	29	120	61	0	210	752
Total	166	446	131	4	747	92	356	121	1	570	171	450	94	1	716	147	468	235	0	850	2883
*** BREAK ***																					
04:00 PM	30	115	29	2	176	30	161	43	1	235	84	150	22	2	258	23	123	52	0	198	867
04:15 PM	34	123	29	0	186	36	123	32	0	191	63	136	25	0	224	32	140	55	0	227	828
04:30 PM	40	143	25	1	209	22	184	47	0	253	92	162	35	0	289	21	88	71	0	180	931
04:45 PM	33	137	31	3	204	28	162	41	0	231	65	122	27	0	214	37	120	40	1	198	847
Total	137	518	114	6	775	116	630	163	1	910	304	570	109	2	985	113	471	218	1	803	3473
05:00 PM	42	96	28	0	166	26	160	28	0	214	76	156	27	0	259	31	91	52	0	174	813
05:15 PM	34	129	20	0	183	35	143	25	0	203	69	91	38	0	198	38	113	61	1	213	797
05:30 PM	31	97	26	0	154	31	148	29	0	208	60	112	30	0	202	24	103	46	2	175	739
05:45 PM	24	112	26	0	162	15	105	18	0	138	65	80	24	0	169	19	80	41	1	141	610
Total	131	434	100	0	665	107	556	100	0	763	270	439	119	0	828	112	387	200	4	703	2959
Grand Total	582	1889	445	13	2929	382	1816	481	4	2683	869	1943	421	5	3238	523	1891	910	5	3329	12179
Apprch %	19.9	64.5	15.2	0.4		14.2	67.7	17.9	0.1		26.8	60	13	0.2		15.7	56.8	27.3	0.2		
Total %	4.8	15.5	3.7	0.1	24	3.1	14.9	3.9	0	22	7.1	16	3.5	0	26.6	4.3	15.5	7.5	0	27.3	
Cars	562	1790	431	13	2796	354	1733	459	4	2550	850	1893	402	3	3148	501	1805	890	0	3196	11690
% Cars	96.6	94.8	96.9	100	95.5	92.7	95.4	95.4	100	95	97.8	97.4	95.5	60	97.2	95.8	95.5	97.8	0	96	96
Heavies	20	96	14	0	130	28	83	22	0	133	19	50	19	0	88	22	85	20	1	128	479
% Heavies	3.4	5.1	3.1	0	4.4	7.3	4.6	4.6	0	5	2.2	2.6	4.5	0	2.7	4.2	4.5	2.2	20	3.8	3.9
Bike	0	3	0	0	3	0	0	0	0	0	0	0	0	2	2	0	1	0	4	5	10
% Bike	0	0.2	0	0	0.1	0	0	0	0	0	0	0	0	40	0.1	0	0.1	0	80	0.2	0.1

Century Engineering, LLC

A Kleinfelder Company

550 S Bay Rd, Dover DE
Phone: 302-734-9188 | Fax: 302-734-4589

File Name : DE8 & DE15
Site Code : 00000000
Start Date : 5/29/2024
Page No : 2

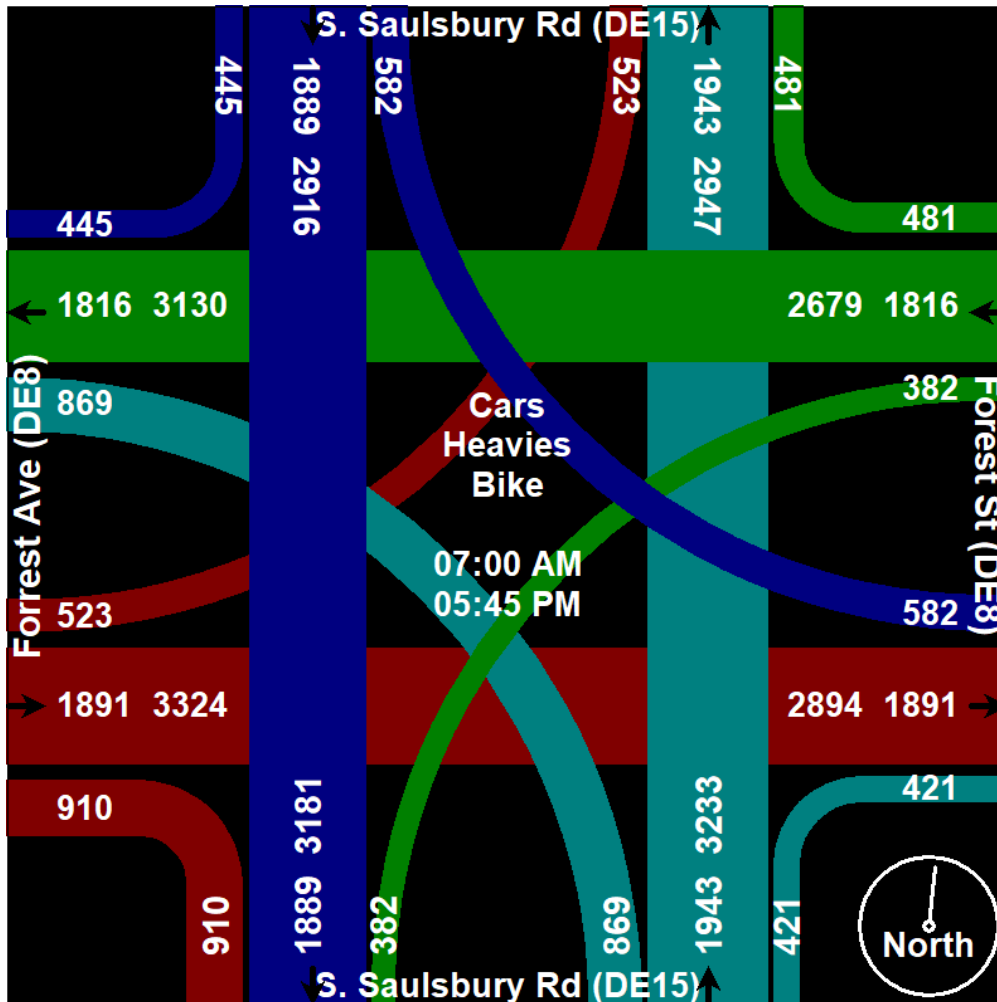


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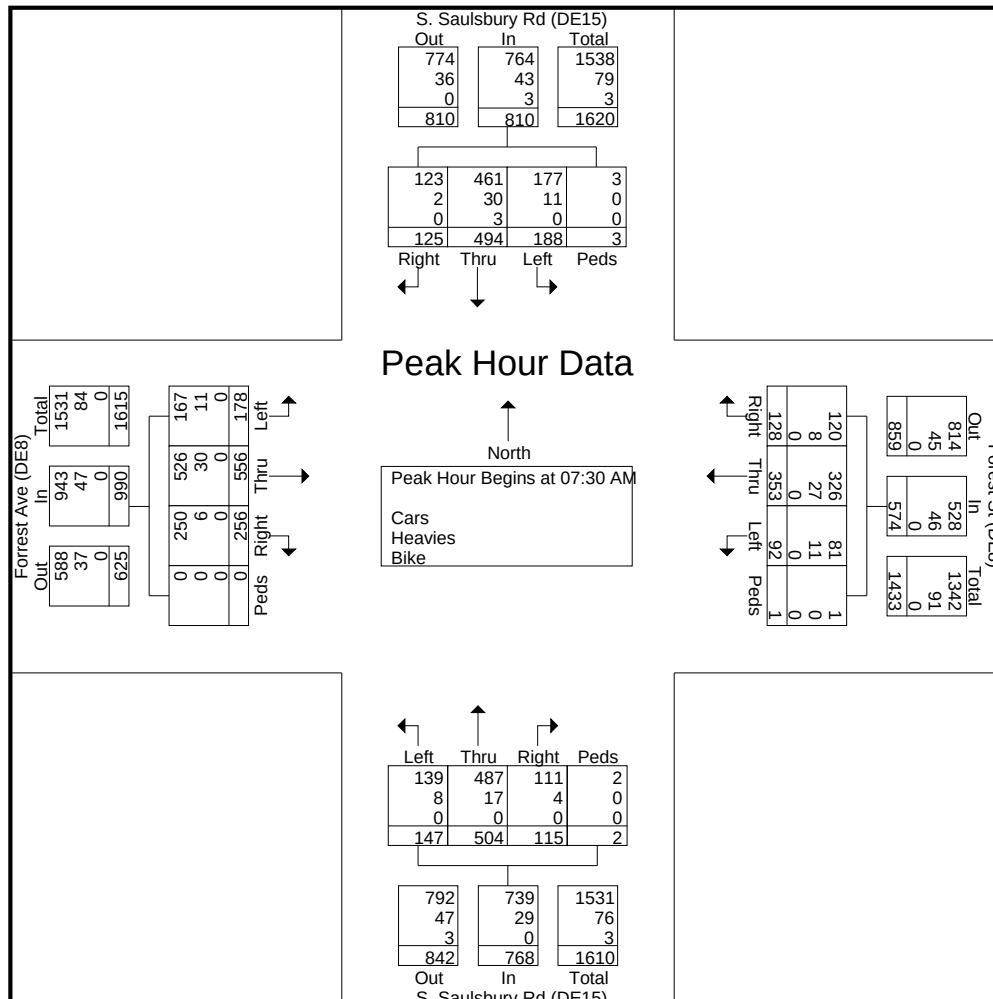
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Page No : 4

	S. Saulsbury Rd (DE15) From North					Forest St (DE8) From East					S. Saulsbury Rd (DE15) From South					Forrest Ave (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	46	124	30	1	201	18	86	35	0	139	34	133	24	1	192	47	139	51	0	237	769
07:45 AM	52	153	35	1	241	23	79	30	0	132	37	137	34	0	208	42	187	85	0	314	895
08:00 AM	41	115	30	1	187	28	120	34	0	182	34	121	32	0	187	44	113	67	0	224	780
08:15 AM	49	102	30	0	181	23	68	29	1	121	42	113	25	1	181	45	117	53	0	215	698
Total Volume	188	494	125	3	810	92	353	128	1	574	147	504	115	2	768	178	556	256	0	990	3142
% App. Total	23.2	61	15.4	0.4		16	61.5	22.3	0.2		19.1	65.6	15	0.3		18	56.2	25.9	0		
PHF	.904	.807	.893	.750	.840	.821	.735	.914	.250	.788	.875	.920	.846	.500	.923	.947	.743	.753	.000	.788	.878
Cars	177	461	123	3	764	81	326	120	1	528	139	487	111	2	739	167	526	250	0	943	2974
% Cars	94.1	93.3	98.4	100	94.3	88.0	92.4	93.8	100	92.0	94.6	96.6	96.5	100	96.2	93.8	94.6	97.7	0	95.3	94.7
Heavies	11	30	2	0	43	11	27	8	0	46	8	17	4	0	29	11	30	6	0	47	165
% Heavies	5.9	6.1	1.6	0	5.3	12.0	7.6	6.3	0	8.0	5.4	3.4	3.5	0	3.8	6.2	5.4	2.3	0	4.7	5.3
Bike	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% Bike	0	0.6	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1



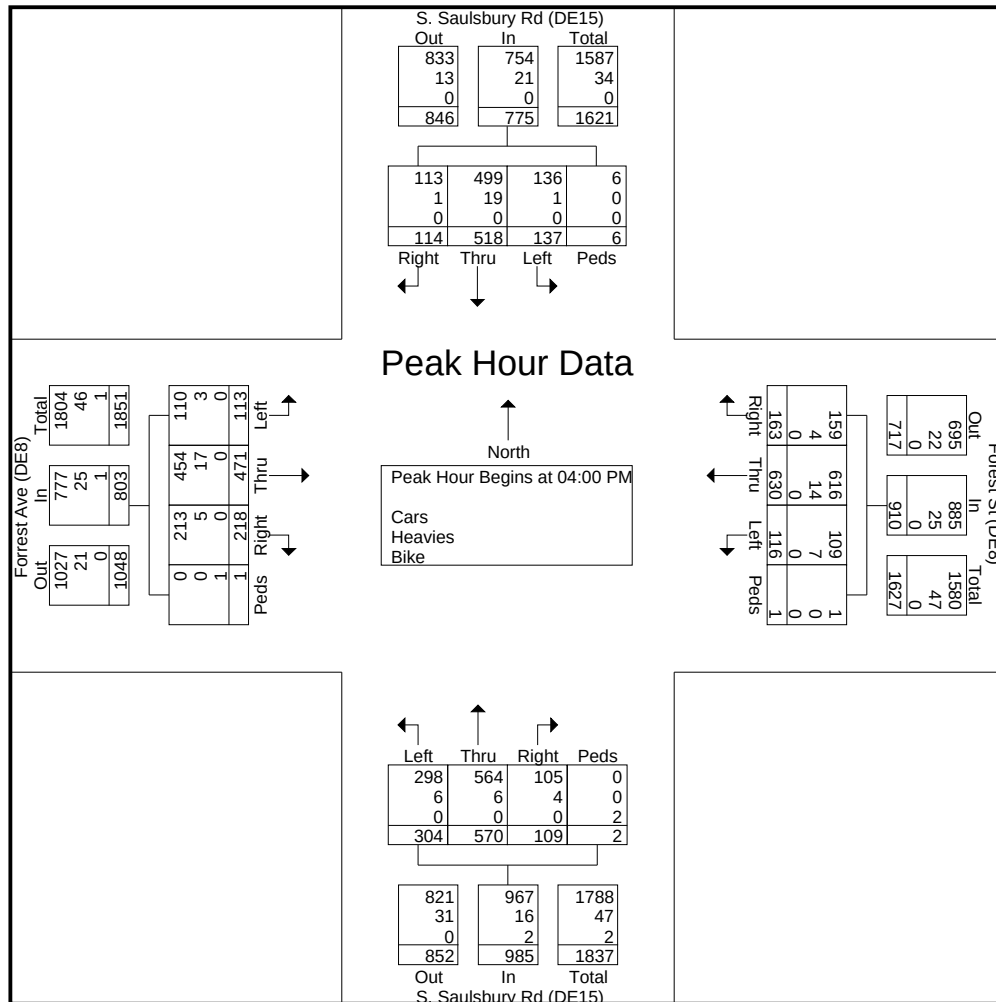
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File Name : DE8 & DE15
Site Code : 00000000
Start Date : 5/29/2024
Page No : 5

	S. Saulsbury Rd (DE15) From North					Forest St (DE8) From East					S. Saulsbury Rd (DE15) From South					Forrest Ave (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	30	115	29	2	176	30	161	43	1	235	84	150	22	2	258	23	123	52	0	198	867
04:15 PM	34	123	29	0	186	36	123	32	0	191	63	136	25	0	224	32	140	55	0	227	828
04:30 PM	40	143	25	1	209	22	184	47	0	253	92	162	35	0	289	21	88	71	0	180	931
04:45 PM	33	137	31	3	204	28	162	41	0	231	65	122	27	0	214	37	120	40	1	198	847
Total Volume	137	518	114	6	775	116	630	163	1	910	304	570	109	2	985	113	471	218	1	803	3473
% App. Total	17.7	66.8	14.7	0.8		12.7	69.2	17.9	0.1		30.9	57.9	11.1	0.2		14.1	58.7	27.1	0.1		
PHF	.856	.906	.919	.500	.927	.806	.856	.867	.250	.899	.826	.880	.779	.250	.852	.764	.841	.768	.250	.884	.933
Cars	136	499	113	6	754	109	616	159	1	885	298	564	105	0	967	110	454	213	0	777	3383
% Cars	99.3	96.3	99.1	100	97.3	94.0	97.8	97.5	100	97.3	98.0	98.9	96.3	0	98.2	97.3	96.4	97.7	0	96.8	97.4
Heavies	1	19	1	0	21	7	14	4	0	25	6	6	4	0	16	3	17	5	0	25	87
% Heavies	0.7	3.7	0.9	0	2.7	6.0	2.2	2.5	0	2.7	2.0	1.1	3.7	0	1.6	2.7	3.6	2.3	0	3.1	2.5
Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	3
% Bike	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0.2	0	0	0	100	0.1	0.1





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Intersection: US13 @ DE8
Counted By: TH/MG, SL, JM
Date: 5/30/2024
Weather: Sunny, 61 AM; Cloudy, 72 PM

File Name : US13 & DE8
Site Code : 00000000
Start Date : 5/30/2024
Page No : 1

Groups Printed- Cars - Heavies - Bike/Ped

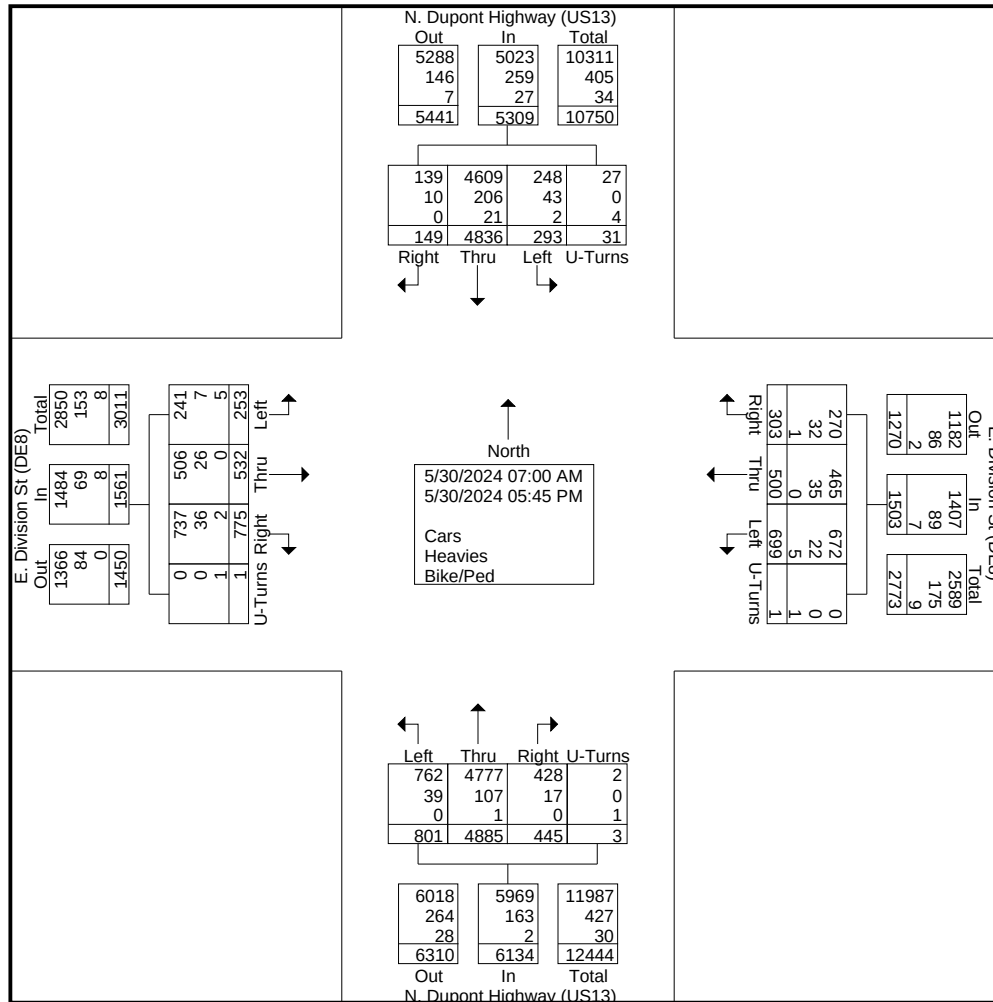
	N. Dupont Highway (US13) From North					E. Division St (DE8) From East					N. Dupont Highway (US13) From South					E. Division St (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	9	197	5	0	211	45	26	12	0	83	41	146	16	1	204	4	13	38	0	55	553
07:15 AM	9	276	7	2	294	39	29	19	0	87	55	179	23	1	258	6	25	42	0	73	712
07:30 AM	12	245	12	1	270	53	39	18	0	110	45	231	21	0	297	9	25	58	0	92	769
07:45 AM	10	276	15	0	301	64	33	22	0	119	46	224	11	0	281	9	28	42	0	79	780
Total	40	994	39	3	1076	201	127	71	0	399	187	780	71	2	1040	28	91	180	0	299	2814
08:00 AM	21	221	9	3	254	59	35	13	0	107	44	226	21	1	292	9	42	46	0	97	750
08:15 AM	14	223	10	2	249	55	26	12	0	93	30	289	22	0	341	10	15	28	0	53	736
08:30 AM	19	220	7	0	246	37	32	19	0	88	57	290	21	0	368	10	13	37	0	60	762
08:45 AM	14	239	9	1	263	38	28	21	0	87	57	283	28	0	368	13	25	39	0	77	795
Total	68	903	35	6	1012	189	121	65	0	375	188	1088	92	1	1369	42	95	150	0	287	3043
*** BREAK ***																					
04:00 PM	19	401	12	1	433	36	28	13	0	77	70	439	45	0	554	27	47	67	0	141	1205
04:15 PM	30	368	12	3	413	40	30	17	0	87	66	379	29	0	474	30	51	52	0	133	1107
04:30 PM	27	390	8	3	428	49	31	19	0	99	47	393	50	0	490	25	44	55	0	124	1141
04:45 PM	31	422	16	4	473	40	41	25	1	107	49	418	41	0	508	25	49	67	0	141	1229
Total	107	1581	48	11	1747	165	130	74	1	370	232	1629	165	0	2026	107	191	241	0	539	4682
05:00 PM	17	322	9	2	350	40	24	19	0	83	61	362	39	0	462	21	47	53	0	121	1016
05:15 PM	26	384	0	3	413	33	35	24	0	92	62	358	36	0	456	26	40	47	0	113	1074
05:30 PM	19	355	10	3	387	32	37	26	0	95	36	361	27	0	424	16	34	55	1	106	1012
05:45 PM	16	297	8	3	324	39	26	24	0	89	35	307	15	0	357	13	34	49	0	96	866
Total	78	1358	27	11	1474	144	122	93	0	359	194	1388	117	0	1699	76	155	204	1	436	3968
Grand Total	293	4836	149	31	5309	699	500	303	1	1503	801	4885	445	3	6134	253	532	775	1	1561	14507
Apprch %	5.5	91.1	2.8	0.6		46.5	33.3	20.2	0.1		13.1	79.6	7.3	0		16.2	34.1	49.6	0.1		
Total %	2	33.3	1	0.2	36.6	4.8	3.4	2.1	0	10.4	5.5	33.7	3.1	0	42.3	1.7	3.7	5.3	0	10.8	
Cars	248	4609	139	27	5023	672	465	270	0	1407	762	4777	428	2	5969	241	506	737	0	1484	13883
% Cars	84.6	95.3	93.3	87.1	94.6	96.1	93	89.1	0	93.6	95.1	97.8	96.2	66.7	97.3	95.3	95.1	95.1	0	95.1	95.7
Heavies	43	206	10	0	259	22	35	32	0	89	39	107	17	0	163	7	26	36	0	69	580
% Heavies	14.7	4.3	6.7	0	4.9	3.1	7	10.6	0	5.9	4.9	2.2	3.8	0	2.7	2.8	4.9	4.6	0	4.4	4
Bike/Ped	2	21	0	4	27	5	0	1	1	7	0	1	0	1	2	5	0	2	1	8	44
% Bike/Ped	0.7	0.4	0	12.9	0.5	0.7	0	0.3	100	0.5	0	0	0	33.3	0	2	0	0.3	100	0.5	0.3

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Site Code : 00000000
Start Date : 5/30/2024
Page No : 2

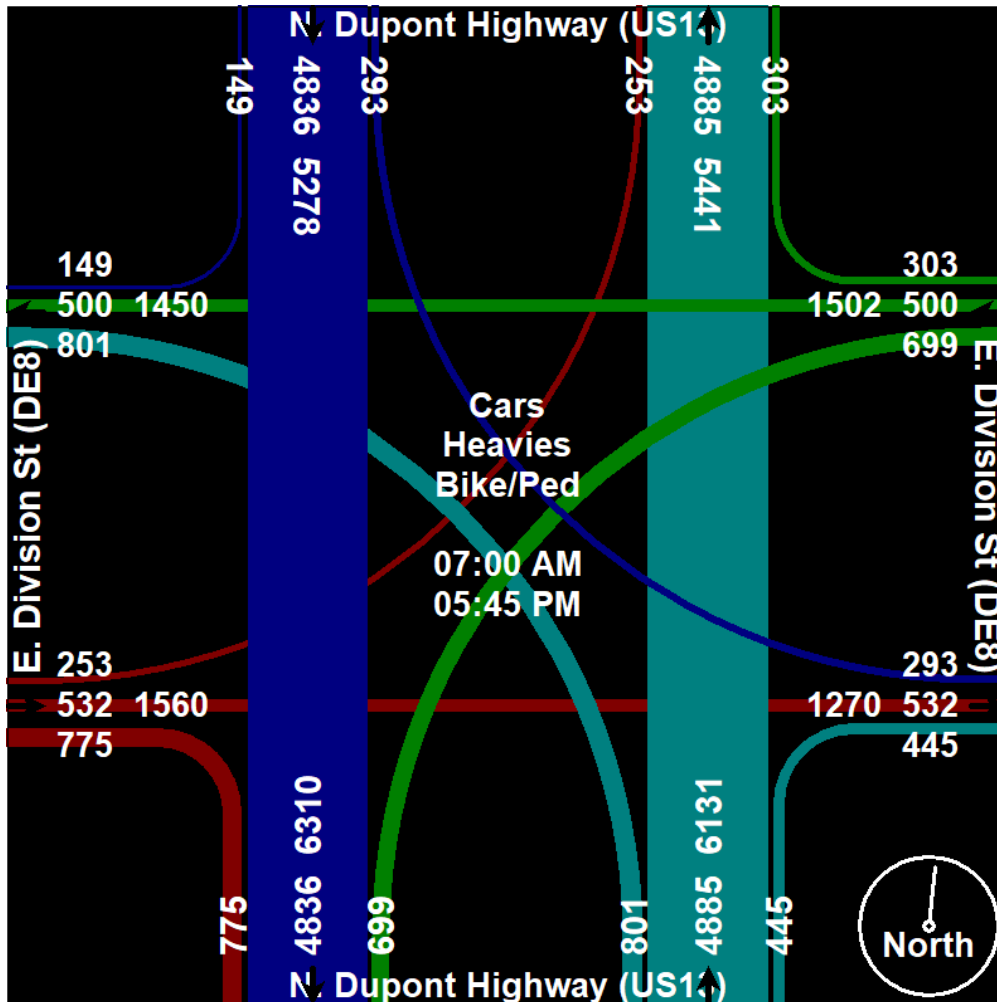


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File Name : US13 & DE8
Site Code : 00000000
Start Date : 5/30/2024
Page No : 3



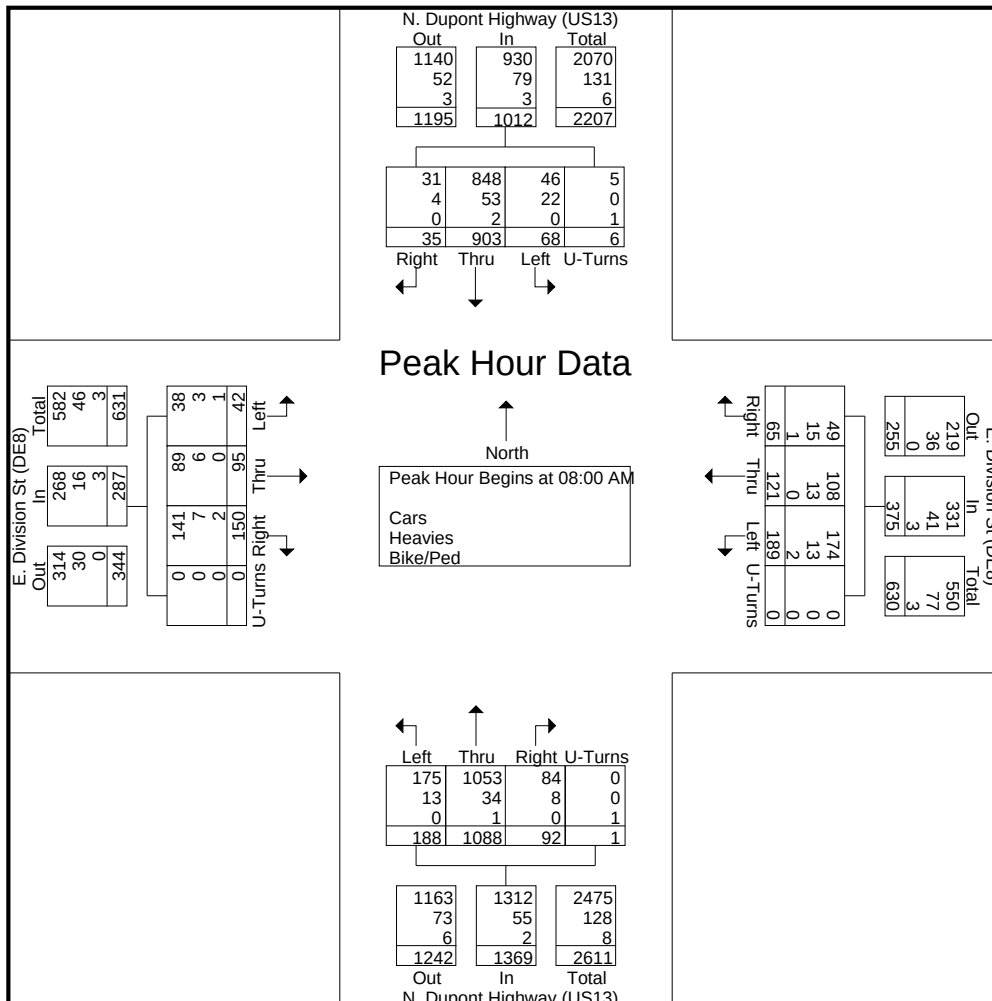
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File Name : US13 & DE8
Site Code : 00000000
Start Date : 5/30/2024
Page No : 4

	N. Dupont Highway (US13) From North					E. Division St (DE8) From East					N. Dupont Highway (US13) From South					E. Division St (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	21	221	9	3	254	59	35	13	0	107	44	226	21	1	292	9	42	46	0	97	750
08:15 AM	14	223	10	2	249	55	26	12	0	93	30	289	22	0	341	10	15	28	0	53	736
08:30 AM	19	220	7	0	246	37	32	19	0	88	57	290	21	0	368	10	13	37	0	60	762
08:45 AM	14	239	9	1	263	38	28	21	0	87	57	283	28	0	368	13	25	39	0	77	795
Total Volume	68	903	35	6	1012	189	121	65	0	375	188	1088	92	1	1369	42	95	150	0	287	3043
% App. Total	6.7	89.2	3.5	0.6		50.4	32.3	17.3	0		13.7	79.5	6.7	0.1		14.6	33.1	52.3	0		
PHF	.810	.945	.875	.500	.962	.801	.864	.774	.000	.876	.825	.938	.821	.250	.930	.808	.565	.815	.000	.740	.957
Cars	46	848	31	5	930	174	108	49	0	331	175	1053	84	0	1312	38	89	141	0	268	2841
% Cars	67.6	93.9	88.6	83.3	91.9	92.1	89.3	75.4	0	88.3	93.1	96.8	91.3	0	95.8	90.5	93.7	94.0	0	93.4	93.4
Heavies	22	53	4	0	79	13	13	15	0	41	13	34	8	0	55	3	6	7	0	16	191
% Heavies	32.4	5.9	11.4	0	7.8	6.9	10.7	23.1	0	10.9	6.9	3.1	8.7	0	4.0	7.1	6.3	4.7	0	5.6	6.3
Bike/Ped	0	2	0	1	3	2	0	1	0	3	0	1	0	1	2	1	0	2	0	3	11
% Bike/Ped	0	0.2	0	16.7	0.3	1.1	0	1.5	0	0.8	0	0.1	0	100	0.1	2.4	0	1.3	0	1.0	0.4



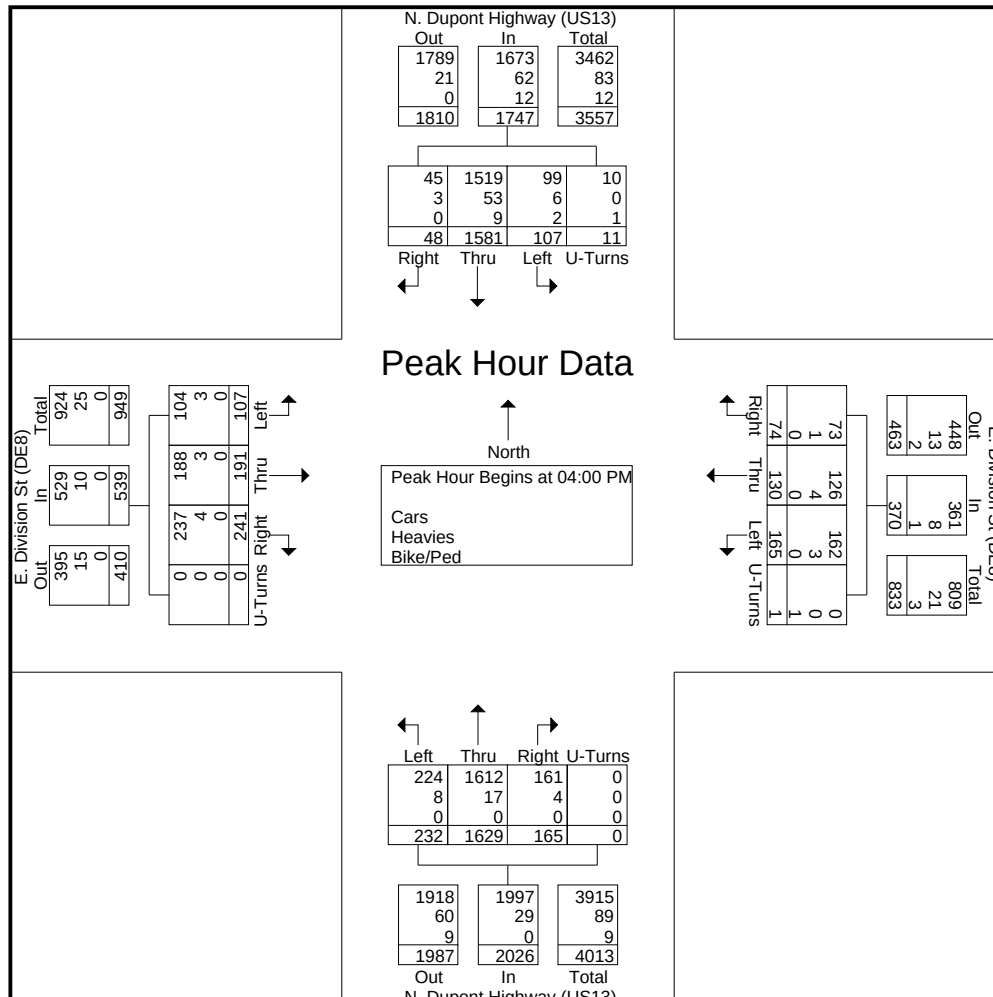
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File Name : US13 & DE8
Site Code : 00000000
Start Date : 5/30/2024
Page No : 5

	N. Dupont Highway (US13) From North					E. Division St (DE8) From East					N. Dupont Highway (US13) From South					E. Division St (DE8) From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	19	401	12	1	433	36	28	13	0	77	70	439	45	0	554	27	47	67	0	141	1205
04:15 PM	30	368	12	3	413	40	30	17	0	87	66	379	29	0	474	30	51	52	0	133	1107
04:30 PM	27	390	8	3	428	49	31	19	0	99	47	393	50	0	490	25	44	55	0	124	1141
04:45 PM	31	422	16	4	473	40	41	25	1	107	49	418	41	0	508	25	49	67	0	141	1229
Total Volume	107	1581	48	11	1747	165	130	74	1	370	232	1629	165	0	2026	107	191	241	0	539	4682
% App. Total	6.1	90.5	2.7	0.6		44.6	35.1	20	0.3		11.5	80.4	8.1	0		19.9	35.4	44.7	0		
PHF	.863	.937	.750	.688	.923	.842	.793	.740	.250	.864	.829	.928	.825	.000	.914	.892	.936	.899	.000	.956	.952
Cars	99	1519	45	10	1673	162	126	73	0	361	224	1612	161	0	1997	104	188	237	0	529	4560
% Cars	92.5	96.1	93.8	90.9	95.8	98.2	96.9	98.6	0	97.6	96.6	99.0	97.6	0	98.6	97.2	98.4	98.3	0	98.1	97.4
Heavies	6	53	3	0	62	3	4	1	0	8	8	17	4	0	29	3	3	4	0	10	109
% Heavies	5.6	3.4	6.3	0	3.5	1.8	3.1	1.4	0	2.2	3.4	1.0	2.4	0	1.4	2.8	1.6	1.7	0	1.9	2.3
Bike/Ped	2	9	0	1	12	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	13
% Bike/Ped	1.9	0.6	0	9.1	0.7	0	0	0	100	0.3	0	0	0	0	0	0	0	0	0	0	0.3



Appendix B: Eden Hill Development Unbuilt Units' Trip Generation

ITE 2011 Trip Generation Rate Table

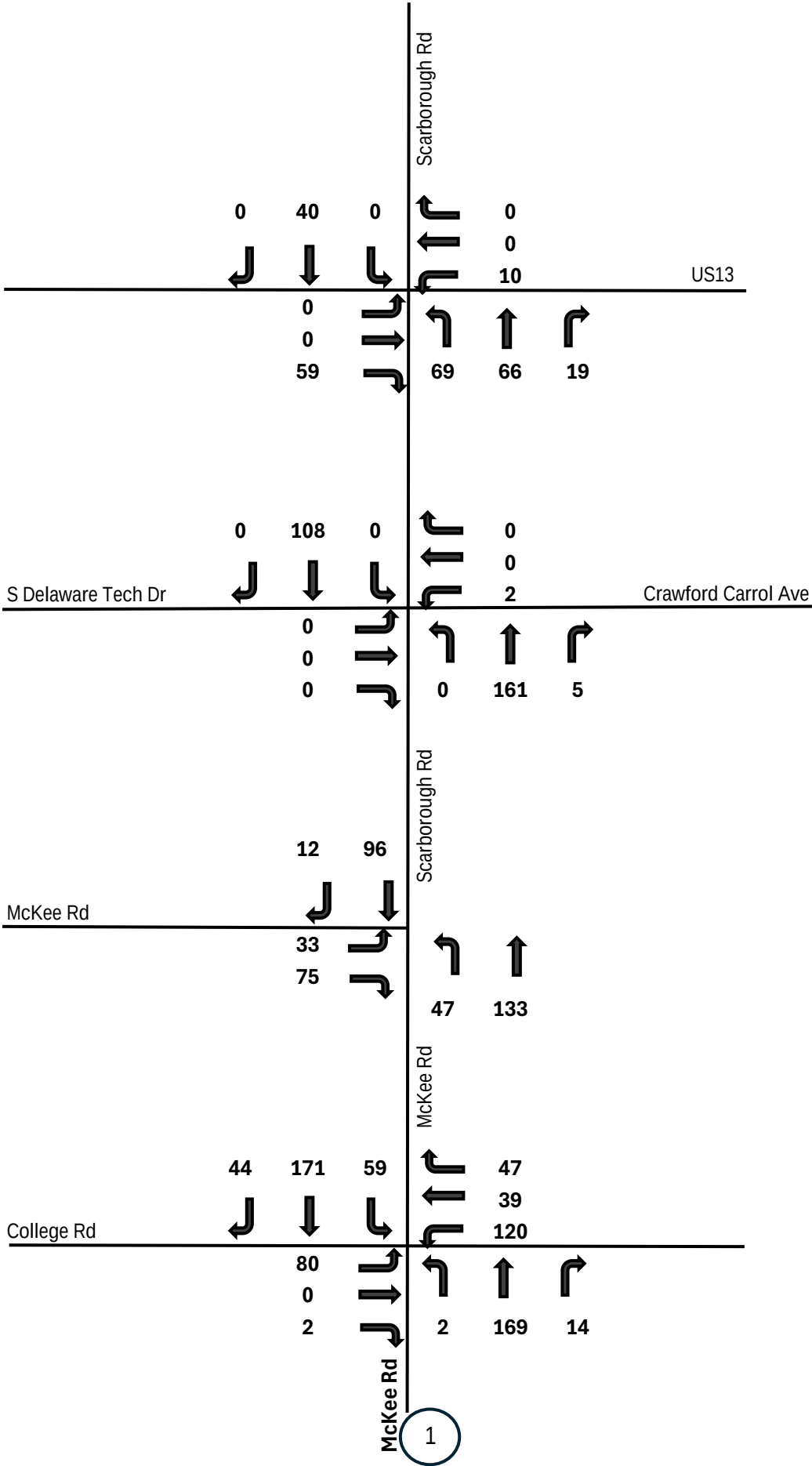
ITE Land Use Code	ITE Land Use Description	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
		Formula/Rate	Ingress / Egress Distribution		Formula/Rate	Ingress / Egress Distribution	
			IN	OUT		IN	OUT
210	Single Family Detached	$\text{Ln(A.M. Trips)} = 0.91 \times \text{Ln(Units)} + 0.12$	25%	75%	$\text{Ln(P.M. Trips)} = 0.94 \times \text{Ln(Units)} + 0.27$	63%	37%
215	Single Family Attached Housing	$\text{A.M. Trips} = 0.52 \times \text{Units} - 5.70$	25%	75%	$\text{P.M. Trips} = 0.60 \times \text{Units} - 3.93$	59%	41%
220	Multifamily Housing (Low-Rise)	$\text{A.M. Trips} = 0.40 \times \text{Units}$	24%	76%	$\text{P.M. Trips} = 0.43 \times \text{Units} + 20.55$	63%	37%
820	Shopping Center	$\text{A.M. Trips} = 0.59 \times \text{Ksf} + 133.55$	62%	38%	$\text{Ln(P.M. Trips)} = 0.72 \times \text{Ln(Ksf)} + 3.02$	48%	52%

Eden Hill Development Unbuilt/Unoccupied Portion Trip Generation Table

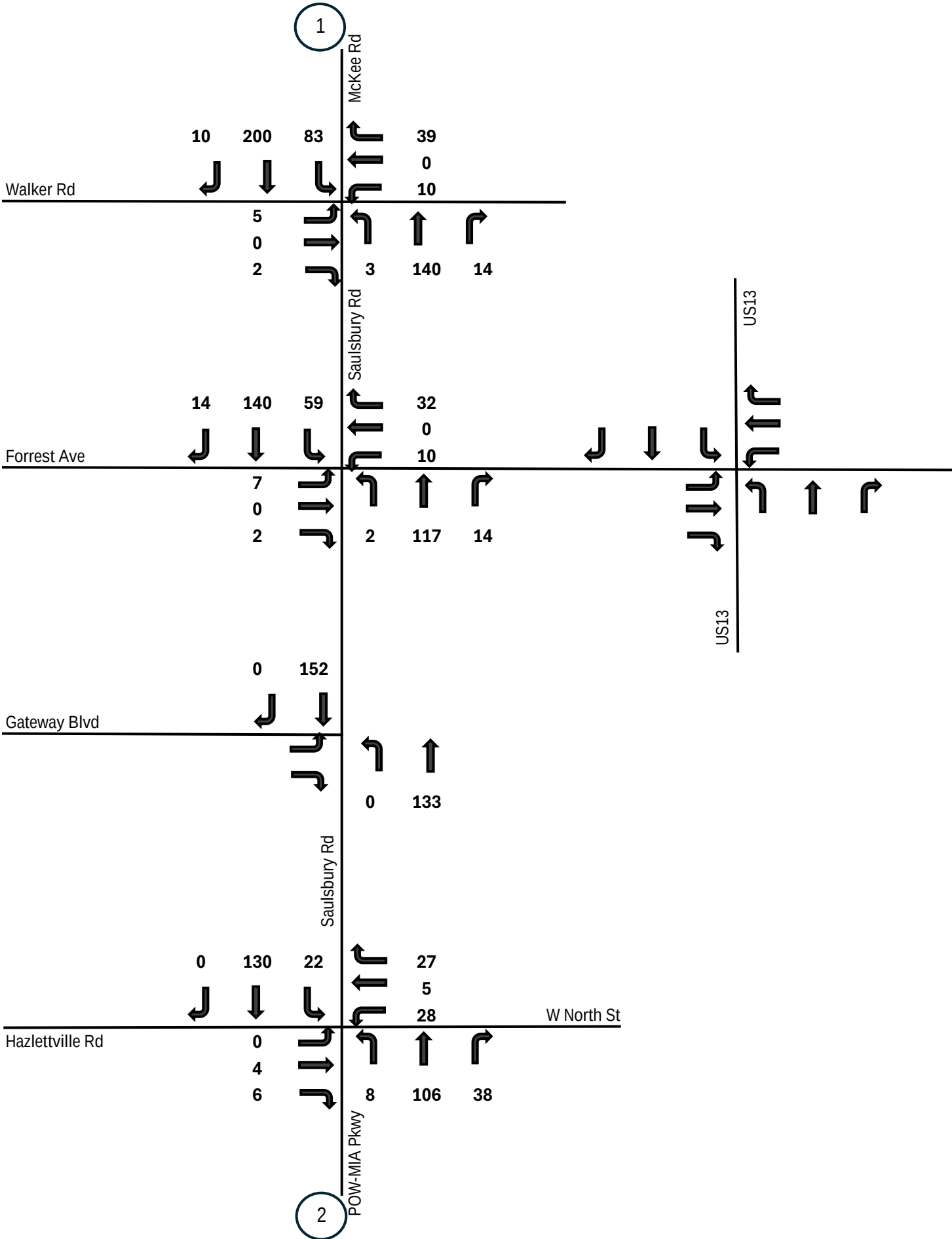
LUC	Description	Unoccupied / Unbuilt	Weekday A.M. Peak Hour			Weekday P.M. Peak Hour		
			In	Out	Total	In	Out	Total
210	Single-Family Detached	52 Units	10	31	41	34	20	54
215	Single-Family Attached	82 Units	9	28	37	27	18	45
220	Multi-Family (Low-Rise)	410 Units	39	125	164	124	73	99
Total Residential			58	184	242	185	111	296
820	Shopping Center (> 150k)	171,310 sq.ft	145	90	235	399	433	832
Total Site Trips			203	274	477	584	544	1128
Internal Capture, Pass-by, External and Primary Trips								
Site Internal Capture Percentage			1%	1%	1%	21%	23%	22%
Site Internal Capture Trips			-3	-3	-6	-125	-125	-250
Site External Trips			200	271	471	459	419	878
Pass-by Trips Percentage			0%	0%	0%	34%	34%	34%
Pass-by Trips			0	0	0	156	143	299
Total Site Primary Trips			200	271	471	303	276	579

Appendix C: Proposed & Committed Developments' Trip Assignment Figures

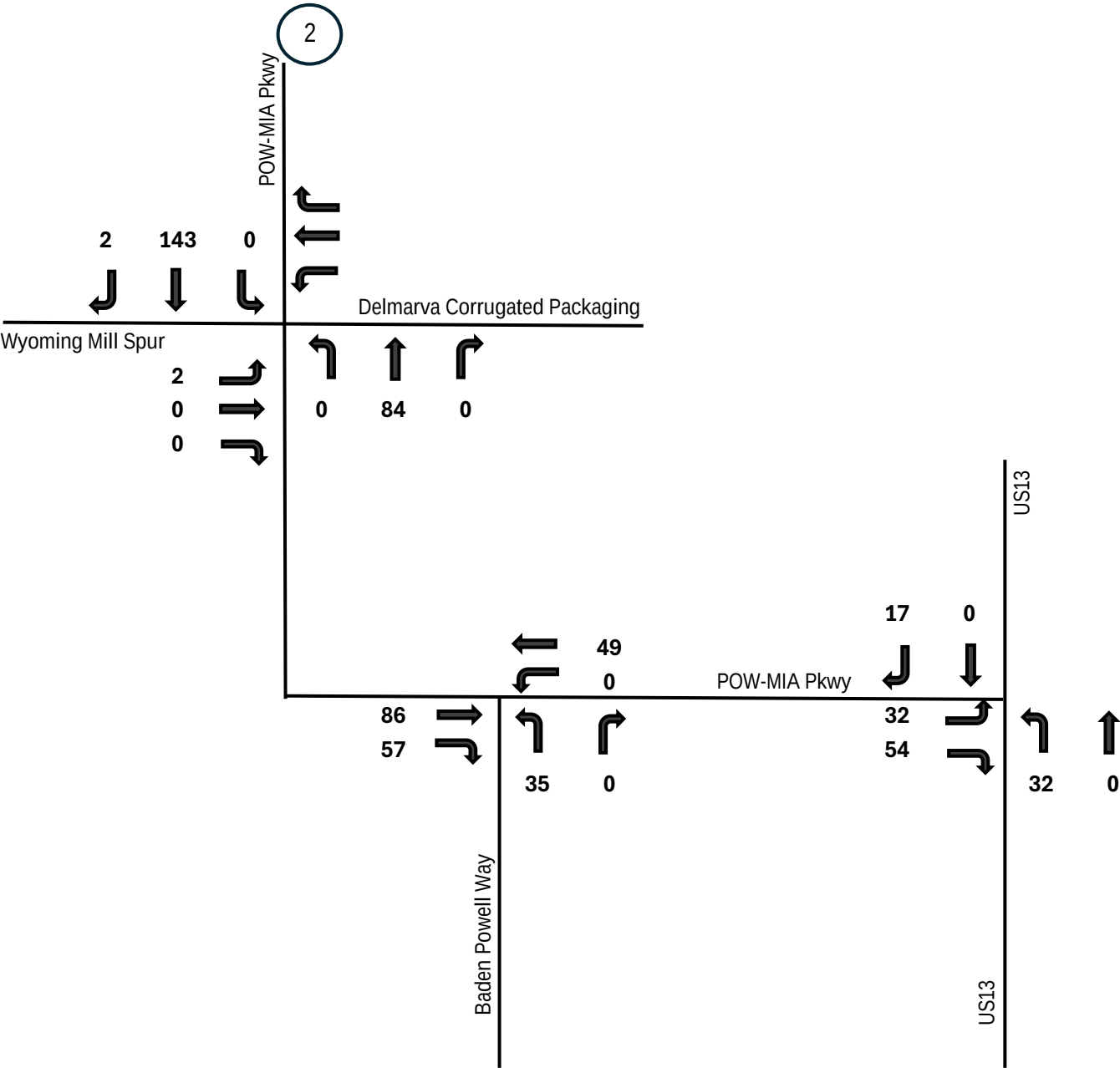
Committed Development Total AM Peak Trip Assignment



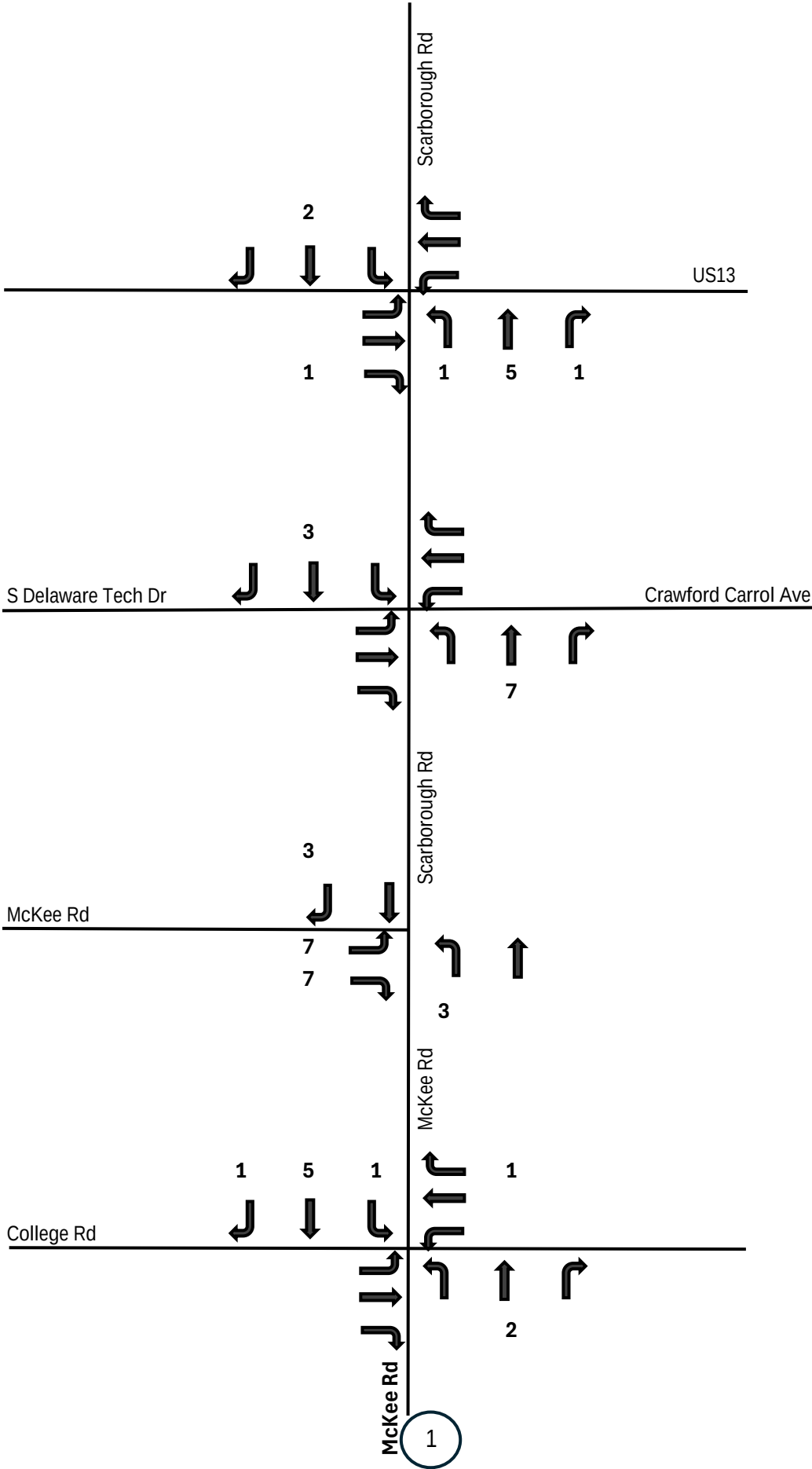
Committed Development Total AM Peak Trip Assignment



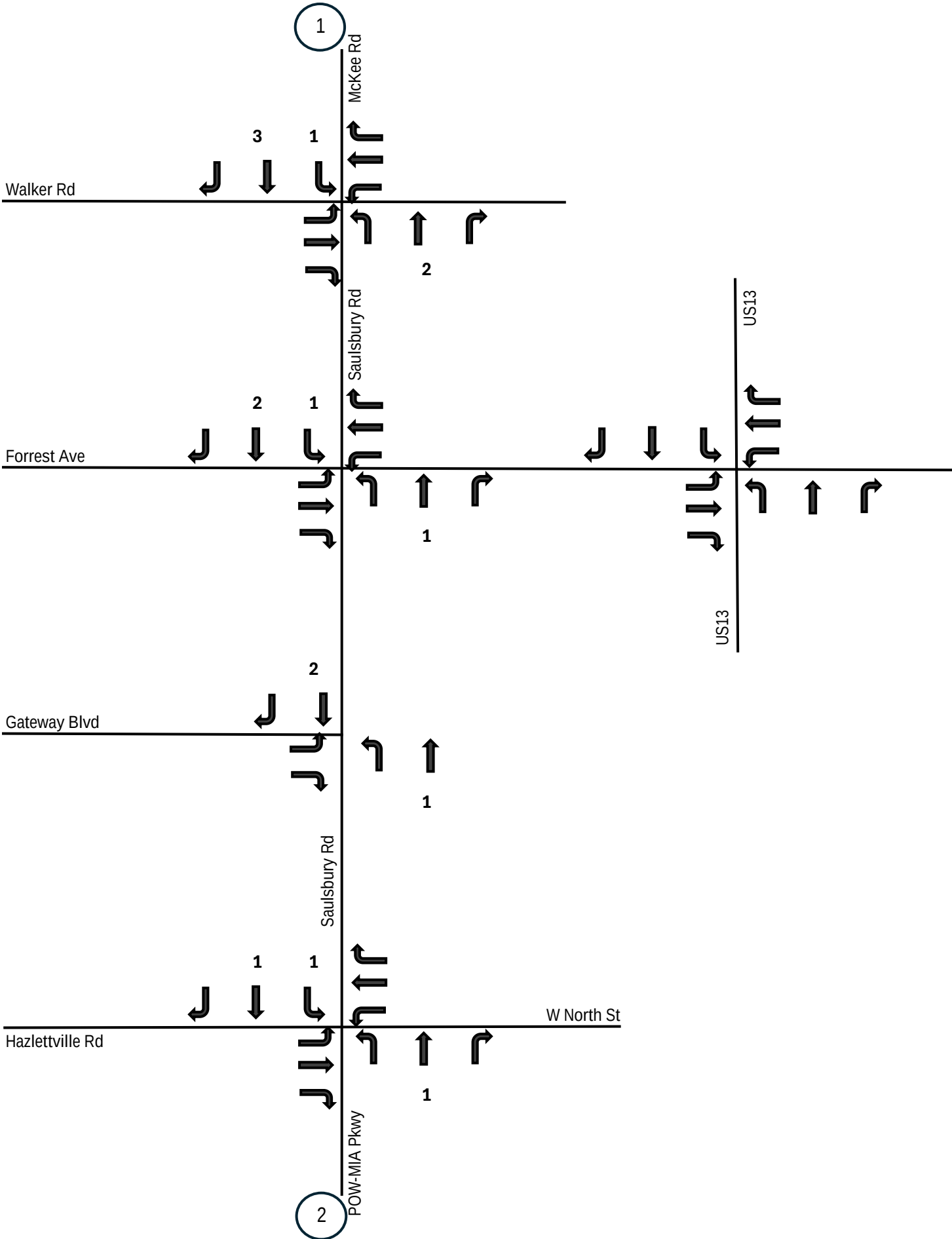
Committed Development Total AM Peak Trip Assignment



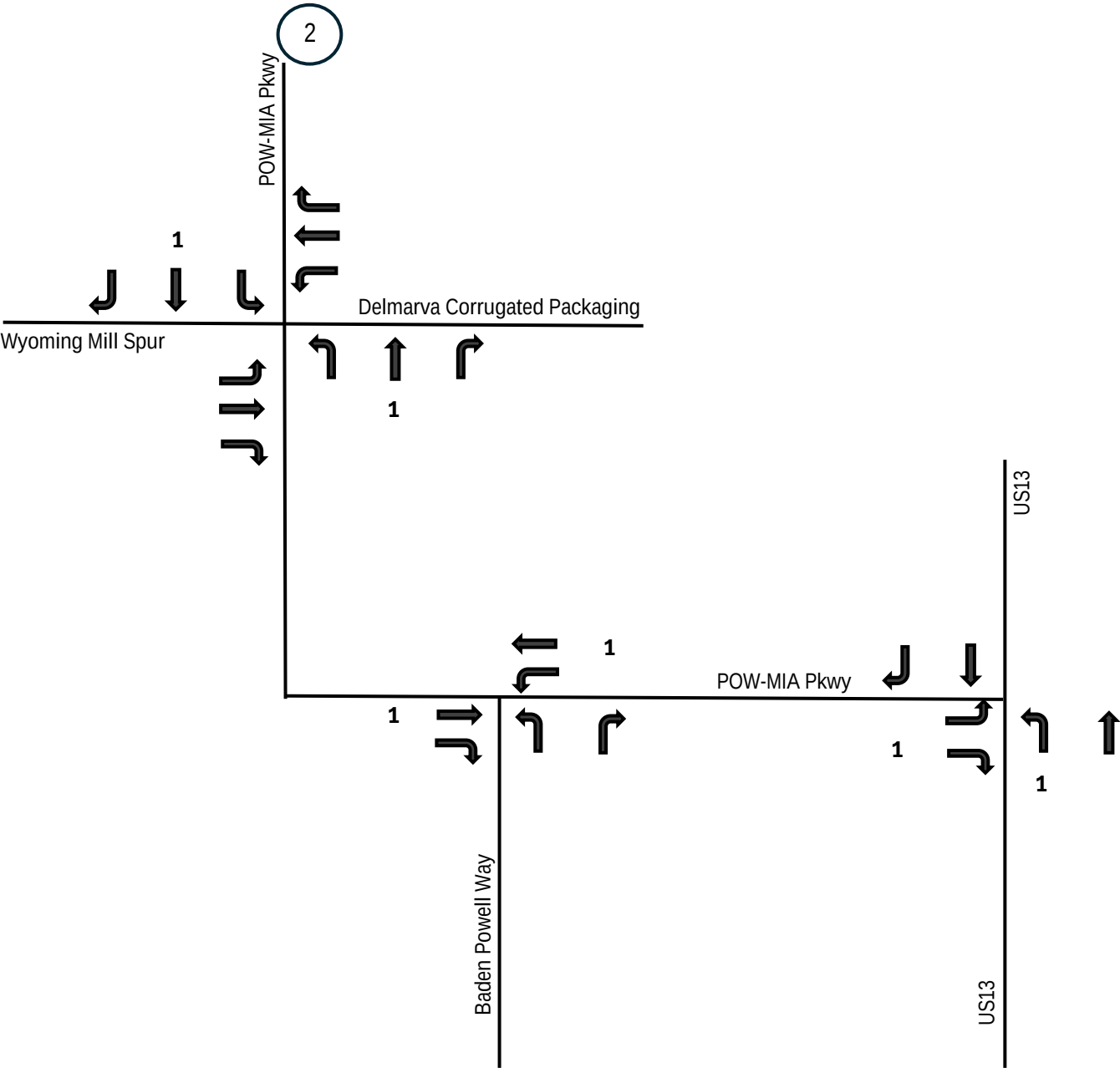
Maidstone Development AM Peak Trip Assignment



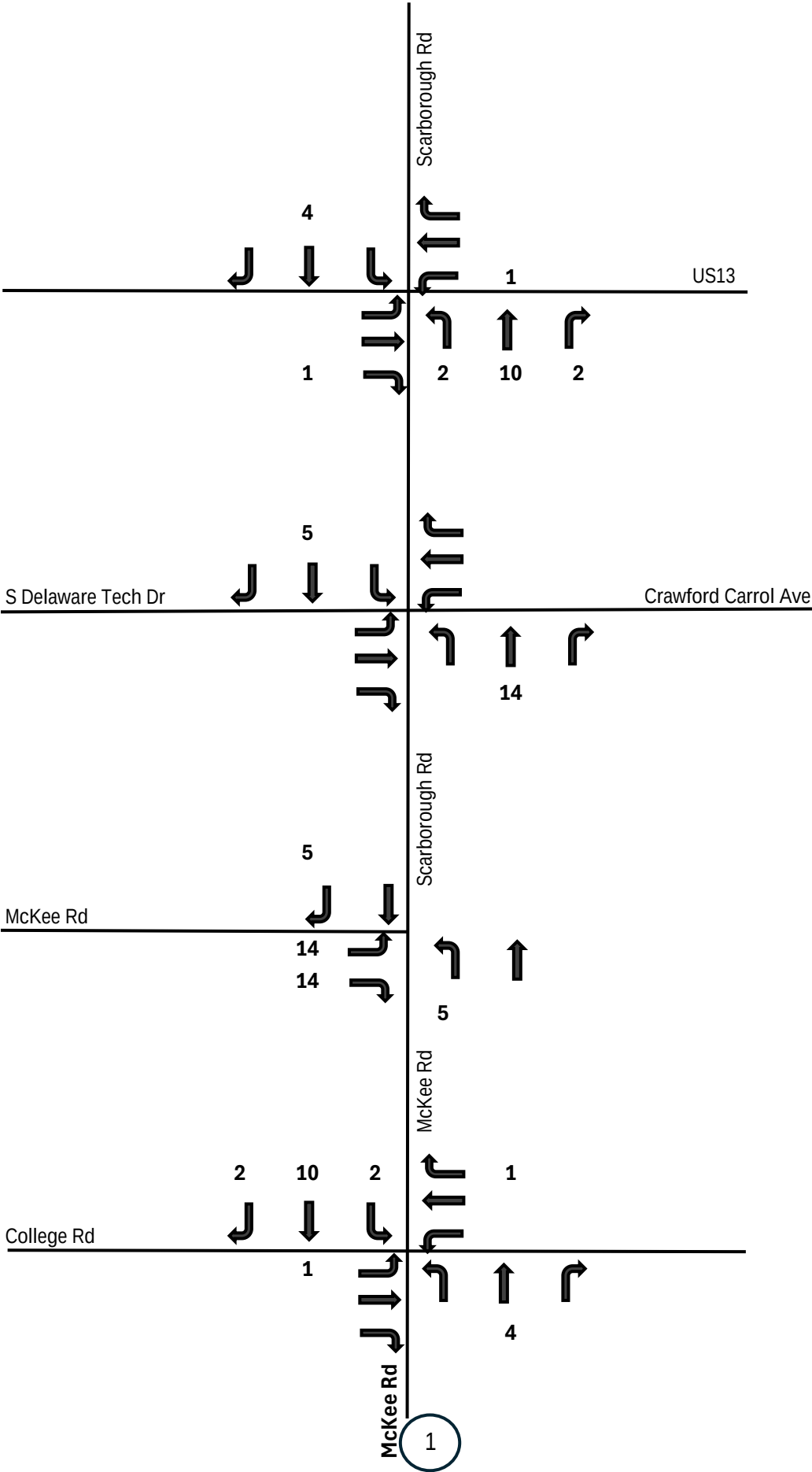
Maidstone Development AM Peak Trip Assignment



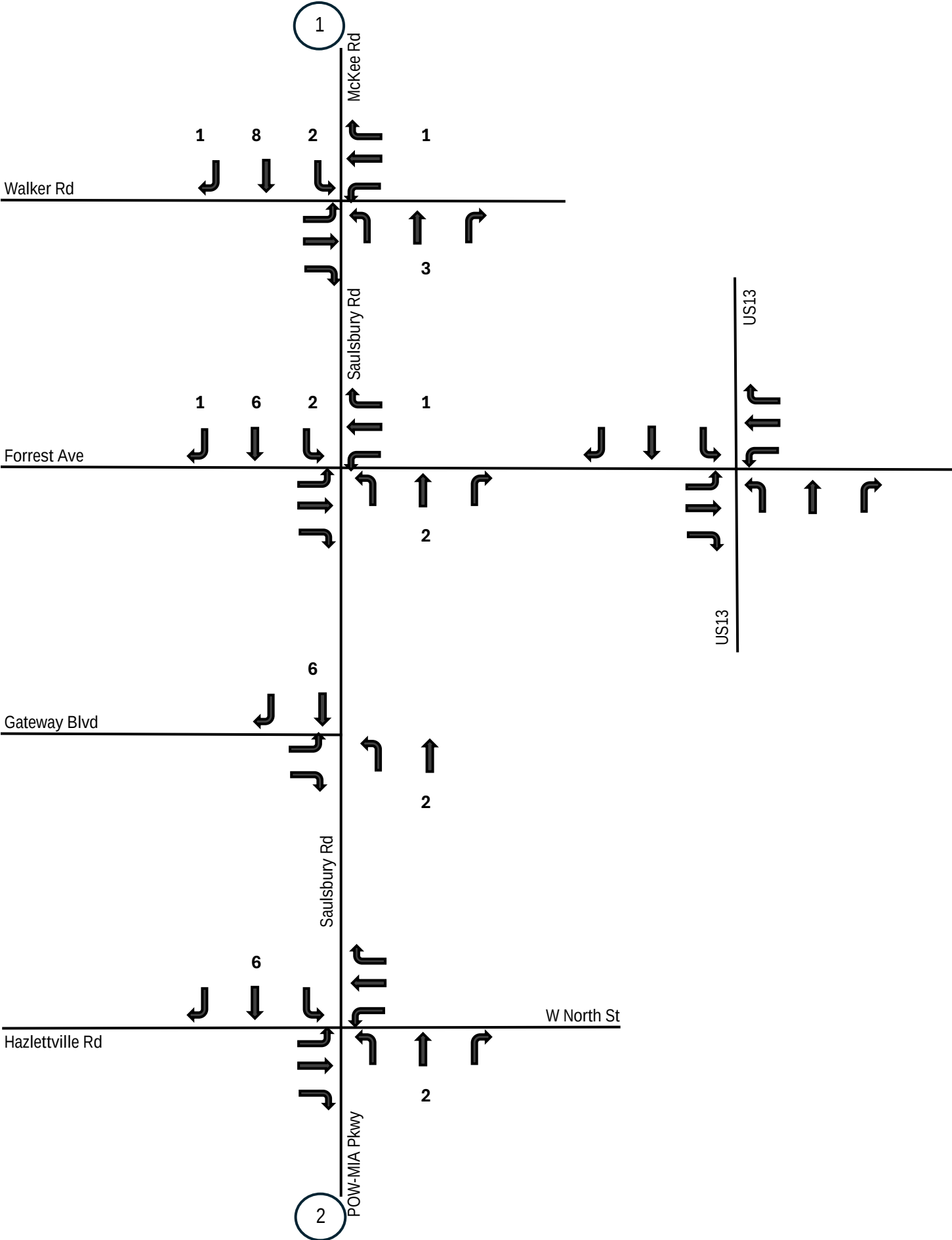
Maidstone Development AM Peak Trip Assignment



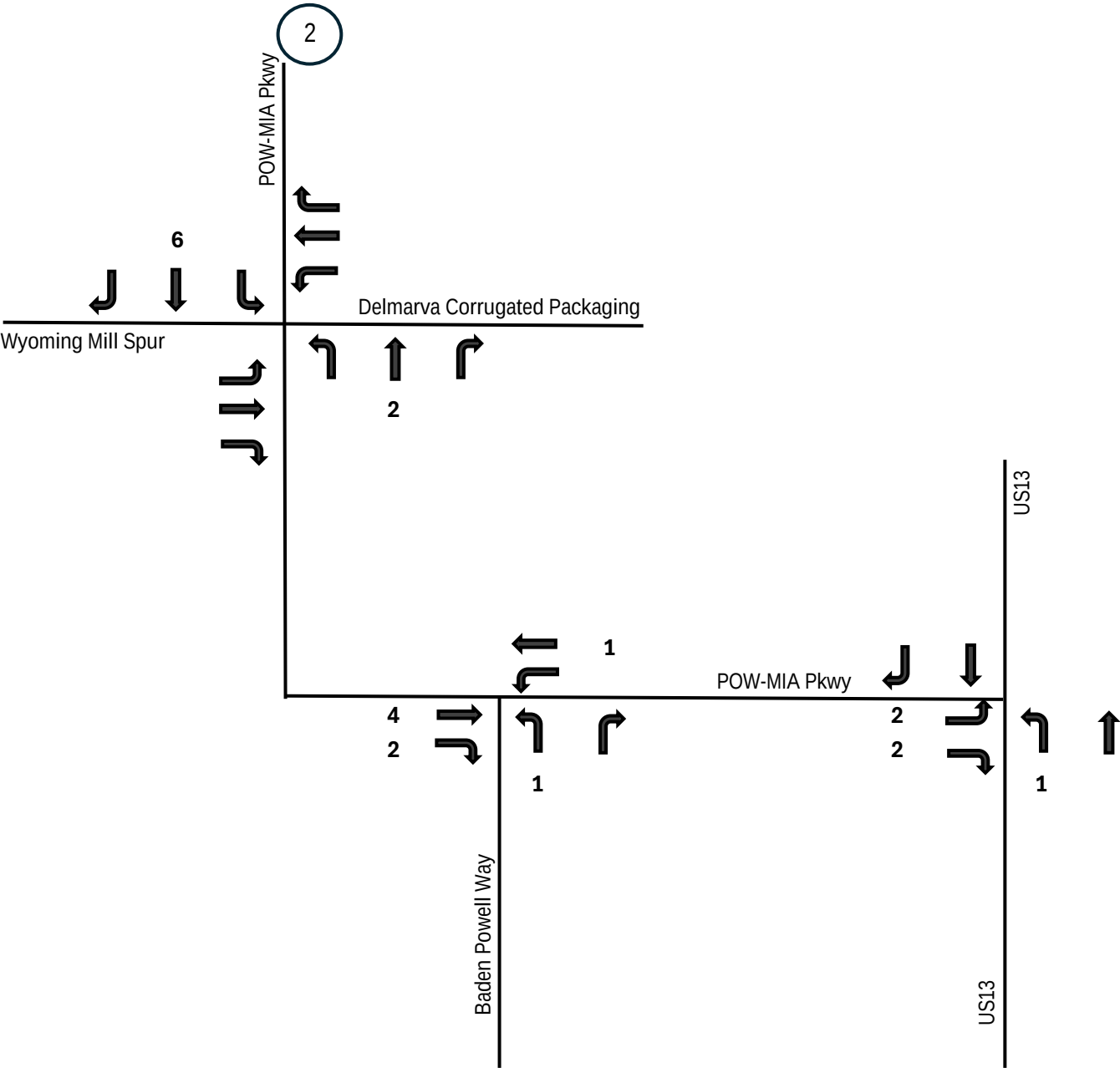
Stonebrook West Development AM Peak Trip Assignment



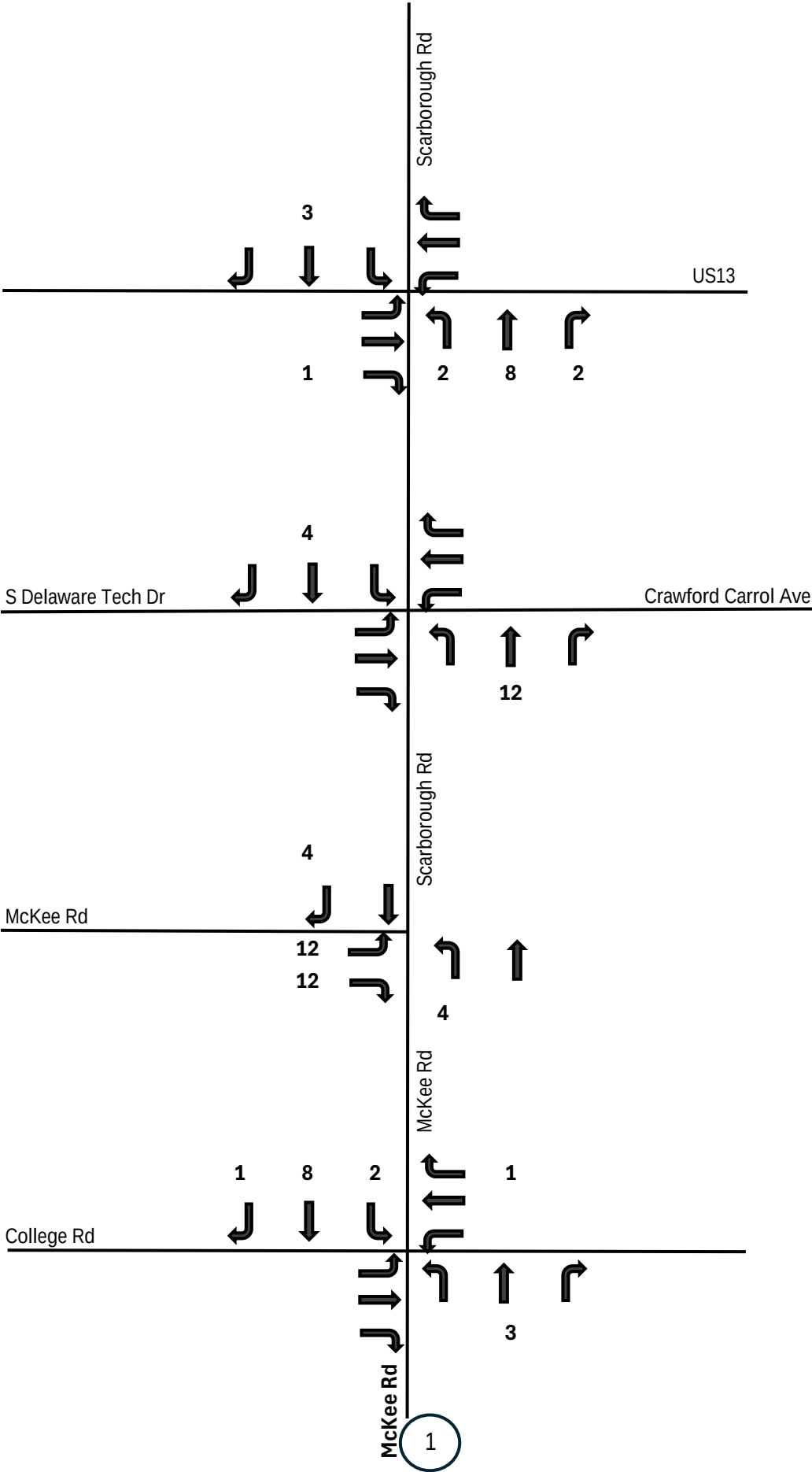
Stonebrook West Development AM Peak Trip Assignment



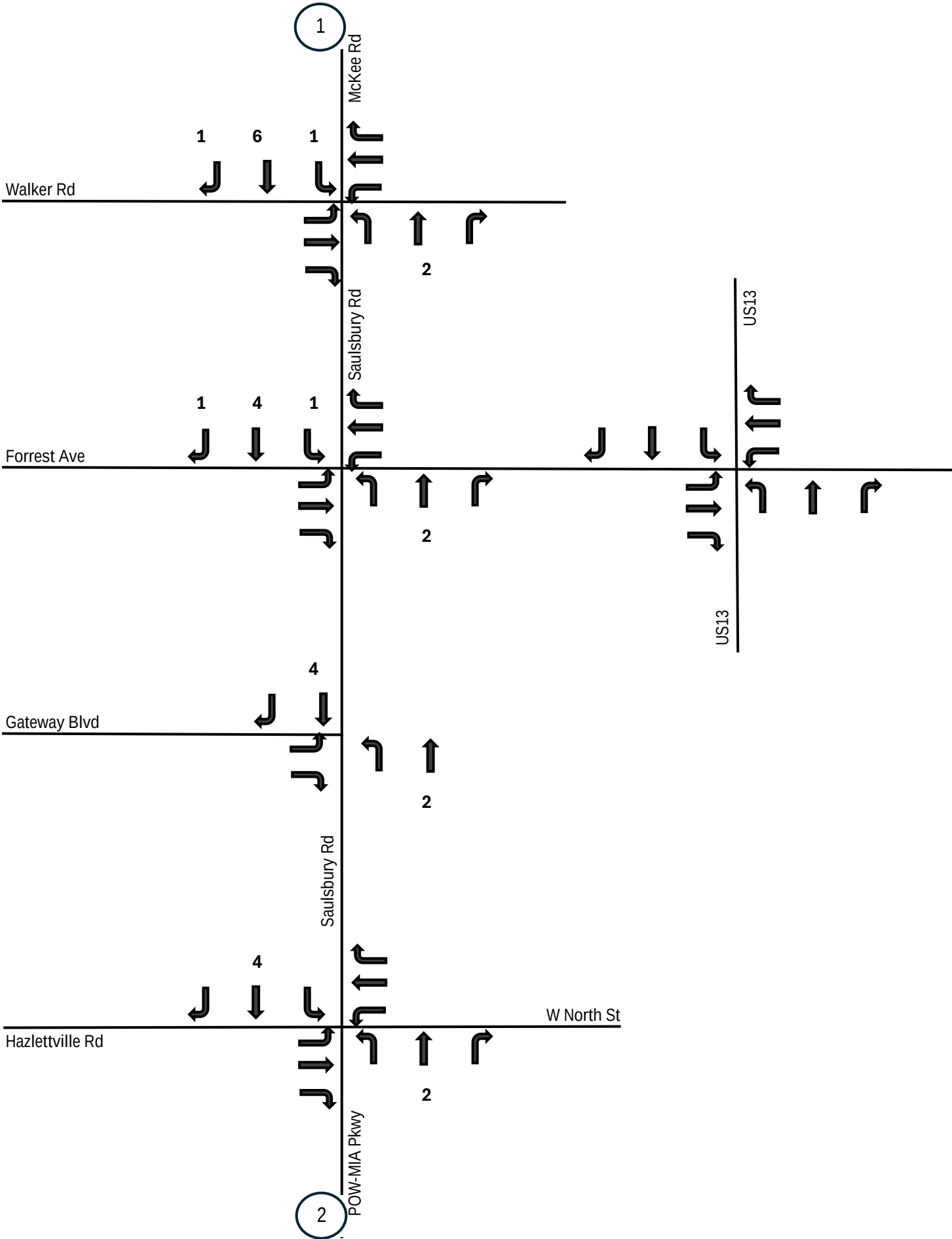
Stonebrook West Development AM Peak Trip Assignment



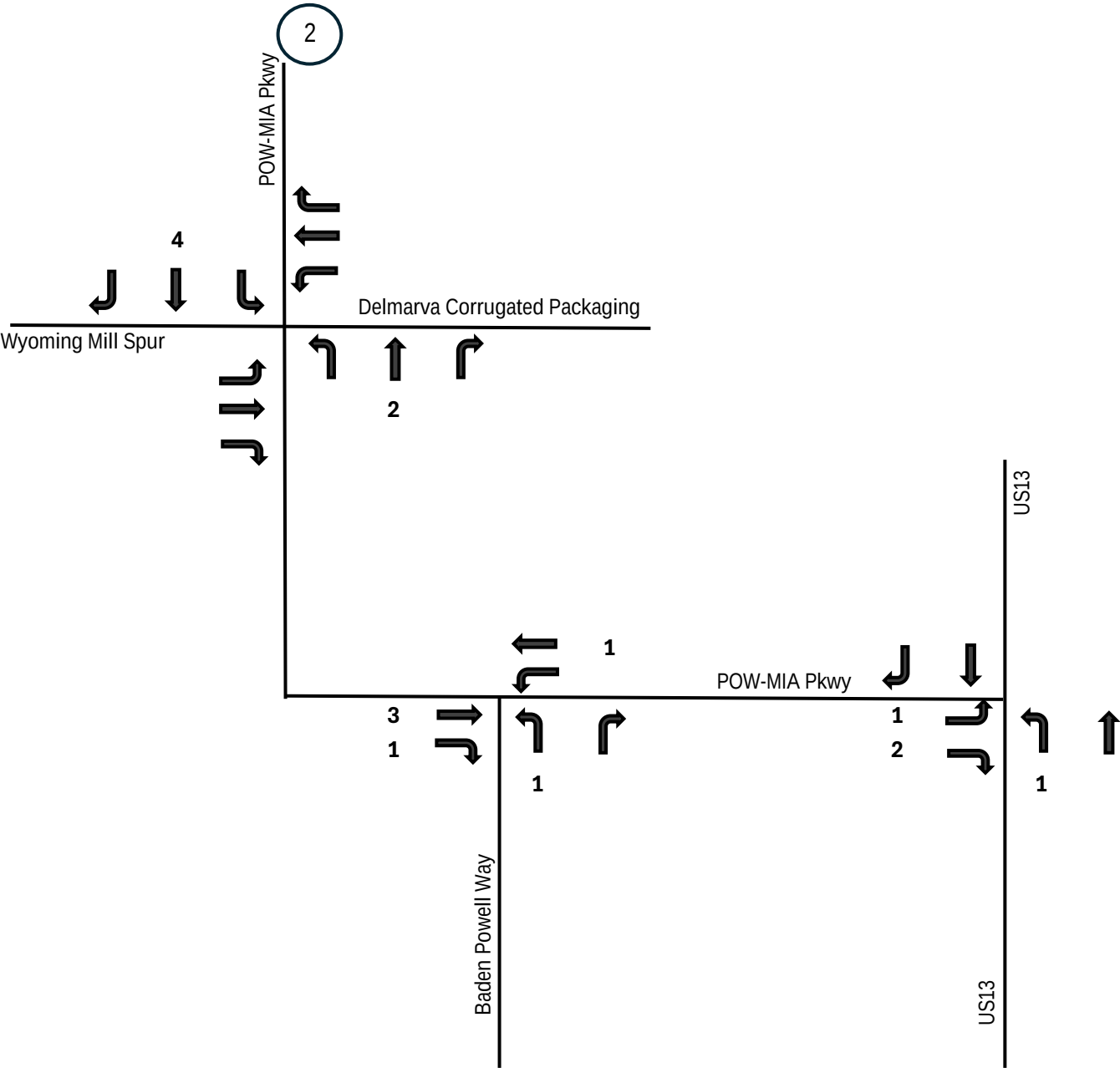
Stonebrook East Development AM Peak Trip Assignment



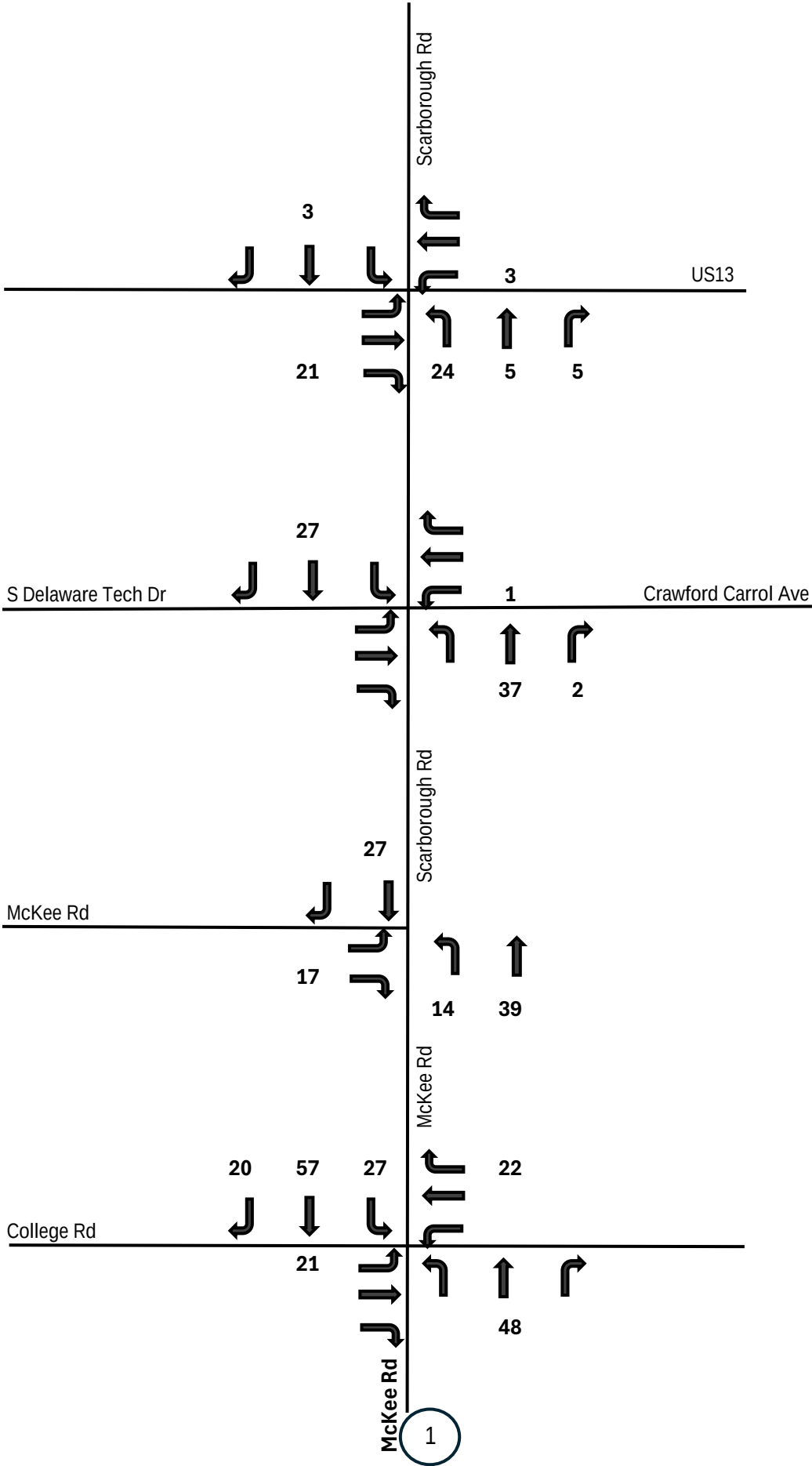
Stonebrook East Development AM Peak Trip Assignment



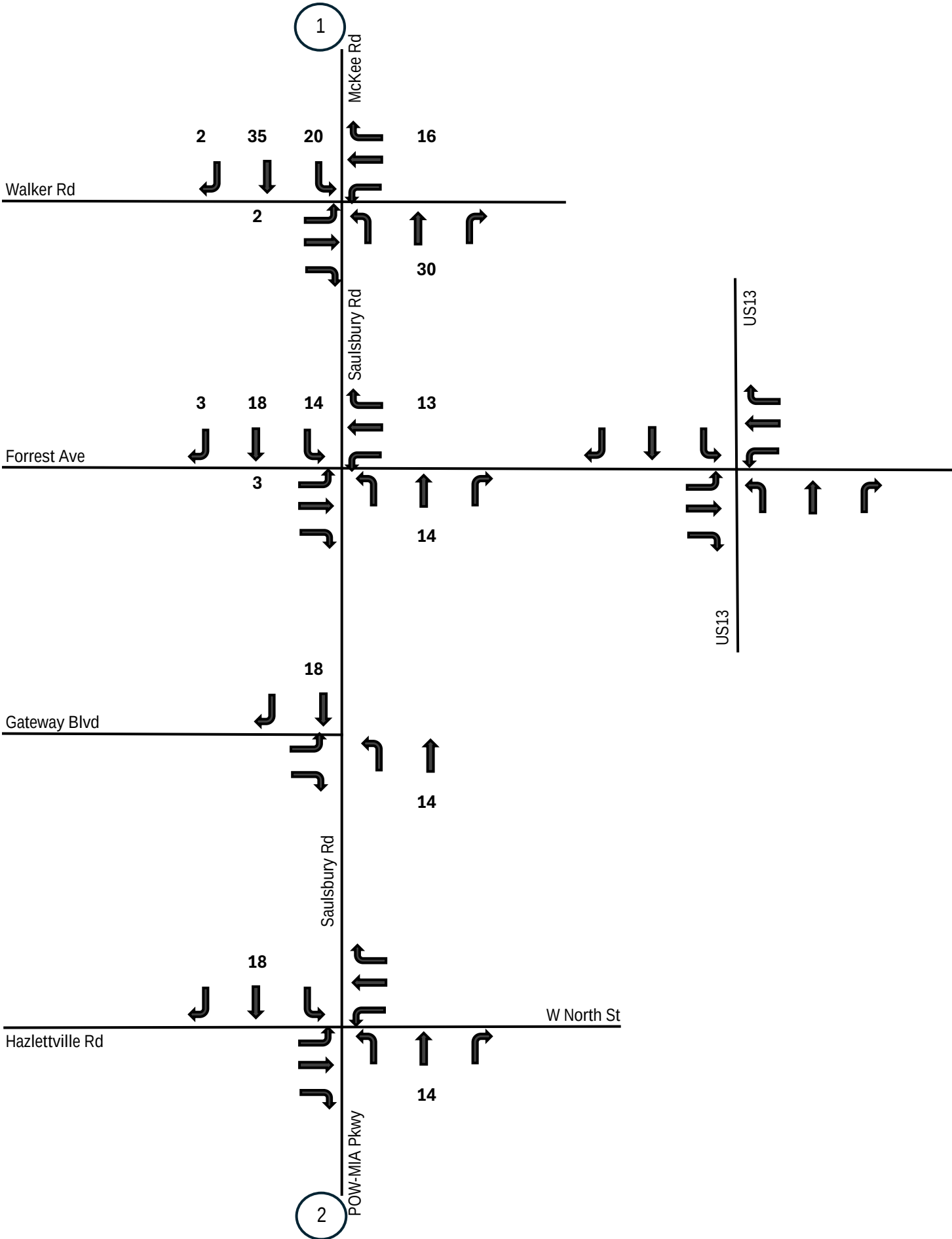
Stonebrook East Development AM Peak Trip Assignment



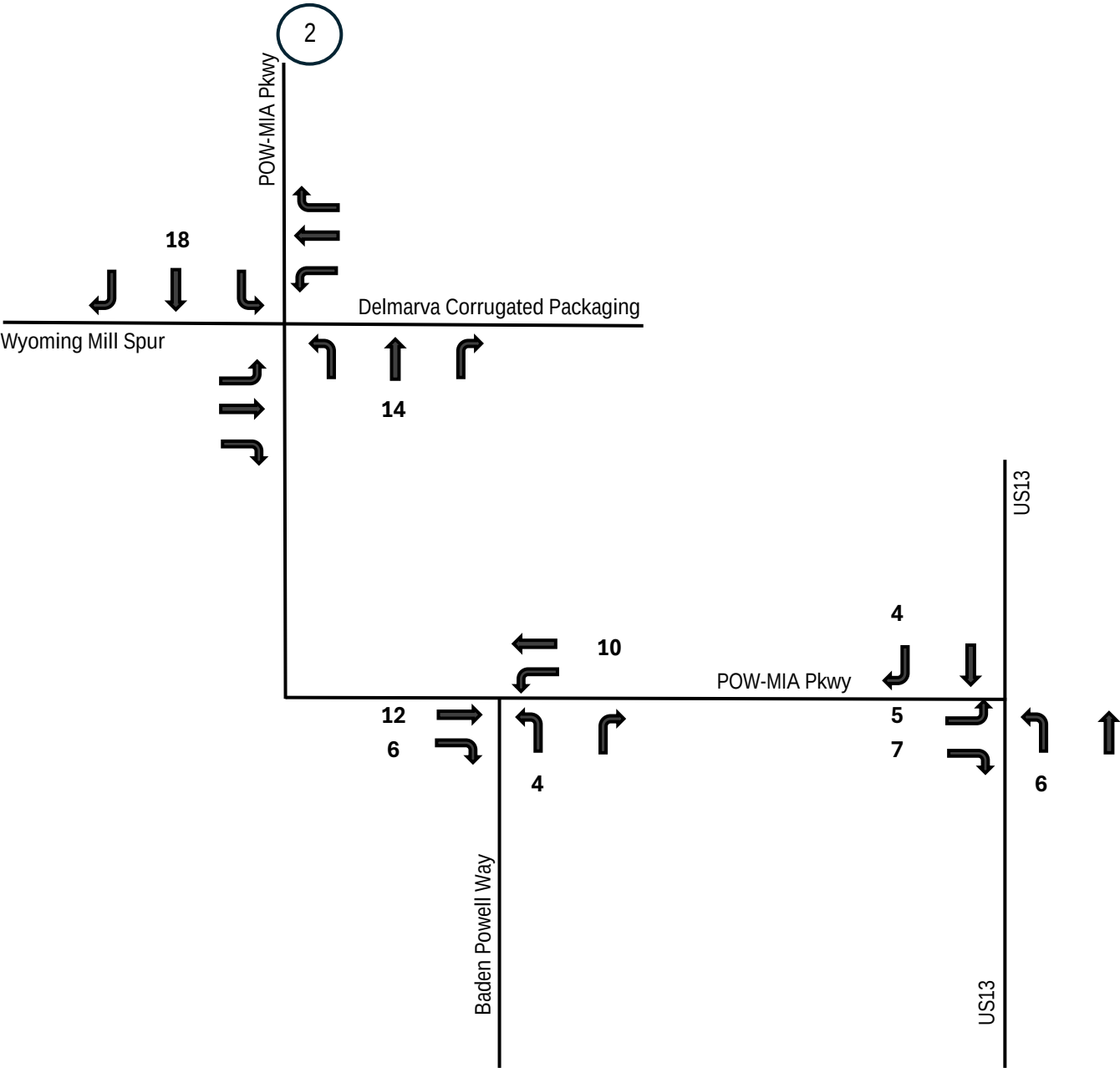
McKee Road Apartments Development AM Peak Trip Assignment



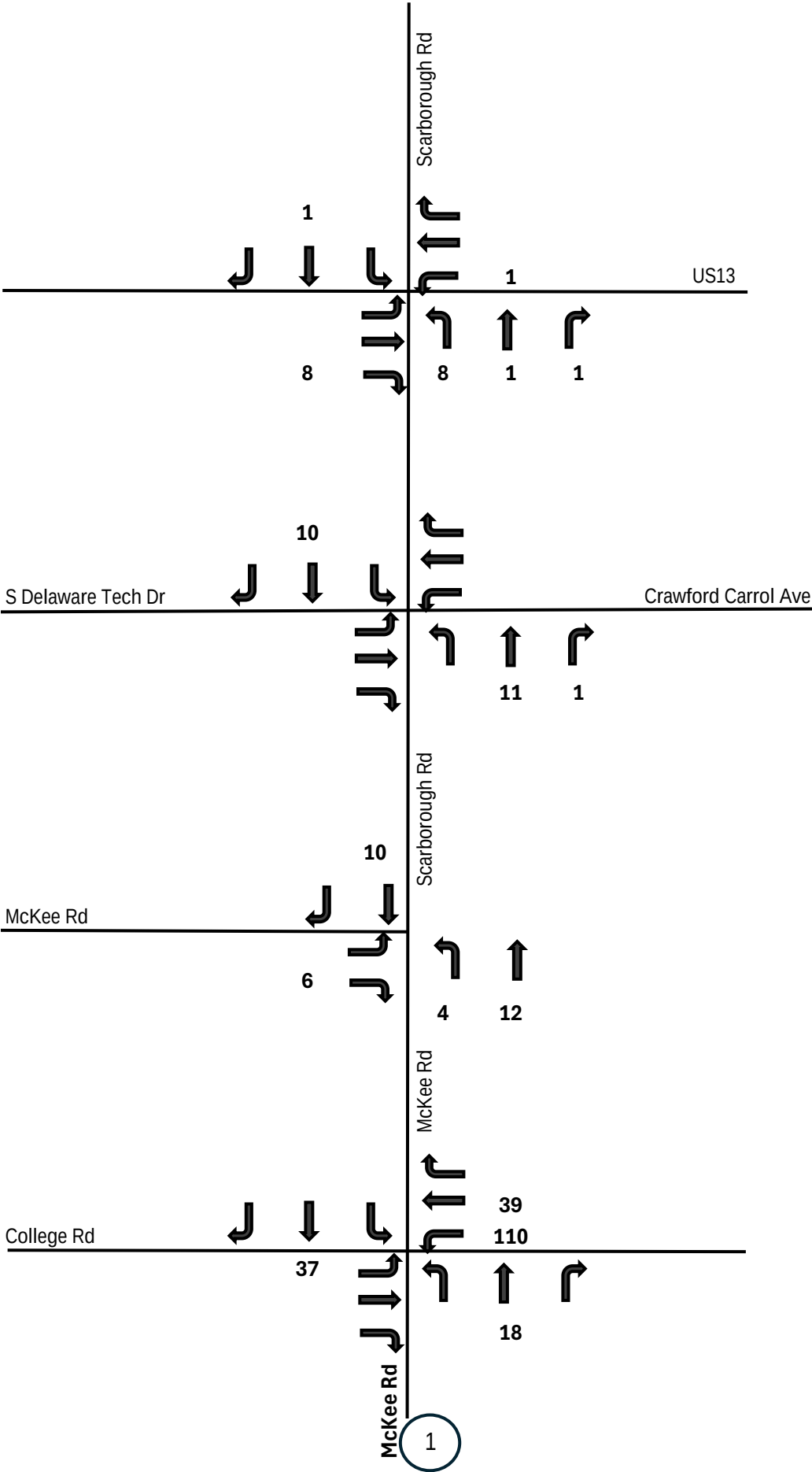
McKee Road Apartments Development AM Peak Trip Assignment



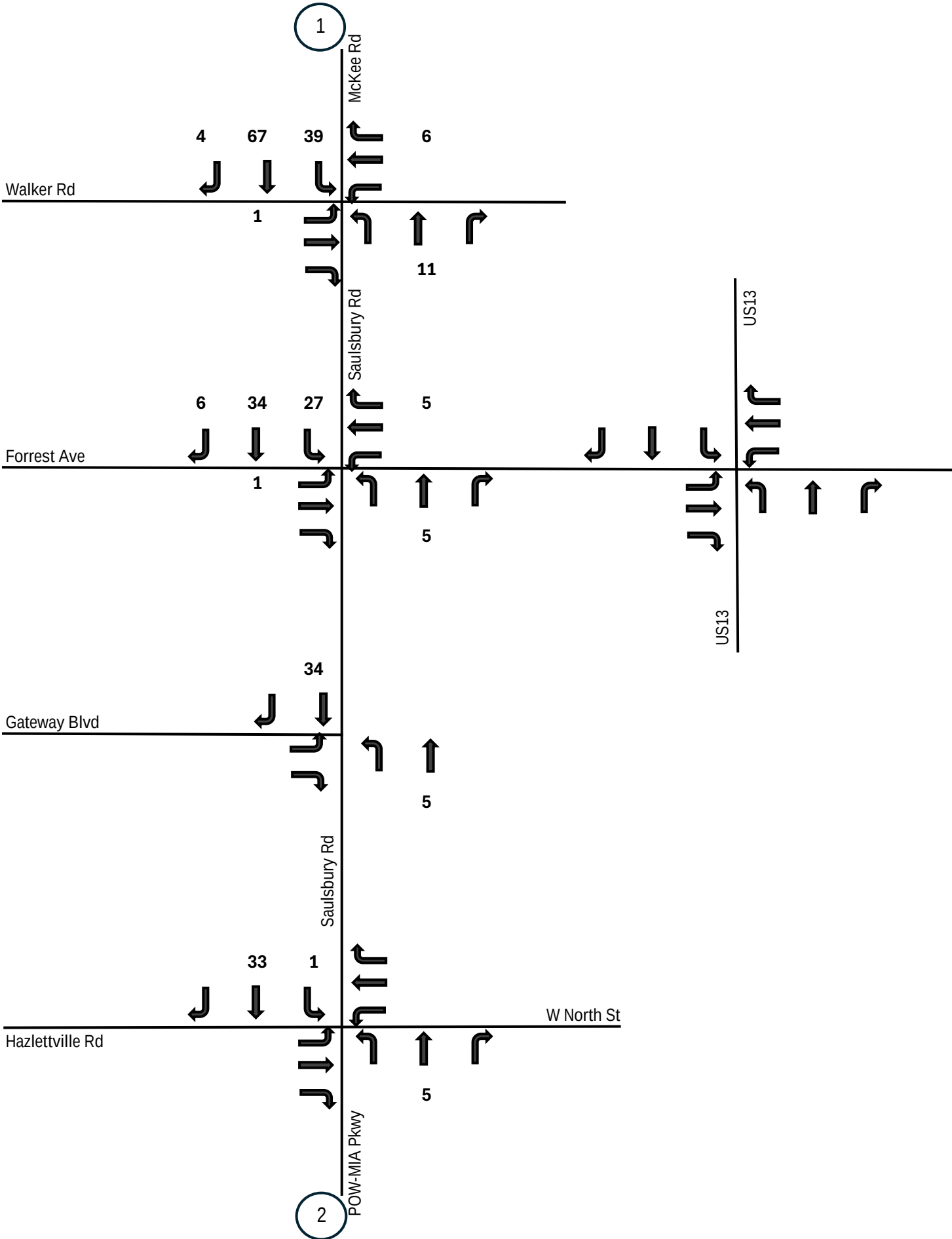
McKee Road Apartments Development AM Peak Trip Assignment



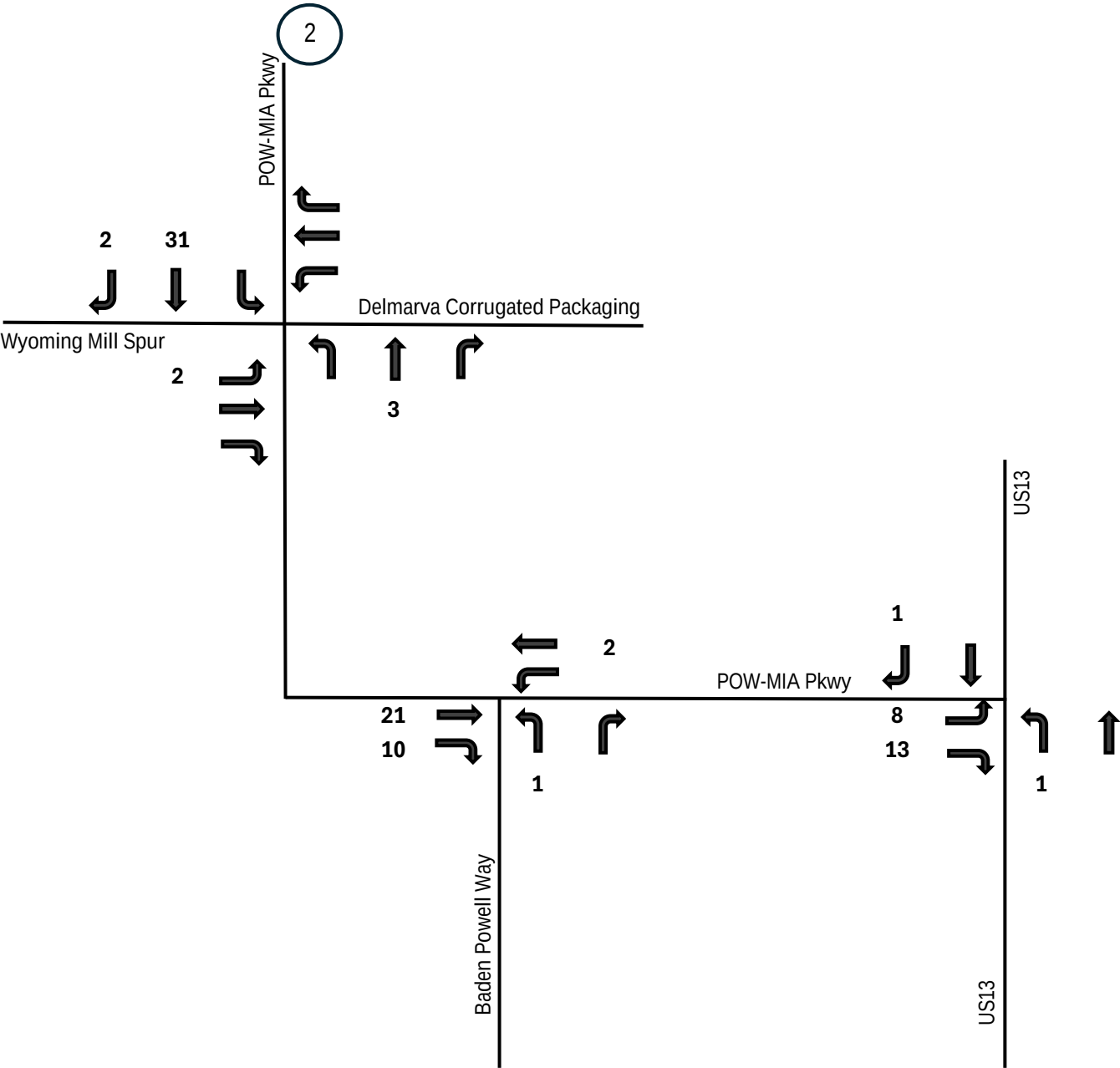
Royal Farms #436 Development AM Peak Trip Assignment



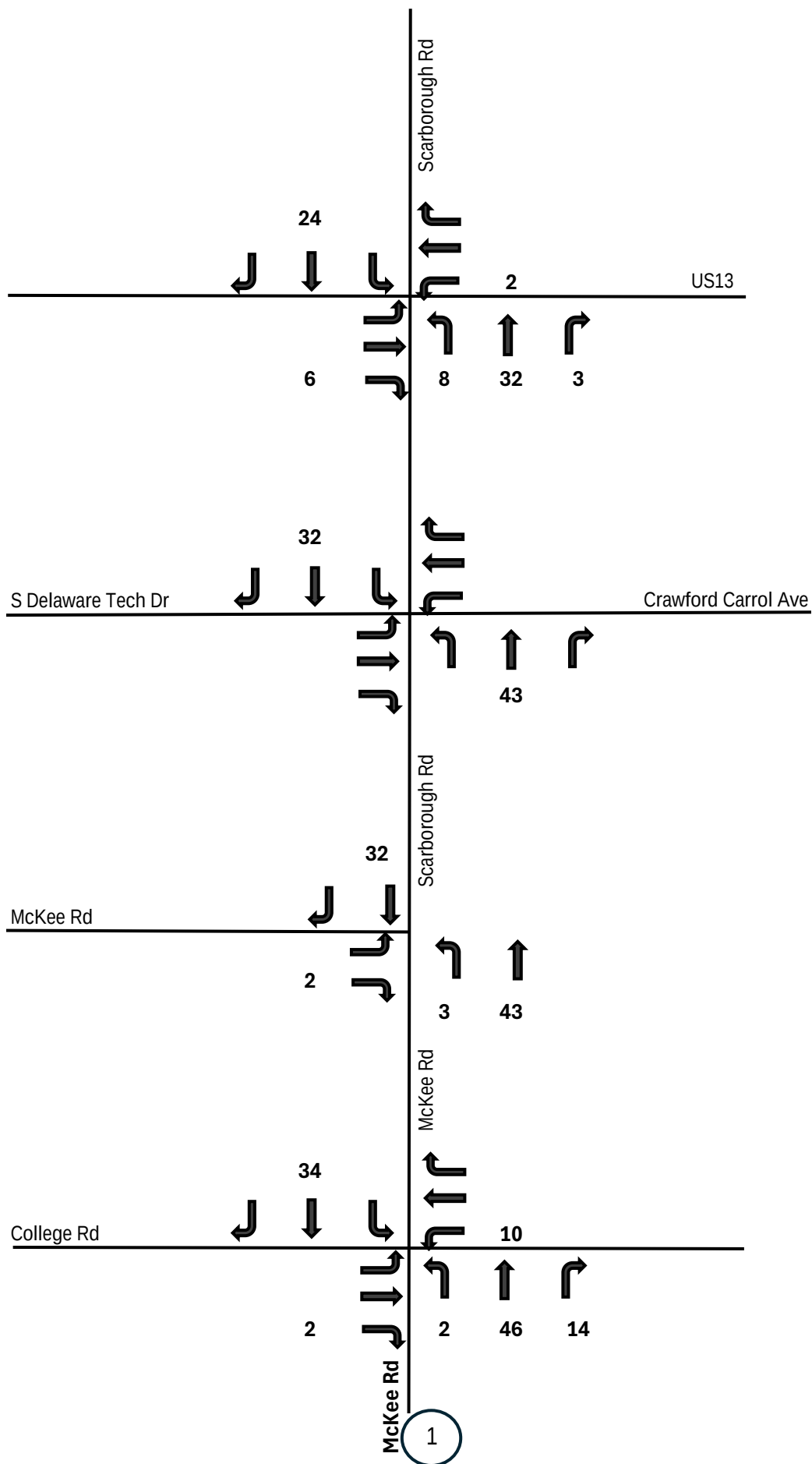
Royal Farms #436 Development AM Peak Trip Assignment



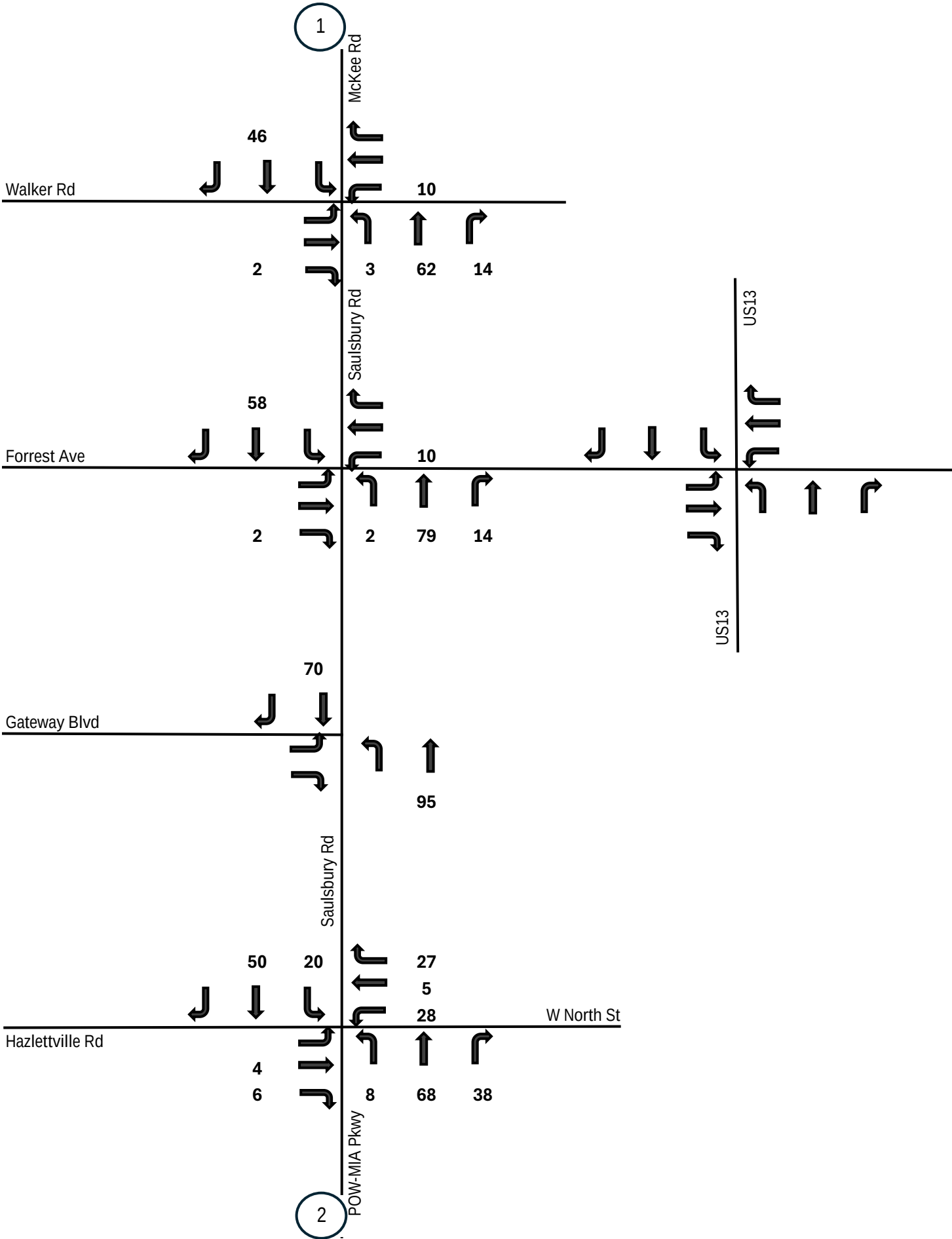
Royal Farms #436 Development AM Peak Trip Assignment



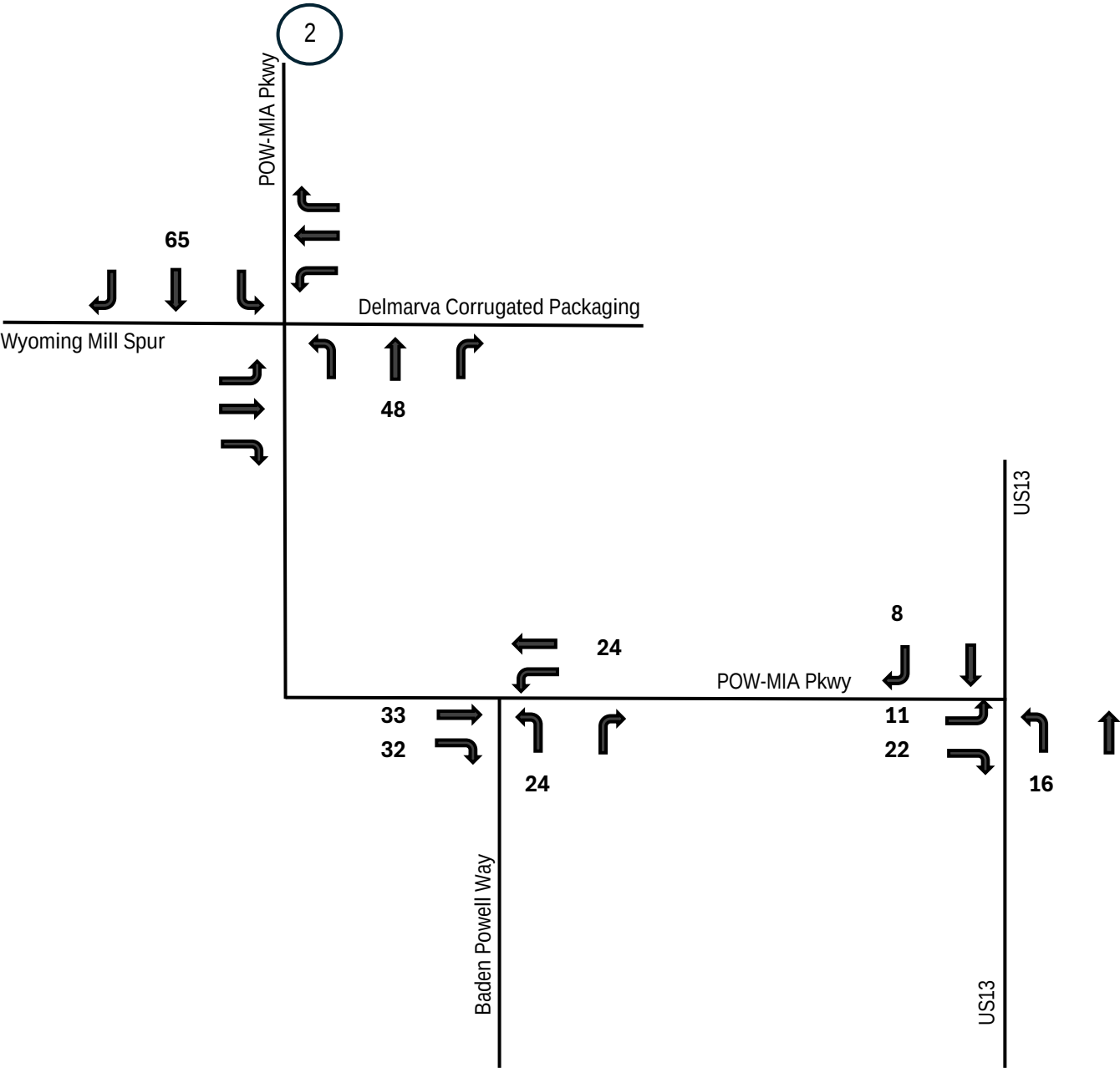
Eden Hill Development AM Peak Trip Assignment



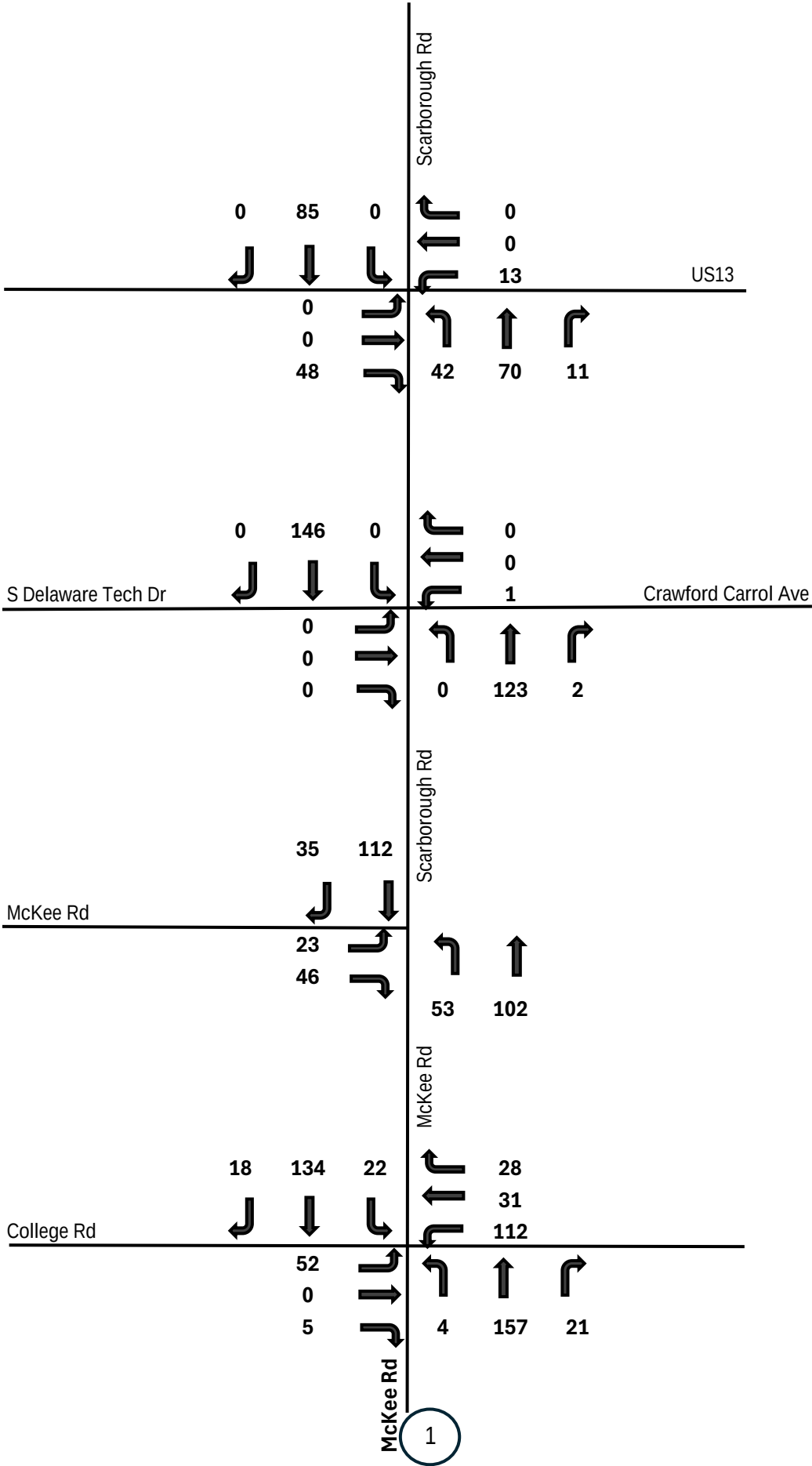
Eden Hill Development AM Peak Trip Assignment



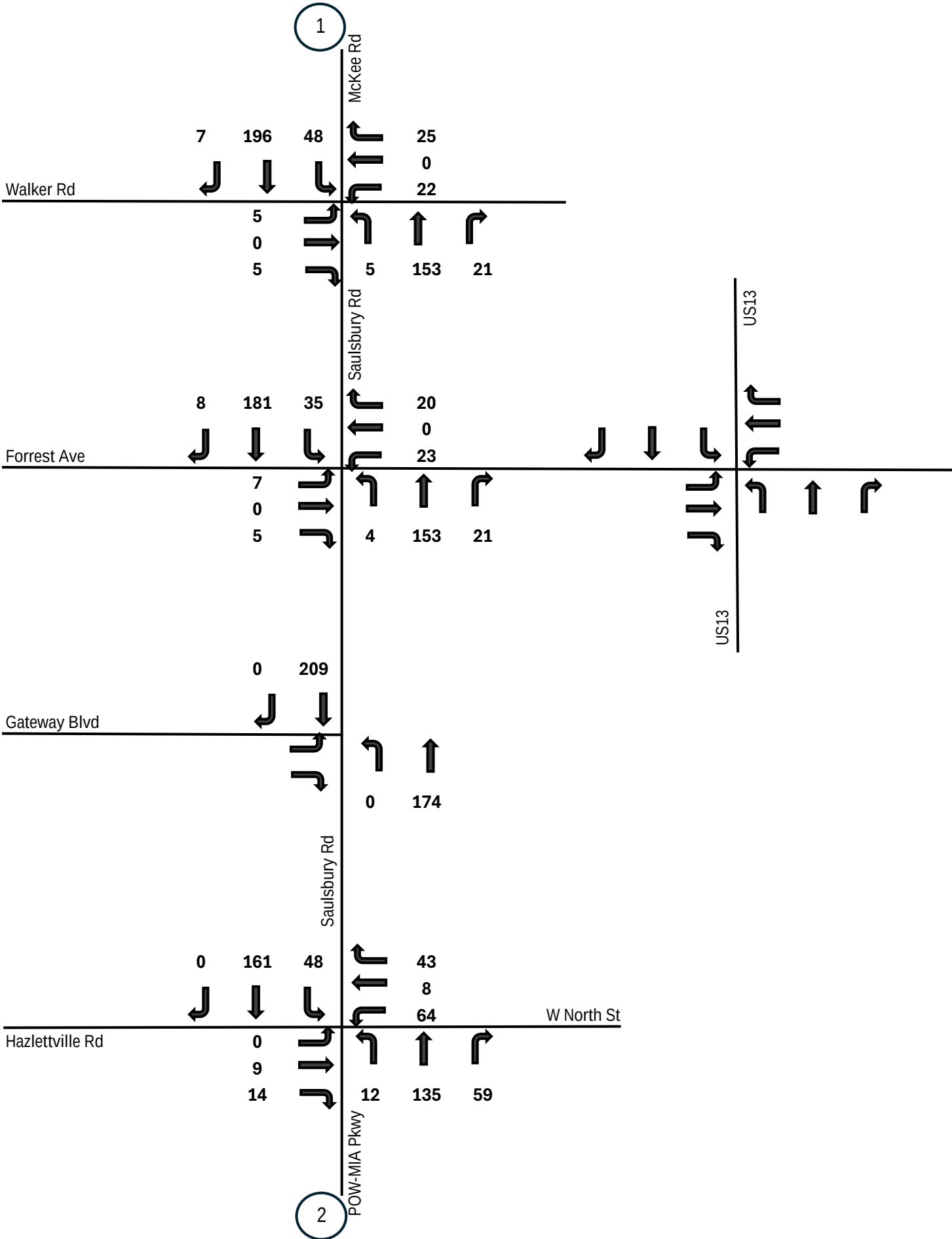
Eden Hill Development AM Peak Trip Assignment



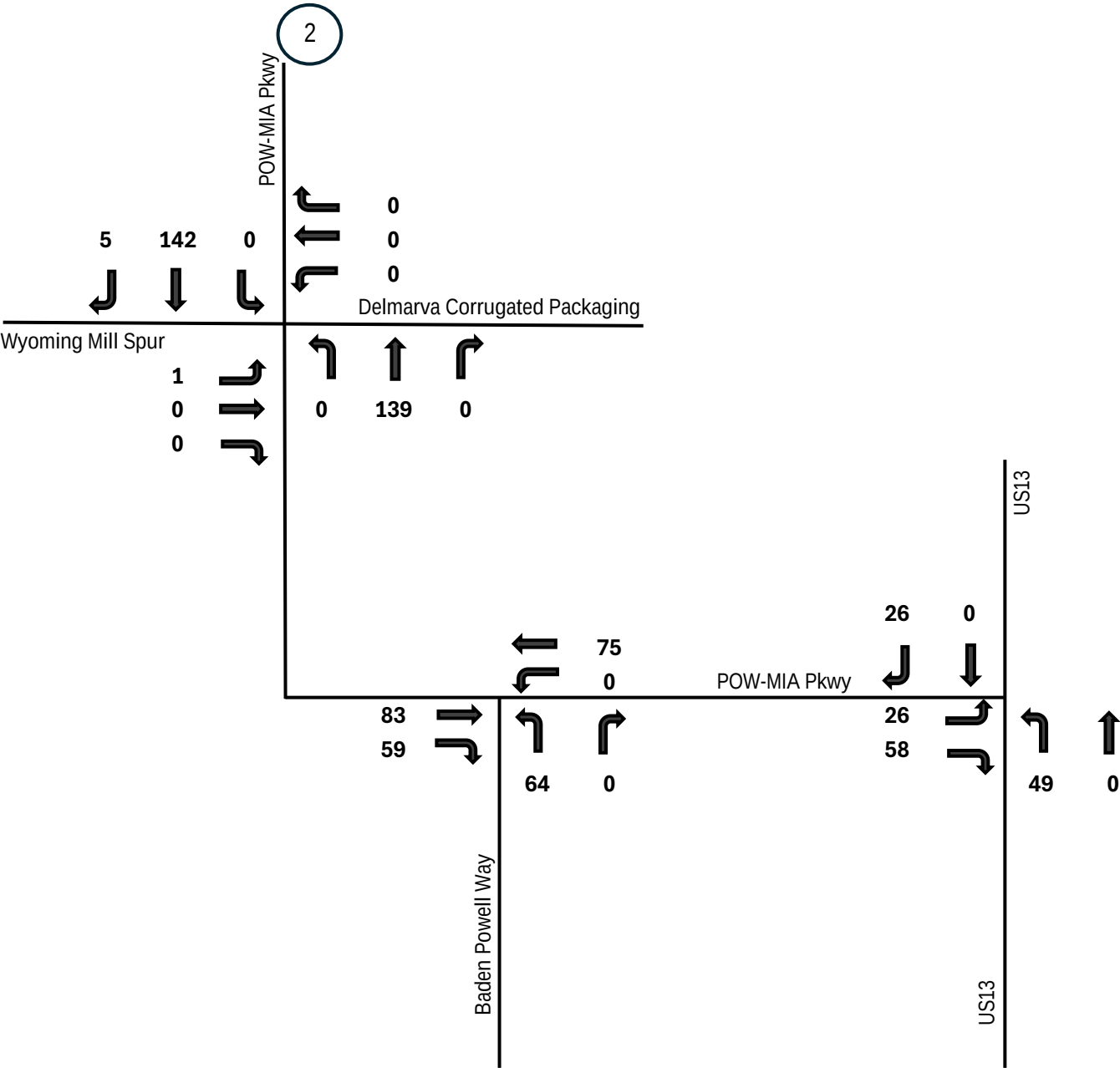
Committed Development Total PM Peak Trip Assignment



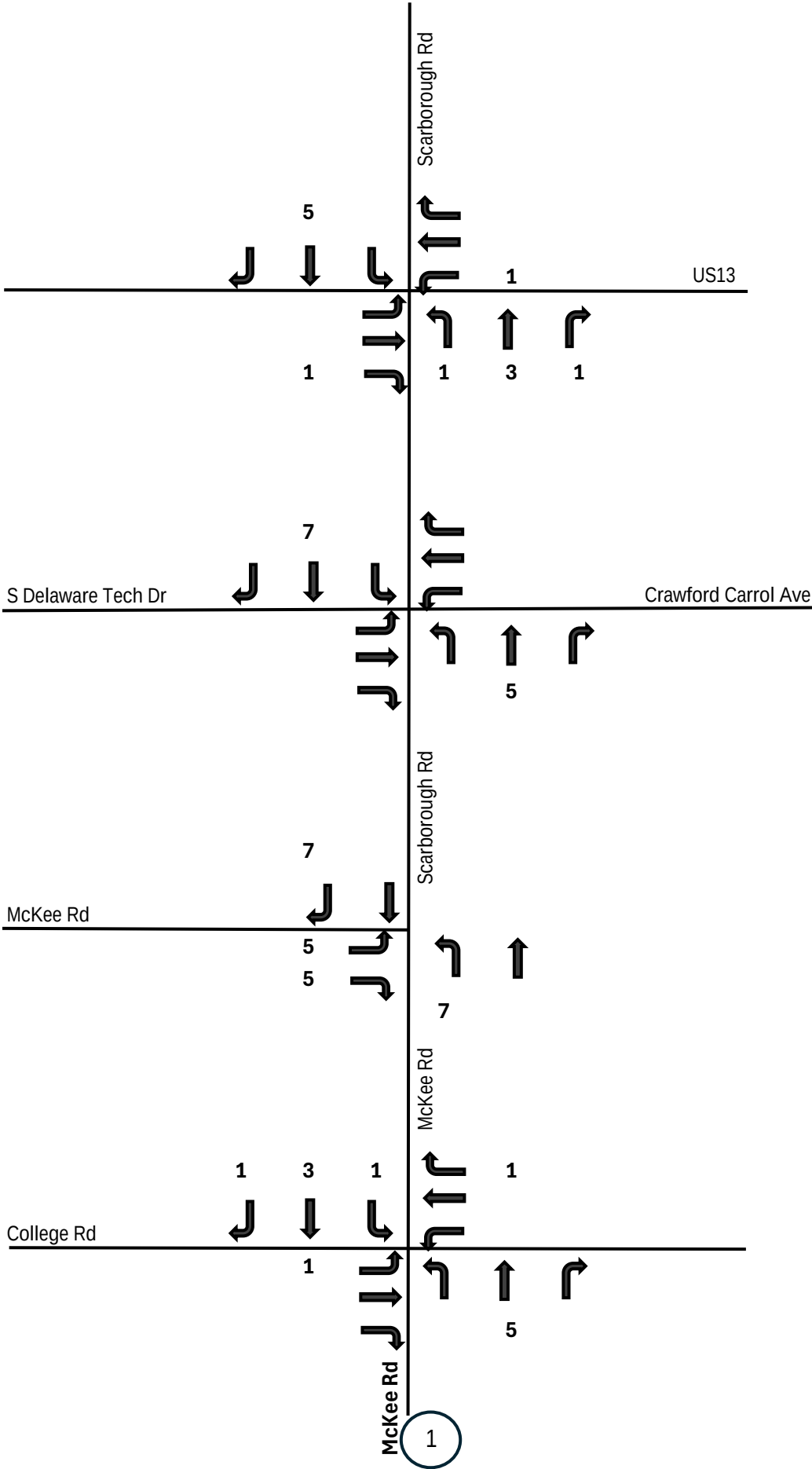
Committed Development Total PM Peak Trip Assignment



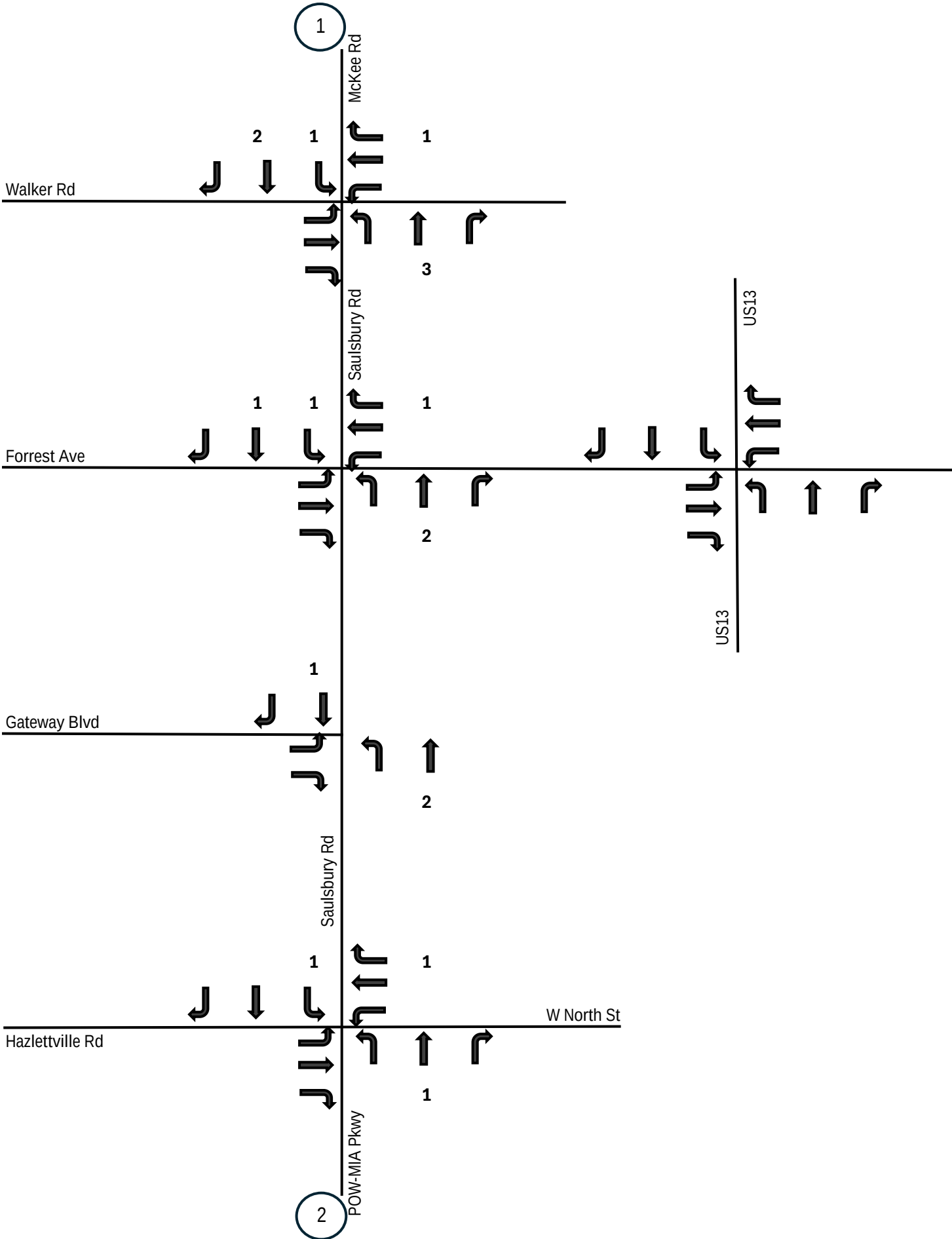
Committed Development Total PM Peak Trip Assignment

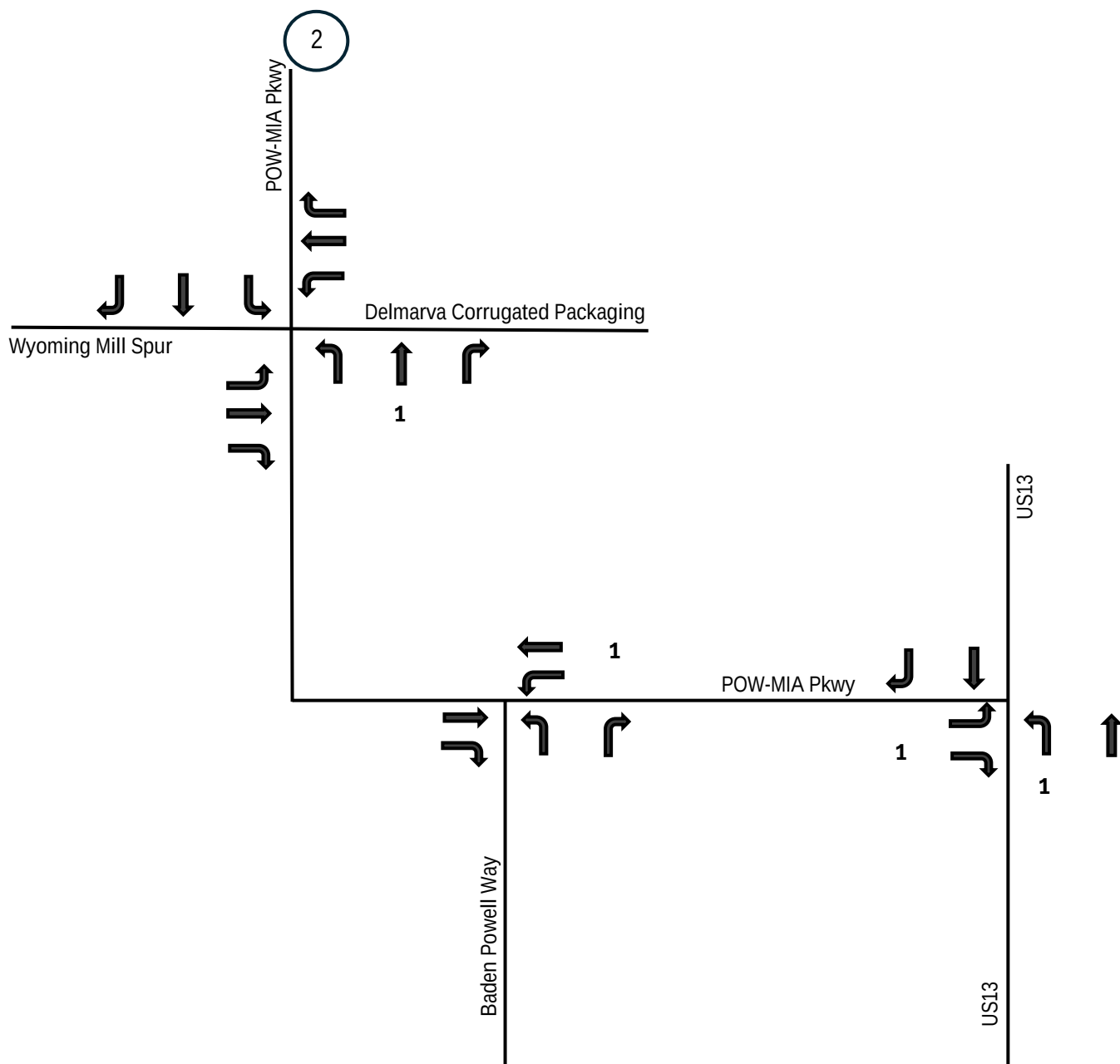


Maidstone Development PM Peak Trip Assignment

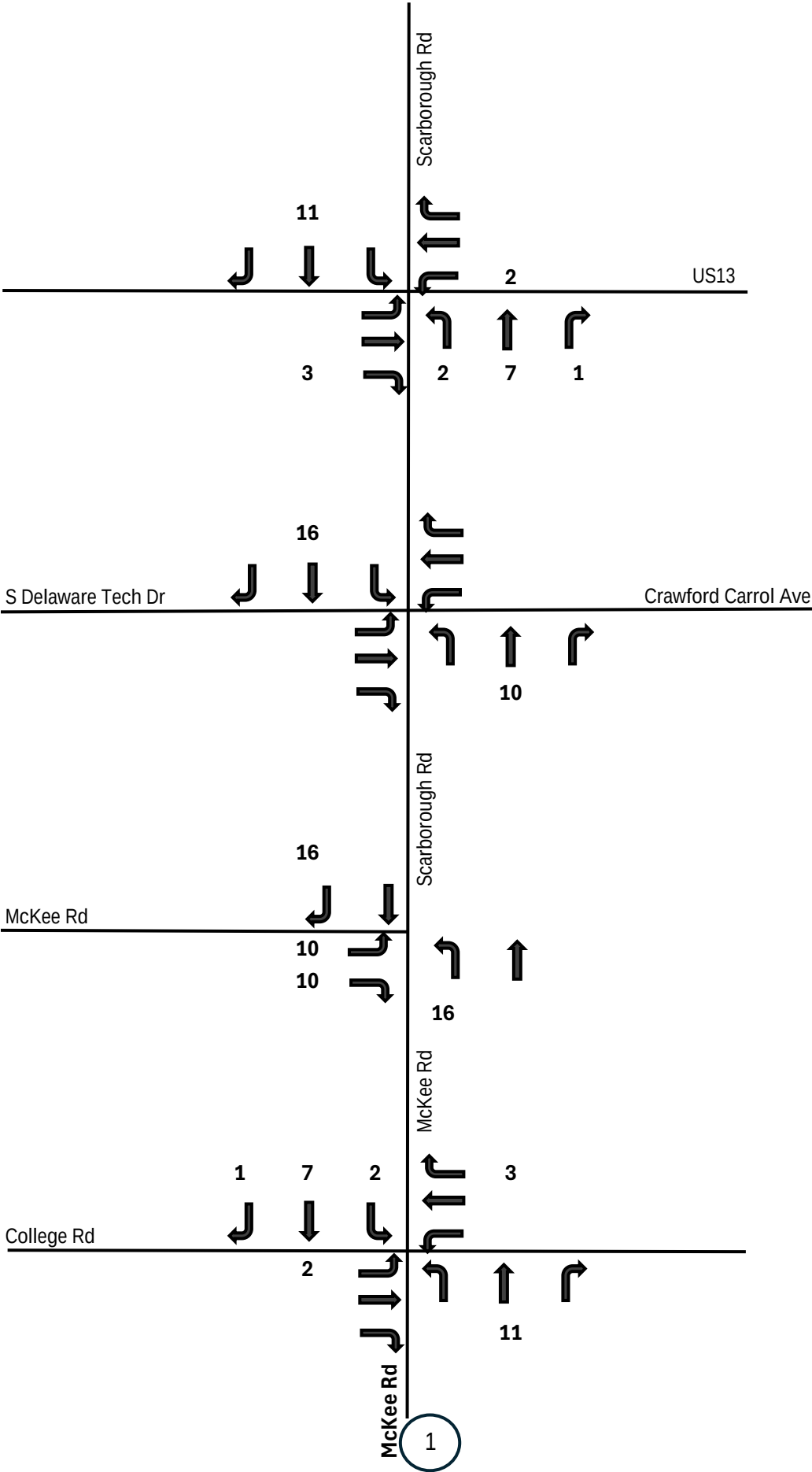


Maidstone Development PM Peak Trip Assignment

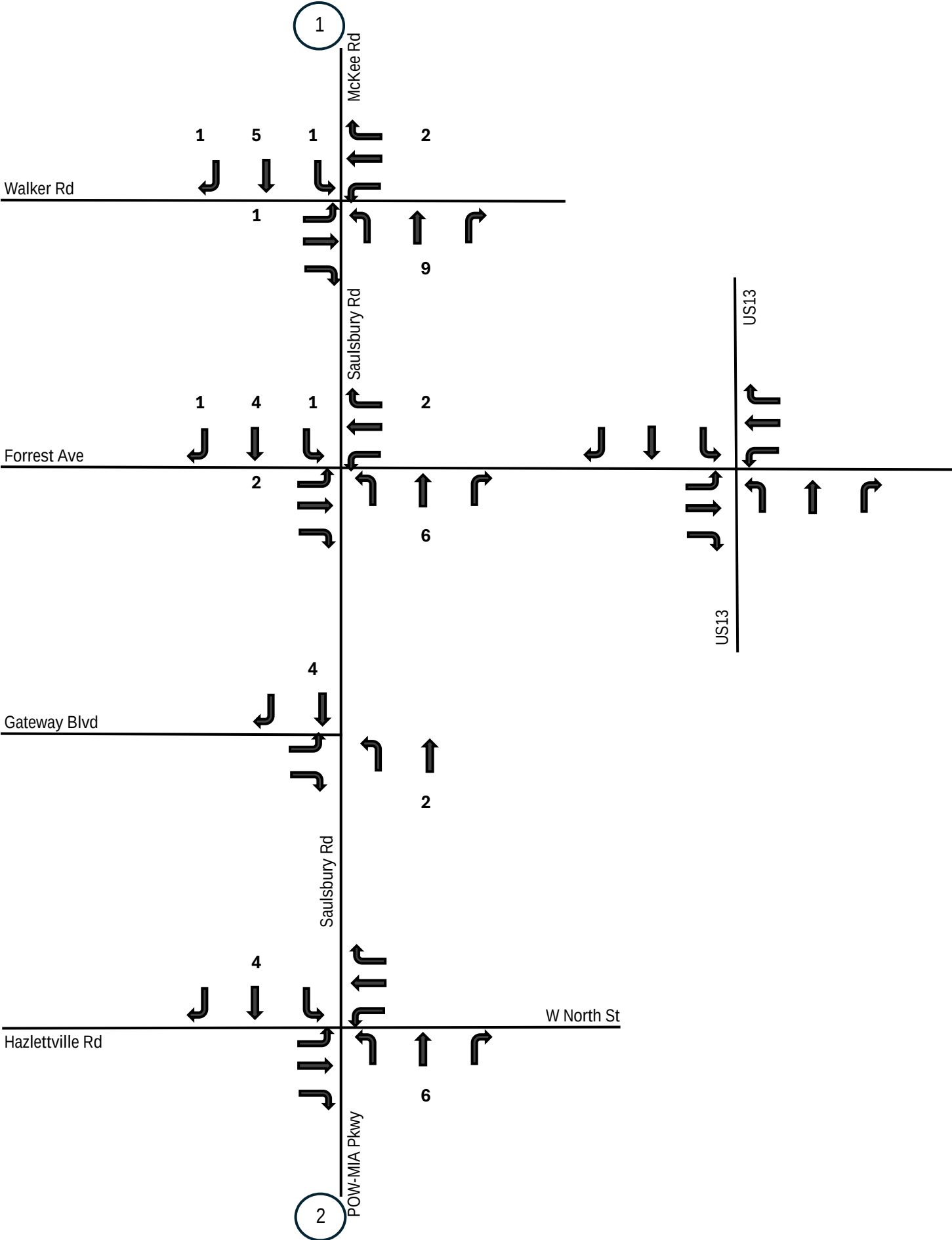


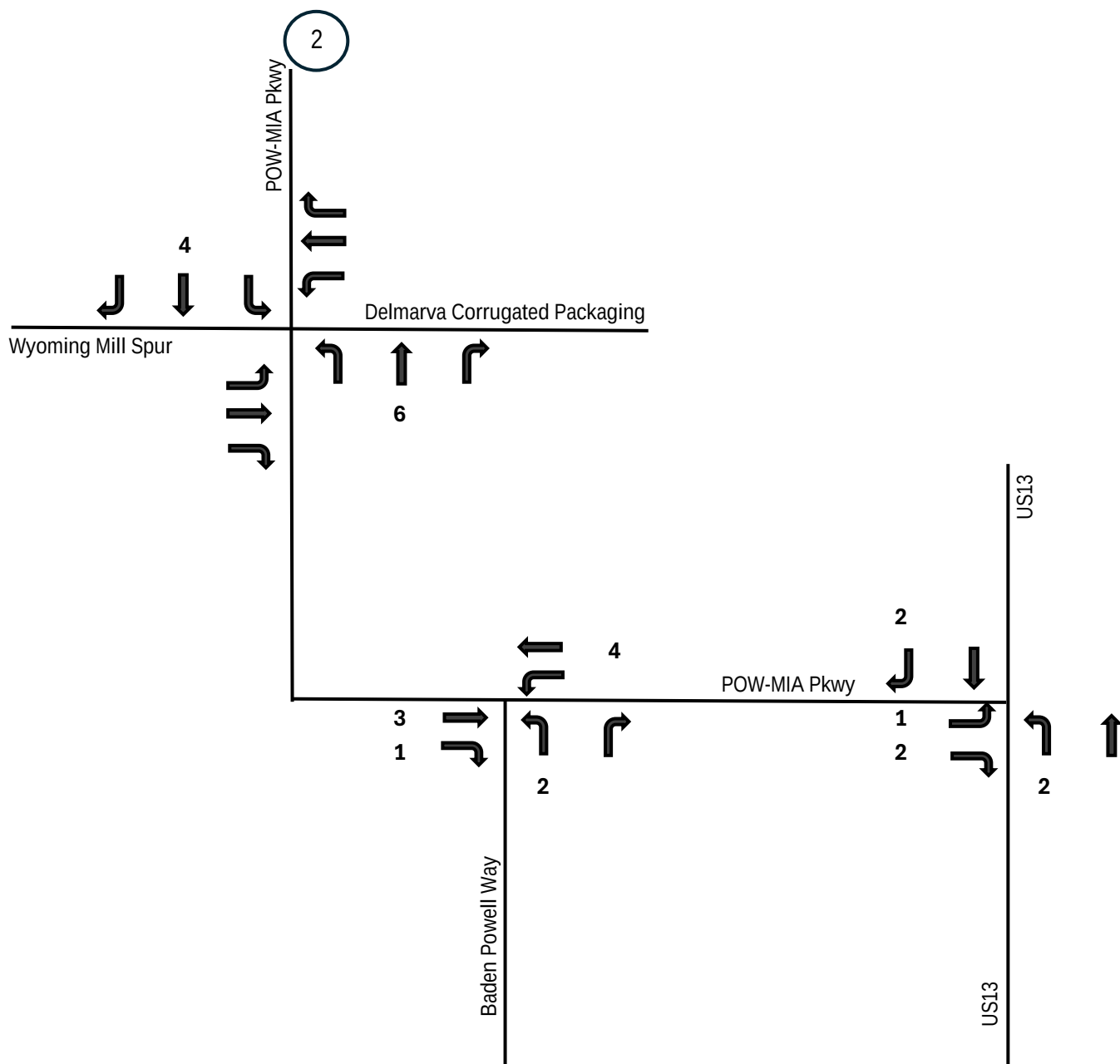


Stonebrook West Development PM Peak Trip Assignment

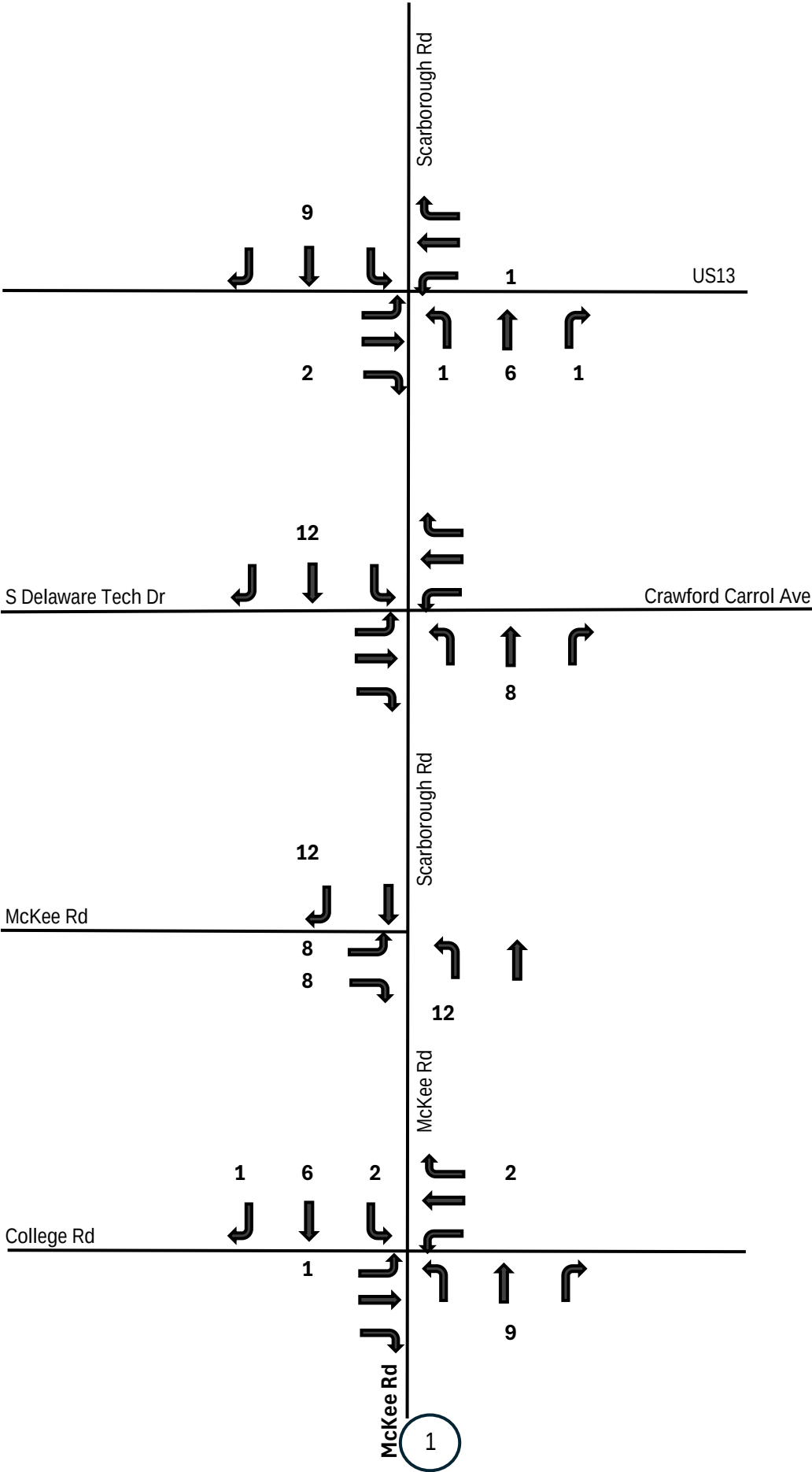


Stonebrook West Development PM Peak Trip Assignment

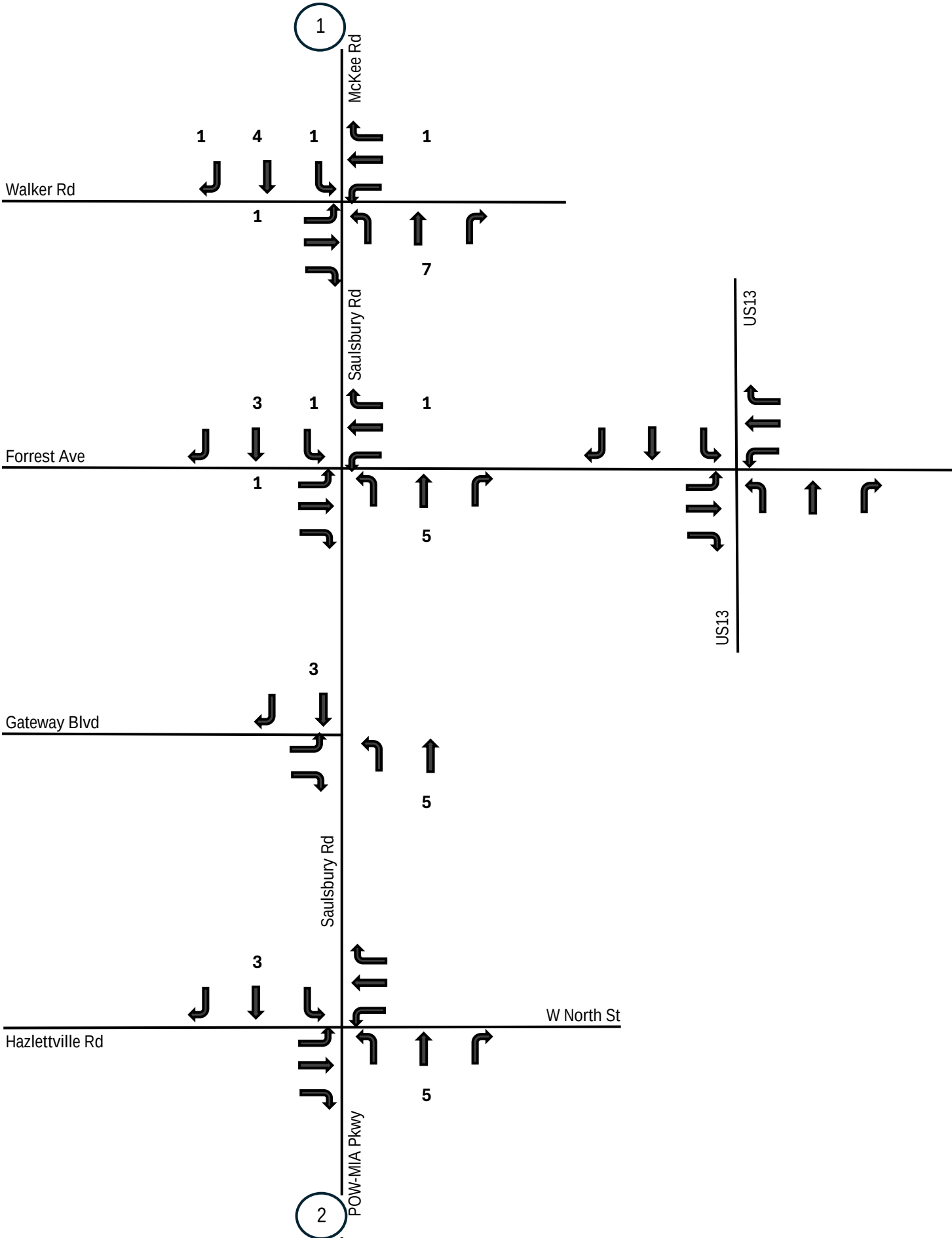




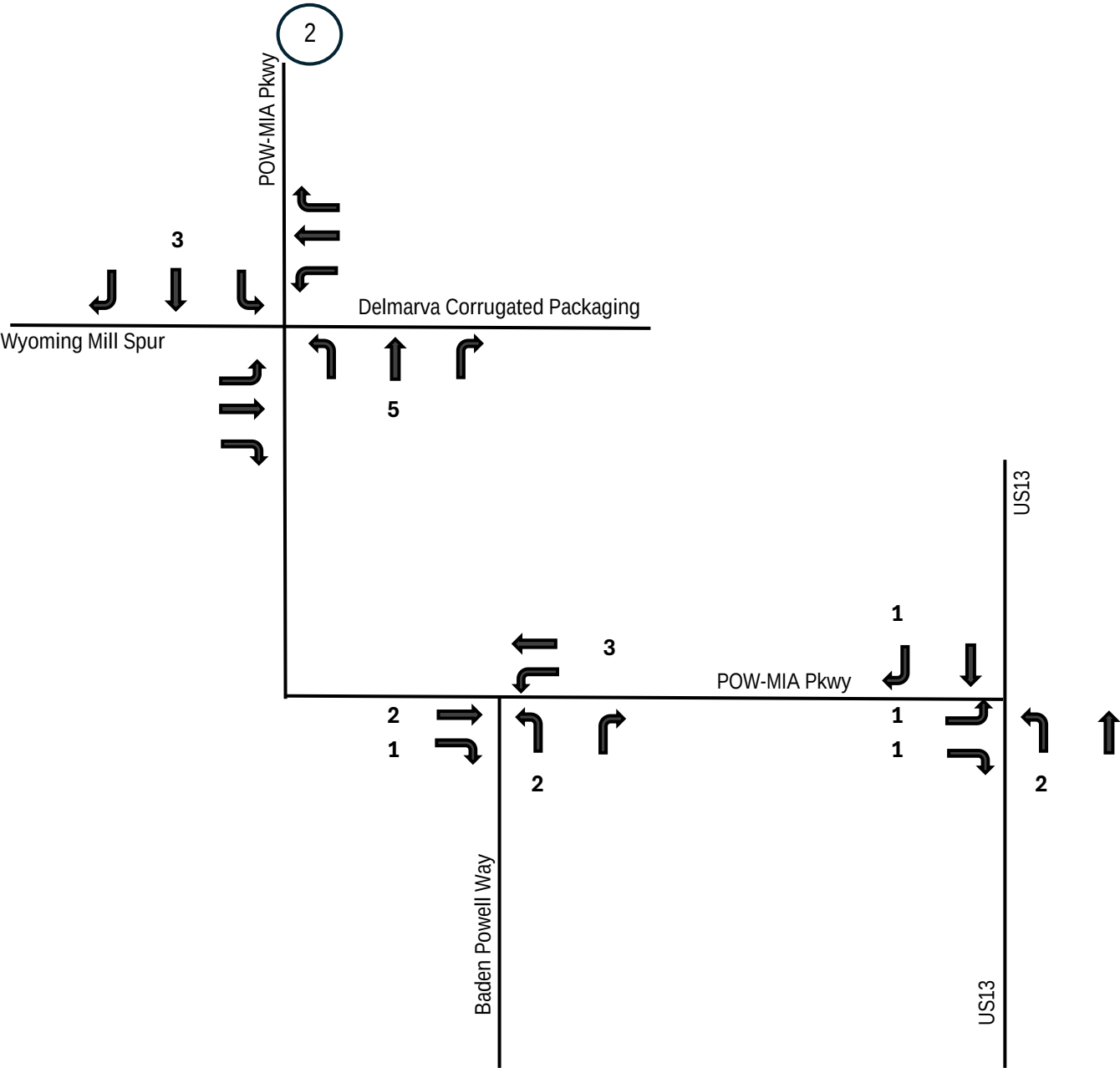
Stonebrook East Development PM Peak Trip Assignment



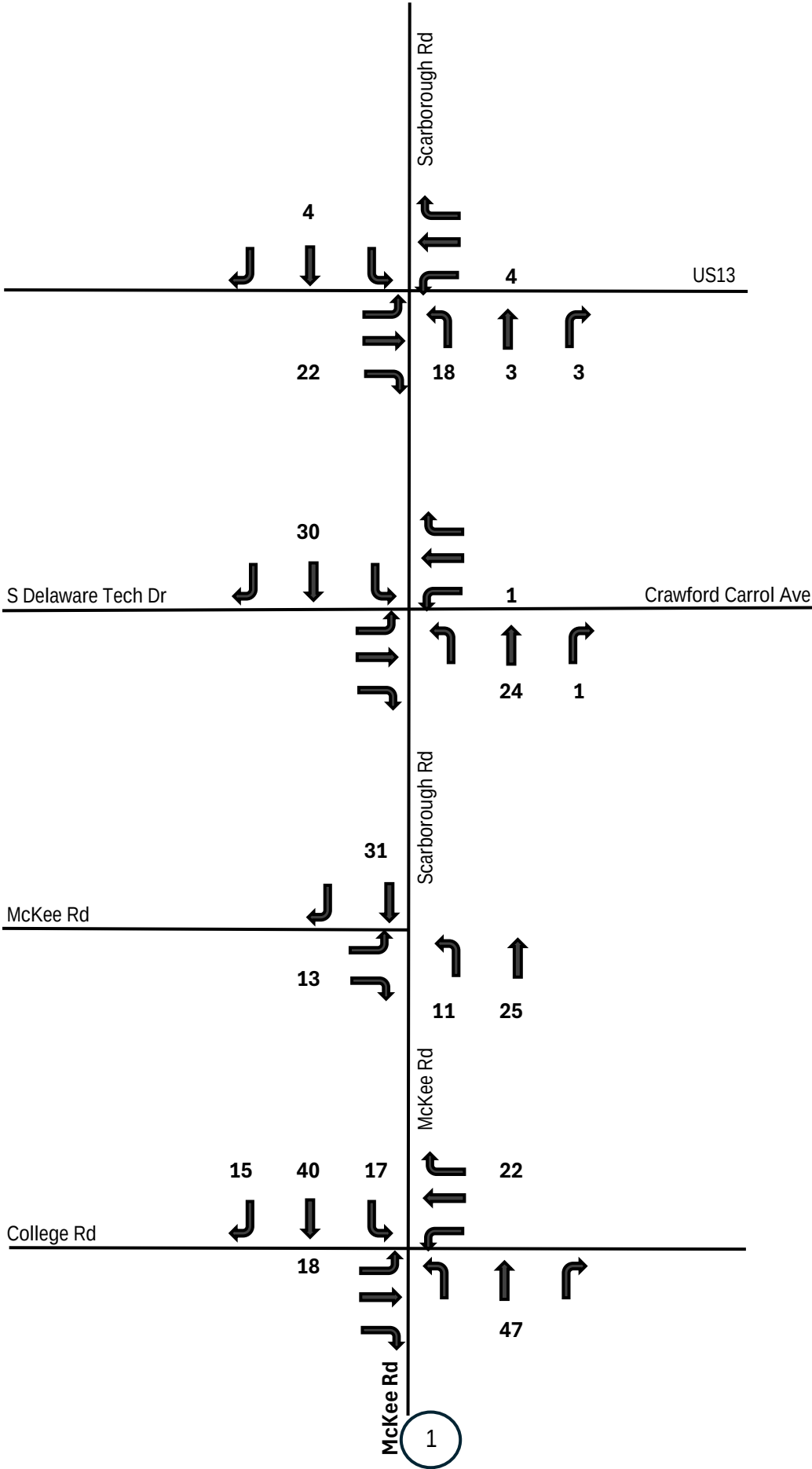
Stonebrook East Development PM Peak Trip Assignment



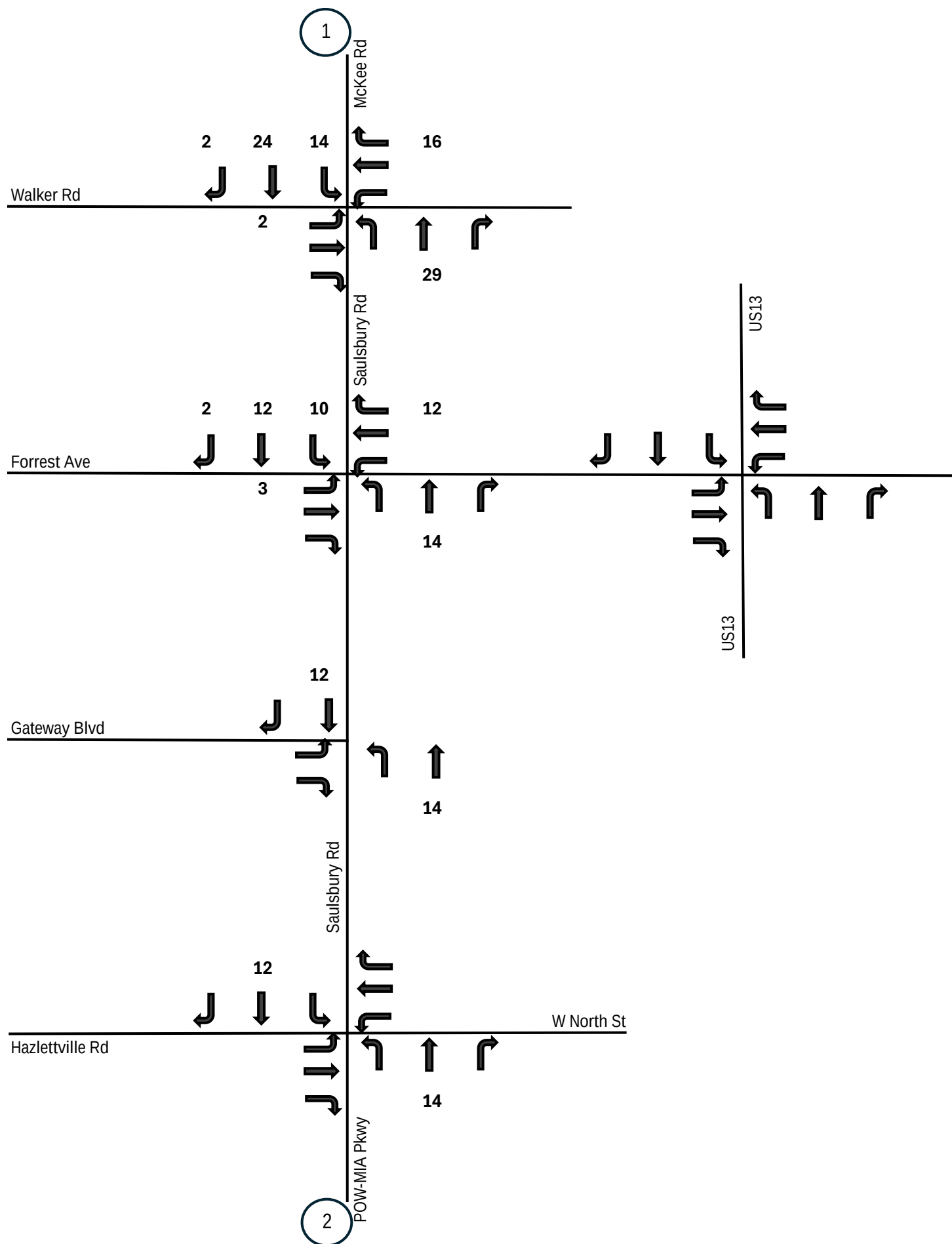
Stonebrook East Development PM Peak Trip Assignment



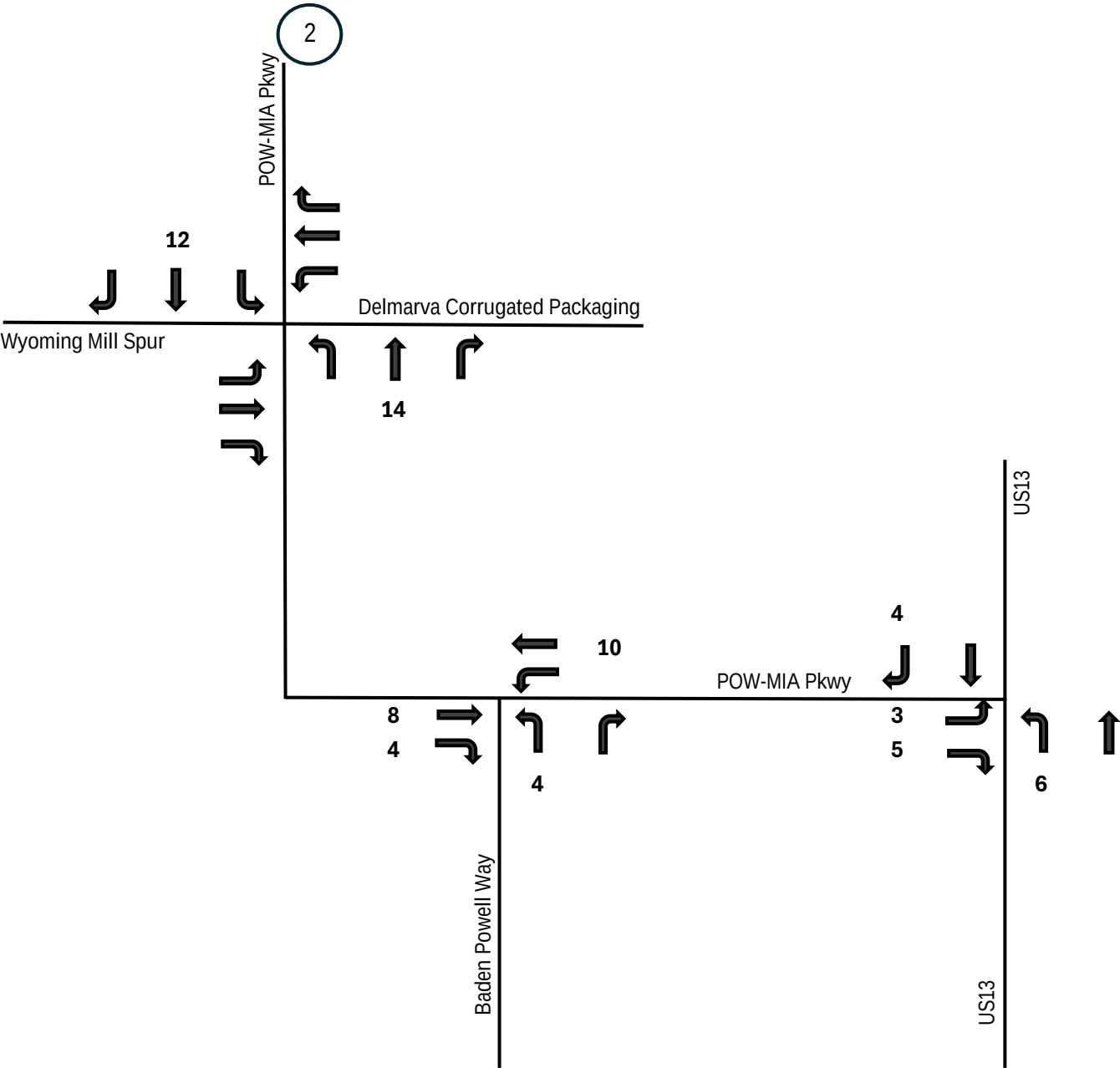
McKee Road Apartments Development PM Peak Trip Assignment



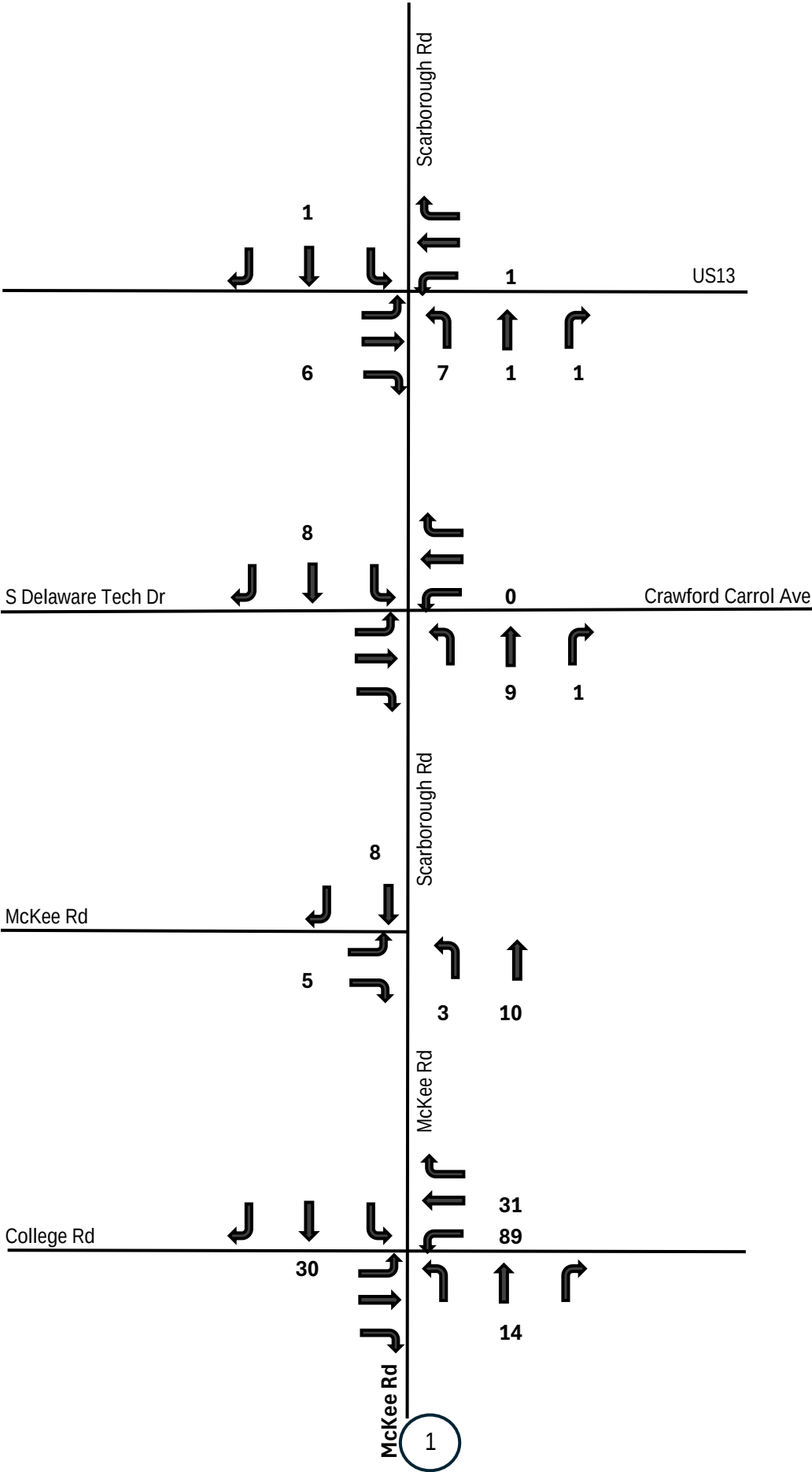
McKee Road Apartments Development PM Peak Trip Assignment



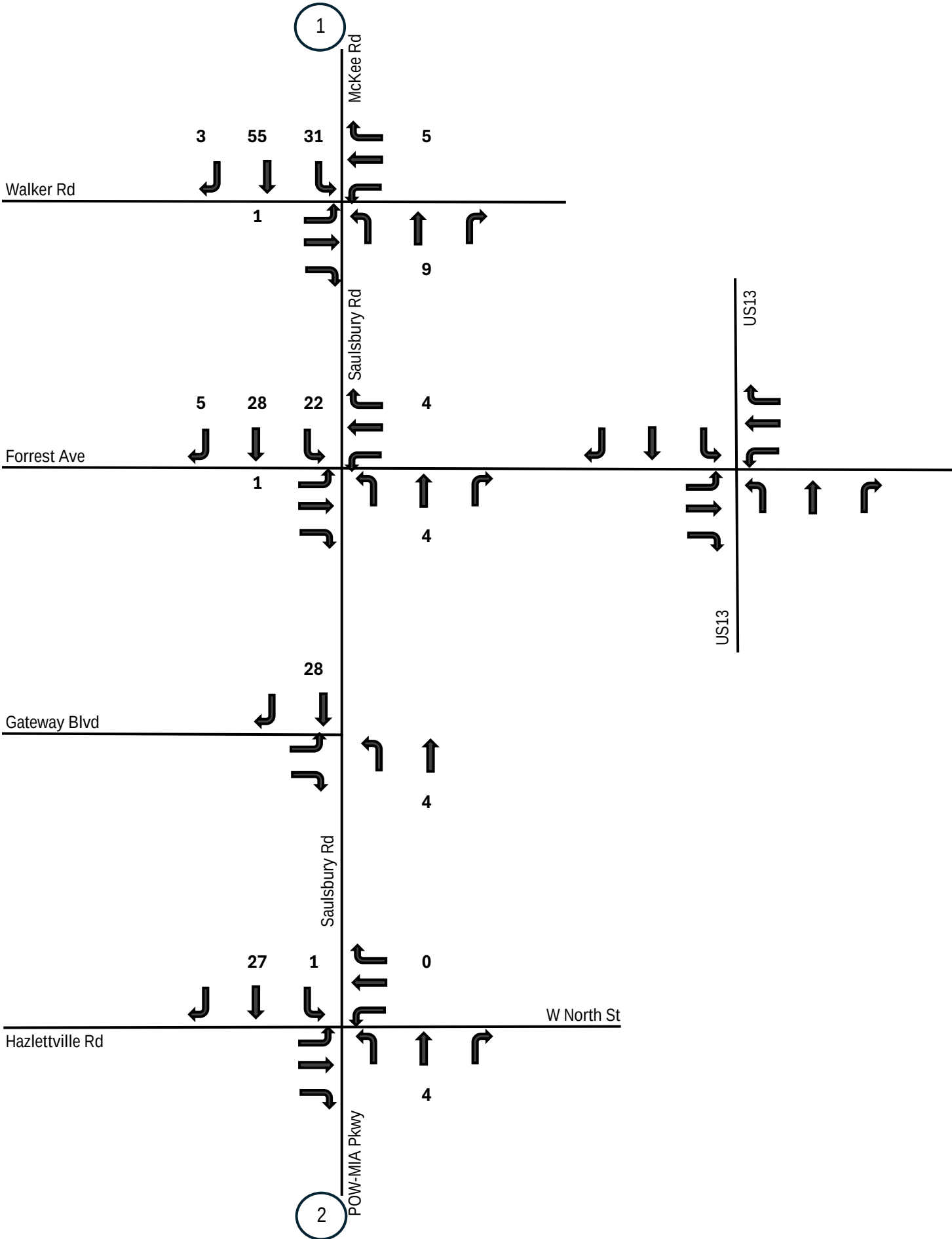
McKee Road Apartments Development PM Peak Trip Assignment



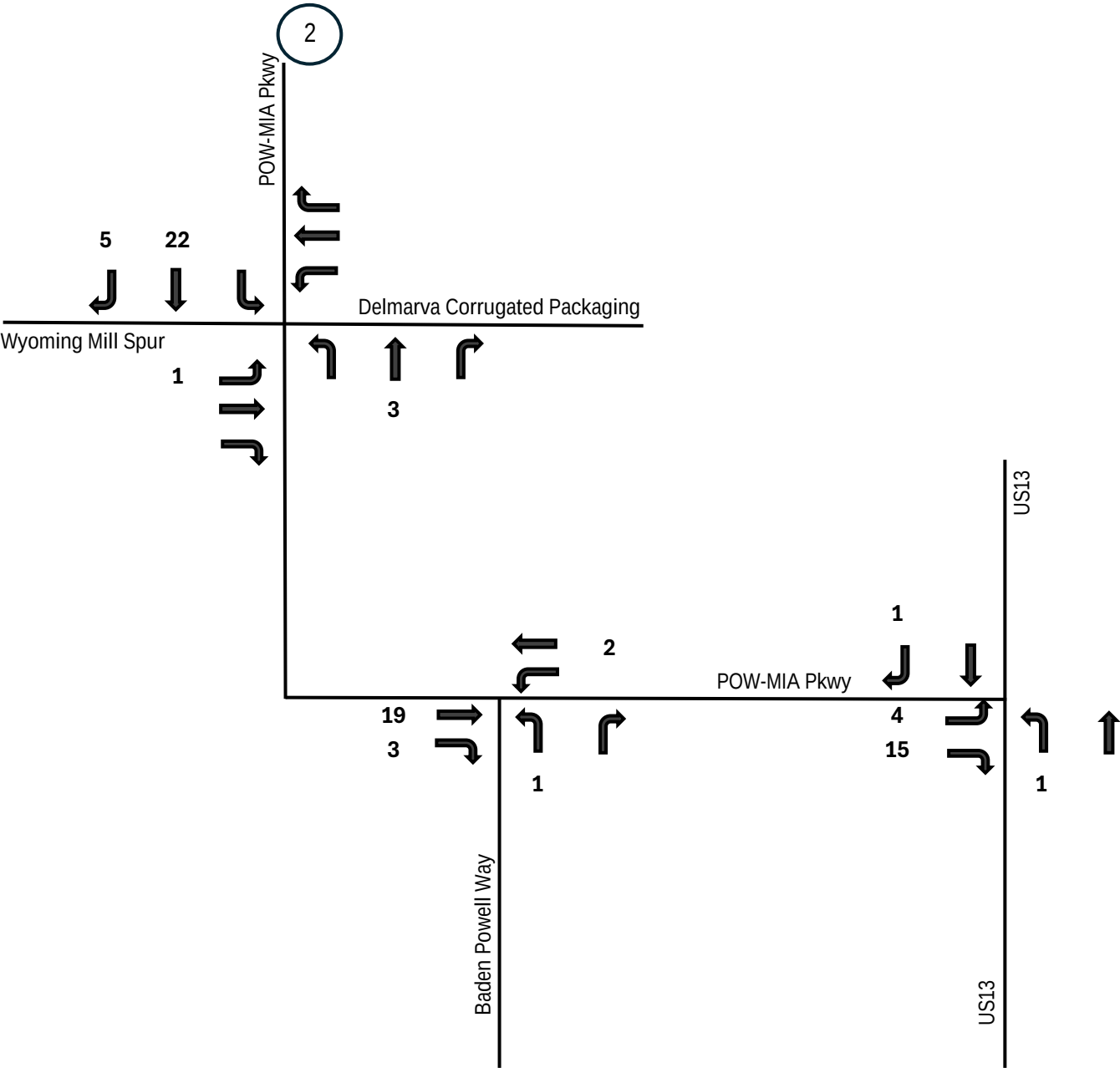
Royal Farms #436 Development PM Peak Trip Assignment



Royal Farms #436 Development PM Peak Trip Assignment



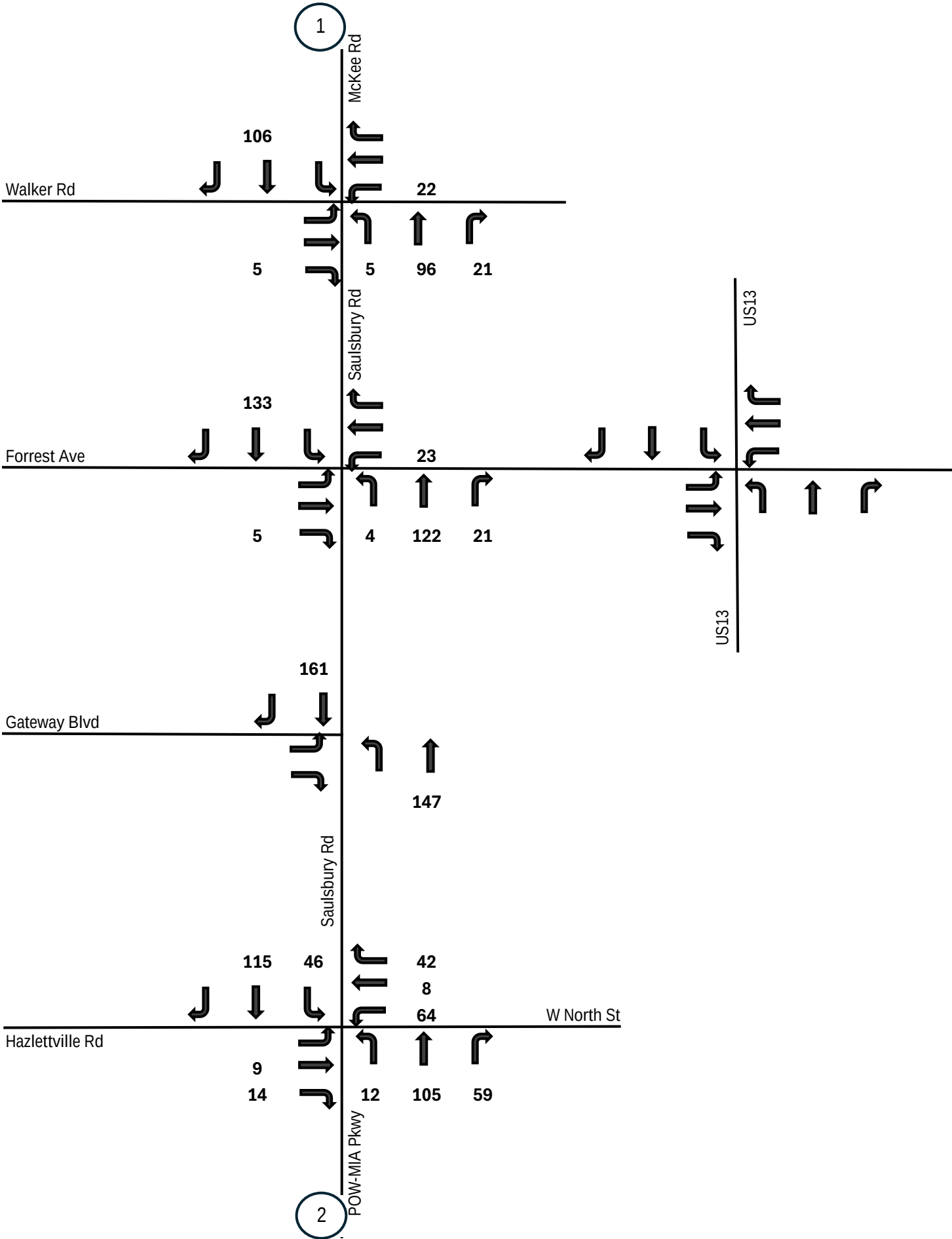
Royal Farms #436 Development PM Peak Trip Assignment



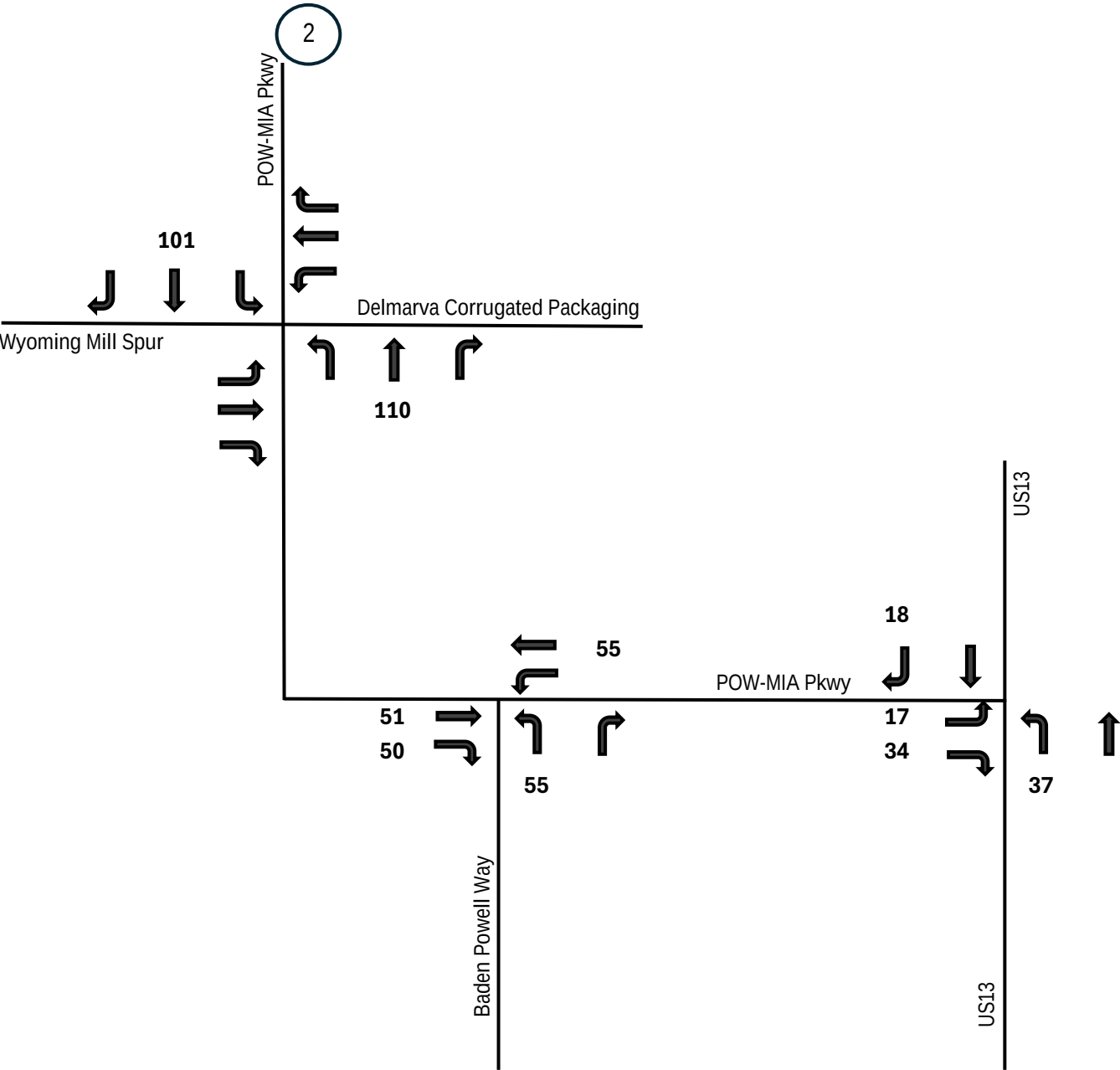
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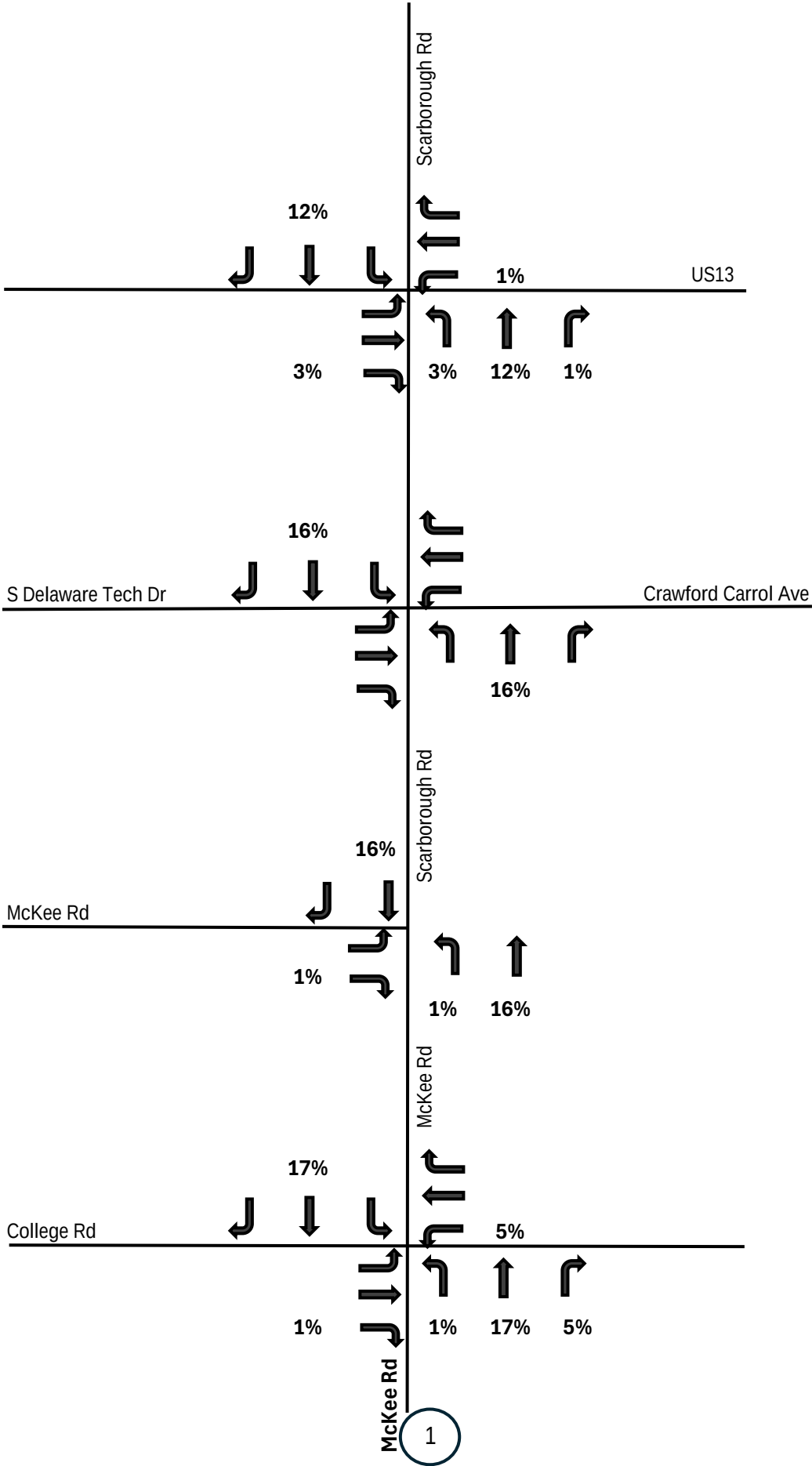
Eden Hill Development PM Peak Trip Assignment



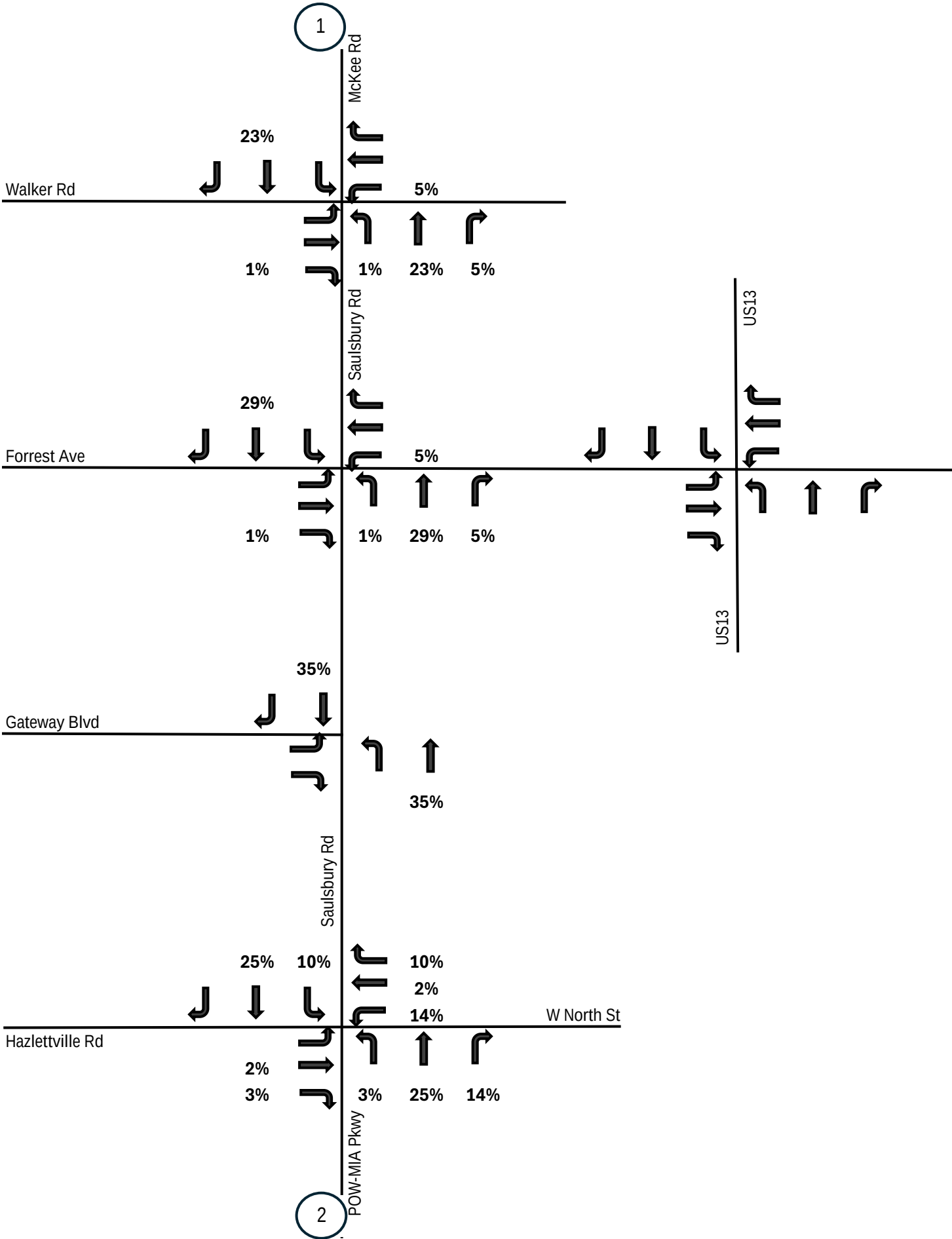
Eden Hill Development PM Peak Trip Assignment



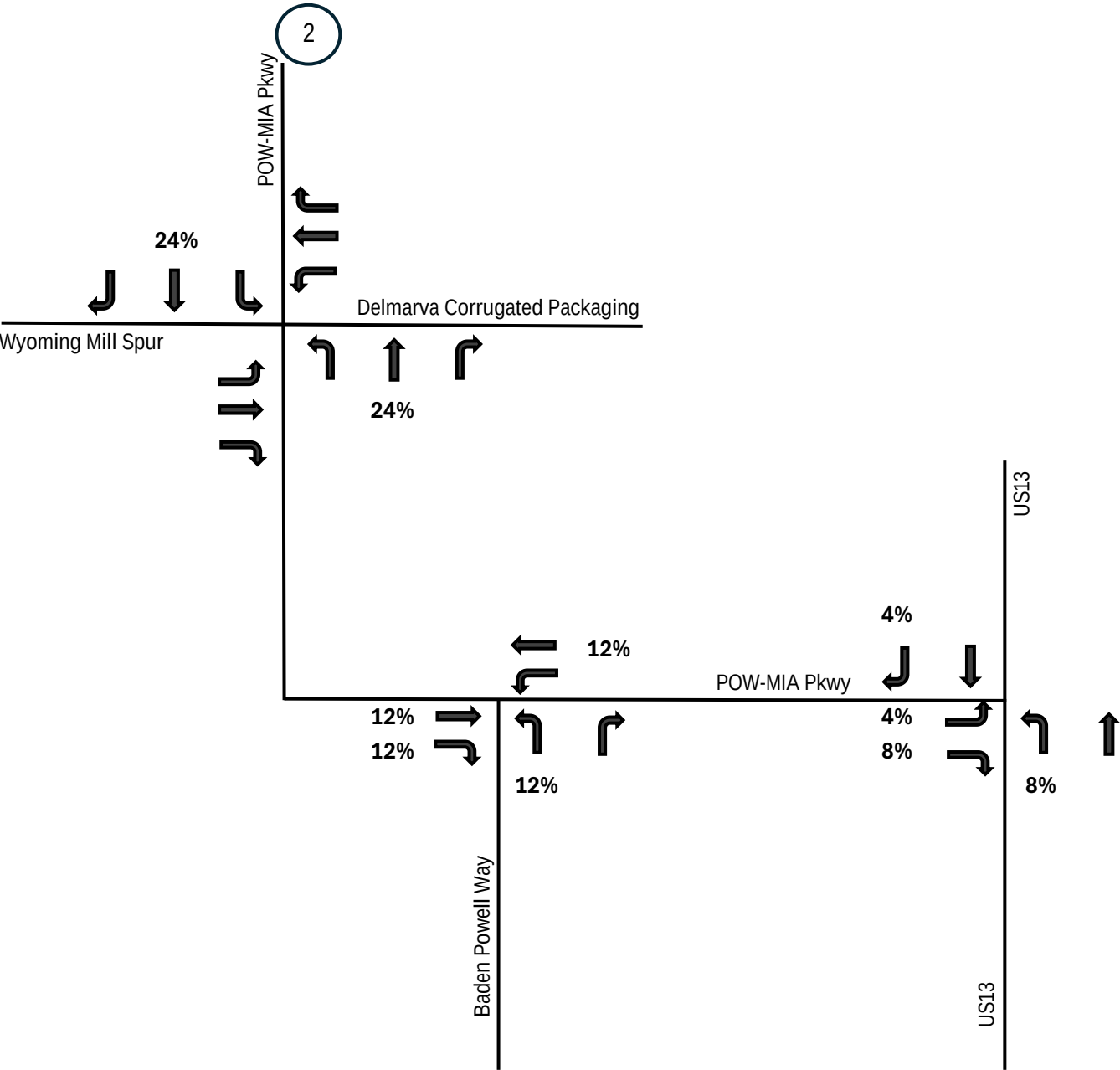
Eden Hill Development Trip Distribution



Eden Hill Development Trip Distribution



Eden Hill Development Trip Distribution



Appendix D: Synchro Output Reports

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 	 		 	 	 	 	 		 	 	
Traffic Volume (vph)	189	1117	372	97	569	166	237	305	63	260	309	125
Future Volume (vph)	189	1117	372	97	569	166	237	305	63	260	309	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			409			182			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	20%	5%	5%	5%	10%	13%	4%	6%	5%	6%	6%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	208	1227	409	107	625	182	260	335	69	286	340	137
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	30.0	65.0	65.0	30.0	65.0	65.0	25.0	25.0	25.0	30.0	30.0	30.0
Total Split (%)	20.0%	43.3%	43.3%	20.0%	43.3%	43.3%	16.7%	16.7%	16.7%	20.0%	20.0%	20.0%
Maximum Green (s)	22.0	57.0	57.0	22.0	57.0	57.0	18.0	18.0	18.0	24.0	23.0	23.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	16.0	73.6	73.6	10.2	67.8	67.8	16.0	19.0	19.0	18.2	20.2	20.2
Actuated g/C Ratio	0.11	0.49	0.49	0.07	0.45	0.45	0.11	0.13	0.13	0.12	0.13	0.13
v/c Ratio	0.67	0.73	0.43	0.47	0.42	0.15	0.72	0.78	0.21	0.71	0.74	0.43
Control Delay	95.3	18.2	1.5	73.8	30.3	4.0	76.6	76.2	1.5	73.4	72.6	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	18.2	1.5	73.8	30.3	4.0	76.6	76.2	1.5	73.4	72.6	11.5
LOS	F	B	A	E	C	A	E	E	A	E	E	B
Approach Delay		23.2			30.1			68.6			61.9	
Approach LOS		C			C			E			E	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	107	318	0	53	218	0	128	167	0	140	170	0
Queue Length 95th (ft)	m142	423	22	84	300	27	176	#228	0	186	223	55
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	427	1686	962	489	1483	1236	404	443	326	528	522	340
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.73	0.43	0.22	0.42	0.15	0.64	0.76	0.21	0.54	0.65	0.40

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 39.0

Intersection LOS: D

Intersection Capacity Utilization 75.3%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

 Ø1	 Ø2	 Ø3	 Ø4
30 s	65 s	30 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
30 s	65 s	25 s	30 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	95	685	119	23	558	112	208	147	45	97	52	43
Future Volume (vph)	95	685	119	23	558	112	208	147	45	97	52	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1770	1810	1509	1597	1810	1553	1787	1827	1509	1656	1697	0
Flt Permitted	0.278			0.240			0.475			0.660		
Satd. Flow (perm)	518	1810	1474	404	1810	1512	894	1827	1470	1148	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			209			173		29	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)			1			1			1	1		
Confl. Bikes (#/hr)			2			4			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	5%	7%	13%	5%	4%	1%	4%	7%	9%	4%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	706	123	24	575	115	214	152	46	100	98	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	22.0	61.0	61.0	12.0	51.0	51.0	23.0	30.0	30.0	17.0	24.0	
Total Split (%)	18.3%	50.8%	50.8%	10.0%	42.5%	42.5%	19.2%	25.0%	25.0%	14.2%	20.0%	
Maximum Green (s)	17.0	54.0	54.0	7.0	44.0	44.0	18.0	24.0	24.0	12.0	18.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	74.8	67.3	67.3	69.4	61.1	61.1	33.7	17.5	17.5	22.7	11.6	
Actuated g/C Ratio	0.62	0.56	0.56	0.58	0.51	0.51	0.28	0.15	0.15	0.19	0.10	
v/c Ratio	0.24	0.70	0.14	0.08	0.62	0.13	0.58	0.57	0.13	0.39	0.52	
Control Delay	5.5	15.4	0.5	3.0	9.8	0.2	41.2	56.2	0.7	36.9	45.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.5	15.4	0.5	3.0	9.8	0.2	41.2	56.2	0.7	36.9	45.7	
LOS	A	B	A	A	A	A	D	E	A	D	D	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		12.4			8.1			42.2			41.3	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	8	392	0	2	70	1	136	112	0	59	52	
Queue Length 95th (ft)	m27	471	m3	m3	467	m0	196	176	0	99	105	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	506	1015	898	306	922	872	384	365	432	285	279	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.19	0.70	0.14	0.08	0.62	0.13	0.56	0.42	0.11	0.35	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 6:SETL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 13: College Rd & McKee Rd

 Ø1	 Ø2	 Ø3	 Ø4
22 s	51 s	17 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	61 s	23 s	24 s

Lanes, Volumes, Timings
20: US13 & SR8

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	95	150	189	121	65	188	1088	92	68	903	35
Future Volume (vph)	42	95	150	189	121	65	188	1088	92	68	903	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1603	1699	1538	1687	1712	1313	3273	4944	0	1367	4893	1455
Flt Permitted	0.950	0.998		0.950			0.950			0.950		
Satd. Flow (perm)	1603	1699	1538	1687	1712	1313	3273	4944	0	1367	4893	1426
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			164		11				164
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)									1			6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	6%	5%	7%	11%	23%	7%	3%	9%	32%	6%	11%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	40	103	156	197	126	68	196	1229	0	71	941	36
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	20.0	37.0		20.0	37.0	37.0
Total Split (%)	34.2%	34.2%	34.2%	18.3%	18.3%	18.3%	16.7%	30.8%		16.7%	30.8%	30.8%
Maximum Green (s)	34.0	34.0	34.0	15.0	15.0	15.0	13.0	30.0		13.0	30.0	30.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	12.8	12.8	12.8	15.2	15.2	15.2	12.5	55.2		11.5	51.5	51.5
Actuated g/C Ratio	0.11	0.11	0.11	0.13	0.13	0.13	0.10	0.46		0.10	0.43	0.43
v/c Ratio	0.23	0.57	0.50	0.92	0.58	0.22	0.58	0.54		0.54	0.45	0.05
Control Delay	46.8	58.0	27.2	97.6	61.2	1.6	57.8	26.2		66.0	26.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.8	58.0	27.2	97.6	61.2	1.6	57.8	26.2		66.0	26.0	0.1
LOS	D	E	C	F	E	A	E	C		E	C	A
Approach Delay		40.5			69.2			30.5			27.8	

Lanes, Volumes, Timings
20: US13 & SR8

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D						E					
Queue Length 50th (ft)	32	87	54	153	94	0	75	252		53	184	0
Queue Length 95th (ft)	m53	m137	m112	#299	159	0	111	351		99	256	0
Internal Link Dist (ft)	657						1141					
Turn Bay Length (ft)	150						140					
Base Capacity (vph)	454	481	553	213	216	309	375	2279		157	2101	706
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.09	0.21	0.28	0.92	0.58	0.22	0.52	0.54		0.45	0.45	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: US13 & SR8

					
Ø1	Ø2 (R)		Ø3	Ø4	
20 s	37 s		22 s	41 s	
					
Ø5	Ø6 (R)				
20 s	37 s				

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

Existing 2024 AM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	222	111	666	692	63
Future Volume (vph)	56	222	111	666	692	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1626	1509	1671	1810	1810	1468
Flt Permitted	0.950		0.258			
Satd. Flow (perm)	1626	1471	454	1810	1810	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		241				68
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	7%	8%	5%	5%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	241	121	724	752	68
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	25.0	90.0	65.0	65.0
Total Split (%)	25.0%	25.0%	20.8%	75.0%	54.2%	54.2%
Maximum Green (s)	23.0	23.0	18.0	83.0	58.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	10.7	10.7	95.3	95.3	80.8	80.8
Actuated g/C Ratio	0.09	0.09	0.79	0.79	0.67	0.67
v/c Ratio	0.42	0.69	0.28	0.50	0.62	0.07
Control Delay	59.6	16.9	3.3	3.3	10.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	16.9	3.3	3.3	10.3	0.6
LOS	E	B	A	A	B	A
Approach Delay	25.5			3.3	9.5	

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

Existing 2024 AM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C			A	A	
Queue Length 50th (ft)	46	0	14	90	137	0
Queue Length 95th (ft)	87	78	m14	63	602	0
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	311	476	543	1437	1218	1010
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.51	0.22	0.50	0.62	0.07

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 9.3

Intersection LOS: A

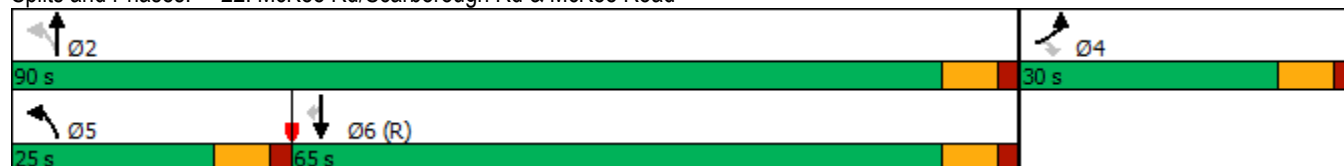
Intersection Capacity Utilization 66.7%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Existing 2024 AM

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	6	13	65	6	15	48	562	112	16	677	85
Future Volume (vph)	28	6	13	65	6	15	48	562	112	16	677	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1649	1705	1404	1633	1663	1509	1770	3406	1583	1805	3406	1538
Flt Permitted	0.950	0.969		0.950	0.960		0.317			0.406		
Satd. Flow (perm)	1649	1705	1404	1633	1663	1509	590	3406	1583	771	3406	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			145			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	15%	5%	0%	7%	2%	6%	2%	0%	6%	5%
Shared Lane Traffic (%)	40%			46%								
Lane Group Flow (vph)	19	20	15	40	42	17	55	646	129	18	778	98
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases			8			4	2		2	6		6
Detector Phase	8	8	8	4	4	4	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	19.0	19.0	19.0	28.0	28.0	28.0	20.0	59.0	59.0	14.0	53.0	53.0
Total Split (%)	15.8%	15.8%	15.8%	23.3%	23.3%	23.3%	16.7%	49.2%	49.2%	11.7%	44.2%	44.2%
Maximum Green (s)	13.0	13.0	13.0	22.0	22.0	22.0	13.0	52.0	52.0	7.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag							Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?								Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				15.0	15.0	15.0					7.0	7.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)	7.0	7.0	7.0	8.5	8.5	8.5	90.2	88.6	88.6	86.2	82.8	82.8
Actuated g/C Ratio	0.06	0.06	0.06	0.07	0.07	0.07	0.75	0.74	0.74	0.72	0.69	0.69
v/c Ratio	0.20	0.20	0.07	0.35	0.36	0.07	0.11	0.26	0.11	0.03	0.33	0.09
Control Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.7	7.2	1.2	6.2	11.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.7	7.2	1.2	6.2	11.4	0.8
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		42.0			50.3			6.2			10.1	
Approach LOS		D			D			A			B	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	14	15	0	31	33	0	8	74	0	4	153	0
Queue Length 95th (ft)	40	41	0	66	68	0	20	110	6	12	216	6
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	178	184	290	299	304	403	582	2514	1206	619	2350	1106
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.05	0.13	0.14	0.04	0.09	0.26	0.11	0.03	0.33	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 11.4

Intersection LOS: B

Intersection Capacity Utilization 48.2%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

							
Ø1	Ø2		Ø4			Ø8	
14 s	59 s		28 s			19 s	
							
Ø5	Ø6 (R)						
20 s	53 s						

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	208	71	102	110	102	60	549	175	150	597	43
Future Volume (vph)	82	208	71	102	110	102	60	549	175	150	597	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1703	1863	1495	1736	1810	1553	1597	1810	1538	1719	1776	1583
Flt Permitted	0.660			0.329			0.215			0.163		
Satd. Flow (perm)	1183	1863	1461	601	1810	1553	362	1810	1538	295	1776	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			209			145
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Peds. (#/hr)			1									
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	2%	8%	4%	5%	4%	13%	5%	5%	5%	7%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	92	234	80	115	124	115	67	617	197	169	671	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	28.0	28.0	12.0	27.0	27.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	15.0	45.0	45.0	24.0	54.0	54.0
Total Split (%)	15.0%	27.5%	27.5%	15.0%	27.5%	27.5%	12.5%	37.5%	37.5%	20.0%	45.0%	45.0%
Maximum Green (s)	12.0	27.0	27.0	12.0	27.0	27.0	8.0	38.0	38.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	30.1	20.2	20.2	31.6	21.0	21.0	58.1	50.7	50.7	68.9	58.3	58.3
Actuated g/C Ratio	0.25	0.17	0.17	0.26	0.18	0.18	0.48	0.42	0.42	0.57	0.49	0.49
v/c Ratio	0.27	0.75	0.19	0.45	0.39	0.25	0.27	0.81	0.26	0.53	0.78	0.06
Control Delay	30.9	61.6	1.0	35.0	46.4	1.4	13.2	29.6	2.7	24.7	25.1	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	61.6	1.0	35.0	46.4	1.4	13.2	29.6	2.7	24.7	25.1	0.2
LOS	C	E	A	C	D	A	B	C	A	C	C	A
Approach Delay		42.7			28.0			22.3			23.7	

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			C		
Queue Length 50th (ft)	52	174	0	65	86	0	16	181	12	23	472	0
Queue Length 95th (ft)	84	244	0	102	135	0	m30	#752	m24	m105	#725	m0
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	369	419	497	278	407	518	261	764	770	374	863	843
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.56	0.16	0.41	0.30	0.22	0.26	0.81	0.26	0.45	0.78	0.06

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd



Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	556	256	92	353	128	147	504	115	188	494	125
Future Volume (vph)	178	556	256	92	353	128	147	504	115	188	494	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1703	3438	1583	1612	3343	1524	1719	3505	1568	1703	3406	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1703	3438	1583	1612	3343	1502	1719	3505	1543	1703	3406	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			291			164			164			164
Link Speed (mph)		35			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		80.4			31.8			21.8			11.3	
Confl. Peds. (#/hr)						1			2			3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	12%	8%	6%	5%	3%	3%	6%	6%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	202	632	291	105	401	145	167	573	131	214	561	142
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	24.0	36.0	36.0	18.0	30.0	30.0	20.0	40.0	40.0	26.0	46.0	46.0
Total Split (%)	20.0%	30.0%	30.0%	15.0%	25.0%	25.0%	16.7%	33.3%	33.3%	21.7%	38.3%	38.3%
Maximum Green (s)	17.0	29.0	29.0	11.0	23.0	23.0	13.0	33.0	33.0	19.0	39.0	39.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	18.3	35.9	35.9	12.0	29.7	29.7	13.9	26.1	26.1	17.9	30.1	30.1
Actuated g/C Ratio	0.15	0.30	0.30	0.10	0.25	0.25	0.12	0.22	0.22	0.15	0.25	0.25
v/c Ratio	0.78	0.61	0.43	0.65	0.48	0.29	0.84	0.75	0.28	0.84	0.66	0.28
Control Delay	66.4	43.2	10.4	72.2	31.0	6.2	97.0	36.8	5.0	90.5	31.5	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.4	43.2	10.4	72.2	31.0	6.2	97.0	36.8	5.0	90.5	31.5	3.2
LOS	E	D	B	E	C	A	F	D	A	F	C	A
Approach Delay		38.9			32.1			43.5			40.9	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Existing 2024 AM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			D			D		
Queue Length 50th (ft)	155	246	35	66	106	6	113	214	28	162	124	0
Queue Length 95th (ft)	#257	312	87	#157	174	24	#258	256	15	m#247	125	m7
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530	300		200	200		900	465		325	175	
Base Capacity (vph)	267	1029	677	168	827	495	199	963	543	271	1106	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.61	0.43	0.63	0.48	0.29	0.84	0.60	0.24	0.79	0.51	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 39.3

Intersection LOS: D

Intersection Capacity Utilization 70.2%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

 Ø1	 Ø2 (R)	 Ø3	 Ø4
18 s	36 s	26 s	40 s
 Ø5	 Ø6	 Ø7	 Ø8
24 s	30 s	20 s	46 s

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

Existing 2024 AM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	37	87	701	704	138
Future Volume (vph)	66	37	87	701	704	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1671	1495	1787	3438	3272	0
Flt Permitted	0.950		0.260			
Satd. Flow (perm)	1671	1476	488	3438	3272	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			30	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)			5			
Confl. Bikes (#/hr)		1				2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	1%	5%	8%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	41	97	779	935	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	32.0	
Total Split (s)	31.0	31.0	17.0	89.0	72.0	
Total Split (%)	25.8%	25.8%	14.2%	74.2%	60.0%	
Maximum Green (s)	25.0	25.0	10.0	82.0	65.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	10.6	10.6	98.9	100.3	85.0	
Actuated g/C Ratio	0.09	0.09	0.82	0.84	0.71	
v/c Ratio	0.50	0.25	0.20	0.27	0.40	
Control Delay	62.8	17.9	2.7	1.9	20.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.8	17.9	2.7	1.9	20.8	
LOS	E	B	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

Existing 2024 AM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.6			1.9	20.8	
Approach LOS	D			A	C	
Queue Length 50th (ft)	55	0	6	26	342	
Queue Length 95th (ft)	101	34	m20	66	402	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	348	339	510	2873	2326	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.12	0.19	0.27	0.40	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 13.8

Intersection LOS: B

Intersection Capacity Utilization 49.5%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Existing 2024 AM

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	335	37	32	196	223	96	436	91	369	242	91
Future Volume (vph)	158	335	37	32	196	223	96	436	91	369	242	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1656	3438	1455	1703	3406	1553	1736	3505	1538	1736	3374	1302
Flt Permitted	0.503			0.531			0.586			0.190		
Satd. Flow (perm)	877	3438	1435	952	3406	1553	1071	3505	1518	347	3374	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			248			245			191
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		35.3			22.6			12.2			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	9%	5%	11%	6%	6%	4%	4%	3%	5%	4%	7%	24%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	372	41	36	218	248	107	484	101	410	269	101
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	22.0	40.0	40.0	13.0	31.0	31.0	20.0	28.0	28.0	39.0	47.0	47.0
Total Split (%)	18.3%	33.3%	33.3%	10.8%	25.8%	25.8%	16.7%	23.3%	23.3%	32.5%	39.2%	39.2%
Maximum Green (s)	16.0	34.0	34.0	7.0	25.0	25.0	14.0	22.0	22.0	33.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	47.9	39.8	39.8	35.1	28.3	28.3	30.7	21.0	21.0	60.1	44.5	44.5
Actuated g/C Ratio	0.40	0.33	0.33	0.29	0.24	0.24	0.26	0.18	0.18	0.50	0.37	0.37
v/c Ratio	0.40	0.33	0.07	0.11	0.27	0.45	0.33	0.79	0.22	0.74	0.22	0.17
Control Delay	30.0	34.9	0.2	28.1	42.3	8.6	21.8	57.2	1.1	59.4	20.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	34.9	0.2	28.1	42.3	8.6	21.8	57.2	1.1	59.4	20.2	3.5
LOS	C	C	A	C	D	A	C	E	A	E	C	A

Lanes, Volumes, Timings

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Existing 2024 AM

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	31.0			24.6			43.5			38.6		
Approach LOS	C			C			D			D		
Queue Length 50th (ft)	94	124	0	18	75	0	41	187	0	275	31	0
Queue Length 95th (ft)	164	183	0	44	122	76	63	250	0	395	91	36
Internal Link Dist (ft)	1734			1081			637			806		
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	455	1247	642	327	902	593	390	660	484	589	1305	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.30	0.06	0.11	0.24	0.42	0.27	0.73	0.21	0.70	0.21	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 35.5

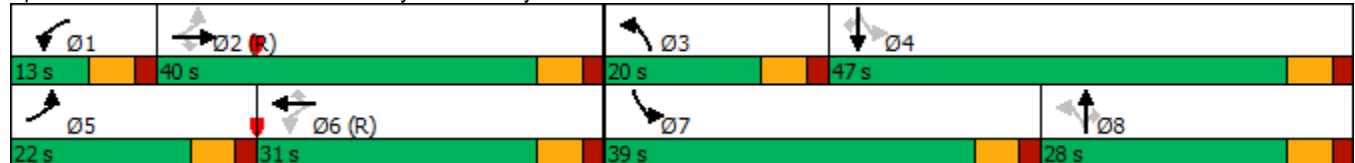
Intersection LOS: D

Intersection Capacity Utilization 76.7%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	17.7											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	83	464	68	64	318	23	84	23	165	43	15	41
Future Vol, veh/h	83	464	68	64	318	23	84	23	165	43	15	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	5	5	9	4	4	3	5	5	5
Mvmt Flow	90	504	74	70	346	25	91	25	179	47	16	45

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	346	0	0	578	0	0	1238	1244	346	1183	1170	504
Stage 1	-	-	-	-	-	-	486	486	-	684	684	-
Stage 2	-	-	-	-	-	-	752	758	-	499	486	-
Critical Hdwy	4.12	-	-	4.15	-	-	7.14	6.54	6.23	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.245	-	-	3.536	4.036	3.327	3.545	4.045	3.345
Pot Cap-1 Maneuver	1213	-	-	981	-	-	151	173	695	164	190	562
Stage 1	-	-	-	-	-	-	559	548	-	434	444	-
Stage 2	-	-	-	-	-	-	399	412	-	548	546	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1213	-	-	981	-	-	115	149	695	95	163	562
Mov Cap-2 Maneuver	-	-	-	-	-	-	115	149	-	95	163	-
Stage 1	-	-	-	-	-	-	518	509	-	402	411	-
Stage 2	-	-	-	-	-	-	327	382	-	359	507	-

Approach	NB			SB			SE			NW		
HCM Control Delay, s	1.1			1.4			62.3			64.4		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	NBLn1	NBLn2	SBL	SBT	SBR
Capacity (veh/h)	1213	-	-	160	121	695	981	-
HCM Lane V/C Ratio	0.074	-	-	0.673	0.961	0.258	0.071	-
HCM Control Delay (s)	8.2	-	-	64.4	139.8	12	8.9	-
HCM Lane LOS	A	-	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	3.9	6.3	1	0.2	-

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

Existing 2024 AM
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	490	36	25	571	44	45
Future Volume (vph)	490	36	25	571	44	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1827	1524	1556	1827	1719	1455
Flt Permitted			0.300		0.950	
Satd. Flow (perm)	1827	1524	491	1827	1719	1455
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				51
Link Speed (mph)	40			40	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	18.7			21.2	18.2	
Confl. Peds. (#/hr)			2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	6%	16%	4%	5%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	551	40	28	642	49	51
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	29.9	29.9	30.7	34.2	7.0	7.0
Actuated g/C Ratio	0.66	0.66	0.67	0.75	0.15	0.15
v/c Ratio	0.46	0.04	0.06	0.47	0.18	0.19
Control Delay	12.9	4.6	4.6	6.6	21.8	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	4.6	4.6	6.6	21.8	9.9
LOS	B	A	A	A	C	A
Approach Delay	12.3			6.5	15.7	

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

Existing 2024 AM
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			A	B	
Queue Length 50th (ft)	74	0	3	94	9	0
Queue Length 95th (ft)	#305	15	10	182	41	24
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	1241	1048	526	1574	355	341
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.04	0.05	0.41	0.14	0.15

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 45.6

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 45.1%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

Existing 2024 AM
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	131	365	426	1673	991	160
Future Volume (vph)	131	365	426	1673	991	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3335	1524	3400	3438	3282	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3335	1502	3400	3438	3282	1490
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		316				174
Link Speed (mph)	40			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	10.4			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	6%	3%	5%	10%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	397	463	1818	1077	174
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	18.0	18.0	30.0	30.0
Total Split (s)	24.0	24.0	32.0	126.0	94.0	94.0
Total Split (%)	16.0%	16.0%	21.3%	84.0%	62.7%	62.7%
Maximum Green (s)	18.0	18.0	25.0	119.0	87.0	87.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	18.4	18.4	25.3	118.6	86.3	86.3
Actuated g/C Ratio	0.12	0.12	0.17	0.79	0.58	0.58
v/c Ratio	0.35	0.86	0.81	0.67	0.57	0.19
Control Delay	60.5	32.2	71.4	9.7	23.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.5	32.2	71.4	9.7	23.6	3.3
LOS	E	C	E	A	C	A

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	39.7			22.2	20.8	
Approach LOS	D			C	C	
Queue Length 50th (ft)	67	79	226	350	337	0
Queue Length 95th (ft)	93	201	282	614	512	42
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	480	487	602	2802	2002	977
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.82	0.77	0.65	0.54	0.18

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 94 (63%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.1

Intersection LOS: C

Intersection Capacity Utilization 61.2%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	156	1004	339	110	1282	277	360	298	89	254	239	223
Future Volume (vph)	156	1004	339	110	1282	277	360	298	89	254	239	223
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	3367	3539	1568	3433	3574	2760	3467	3406	1599	3400	3505	1468
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1548	3433	3574	2760	3467	3406	1599	3400	3505	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			368			301			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	3%	2%	1%	3%	1%	6%	1%	3%	3%	10%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	170	1091	368	120	1393	301	391	324	97	276	260	242
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	20.0	83.0	83.0	20.0	83.0	83.0	27.0	20.0	20.0	27.0	20.0	20.0
Total Split (%)	13.3%	55.3%	55.3%	13.3%	55.3%	55.3%	18.0%	13.3%	13.3%	18.0%	13.3%	13.3%
Maximum Green (s)	12.0	75.0	75.0	12.0	75.0	75.0	20.0	13.0	13.0	21.0	13.0	13.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	11.3	74.4	74.4	10.3	73.3	73.3	20.1	19.1	19.1	17.2	15.2	15.2
Actuated g/C Ratio	0.08	0.50	0.50	0.07	0.49	0.49	0.13	0.13	0.13	0.11	0.10	0.10
v/c Ratio	0.67	0.62	0.39	0.51	0.80	0.20	0.84	0.75	0.29	0.71	0.73	0.87
Control Delay	103.9	14.8	1.1	74.9	36.4	2.3	79.7	73.9	4.1	73.9	78.2	55.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.9	14.8	1.1	74.9	36.4	2.3	79.7	73.9	4.1	73.9	78.2	55.0
LOS	F	B	A	E	D	A	E	E	A	E	E	E
Approach Delay		21.0			33.3			68.4			69.5	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	91	236	0	59	606	0	191	162	0	136	133	98
Queue Length 95th (ft)	132	90	2	93	671	27	#275	#293	12	182	#212	#270
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	269	1773	959	274	1787	1530	477	434	330	476	355	279
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.62	0.38	0.44	0.78	0.20	0.82	0.75	0.29	0.58	0.73	0.87

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 40.6

Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	83 s	27 s	20 s
			
Ø5	Ø6 (R)	Ø7	Ø8
20 s	83 s	27 s	20 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	62	546	264	44	642	130	213	159	32	151	249	79
Future Volume (vph)	62	546	264	44	642	130	213	159	32	151	249	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1805	1845	1583	1805	1810	1583	1787	1881	1524	1770	1804	0
Flt Permitted	0.143			0.237			0.192			0.587		
Satd. Flow (perm)	272	1845	1544	450	1810	1540	361	1881	1487	1093	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			278			118			127		12	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)			5			8			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	5%	2%	1%	1%	6%	2%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	575	278	46	676	137	224	167	34	159	345	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	12.0	56.0	56.0	12.0	56.0	56.0	18.0	31.0	31.0	21.0	34.0	
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%	15.0%	25.8%	25.8%	17.5%	28.3%	
Maximum Green (s)	7.0	49.0	49.0	7.0	49.0	49.0	13.0	25.0	25.0	16.0	28.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	60.9	53.4	53.4	60.7	53.2	53.2	41.2	26.6	26.6	39.2	25.6	
Actuated g/C Ratio	0.51	0.44	0.44	0.51	0.44	0.44	0.34	0.22	0.22	0.33	0.21	
v/c Ratio	0.29	0.70	0.33	0.15	0.84	0.18	0.79	0.40	0.08	0.37	0.87	
Control Delay	20.4	31.0	8.2	7.7	24.7	1.1	47.9	43.3	0.4	27.9	66.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.4	31.0	8.2	7.7	24.7	1.1	47.9	43.3	0.4	27.9	66.6	
LOS	C	C	A	A	C	A	D	D	A	C	E	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		23.3			20.1			42.3			54.4	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	14	146	13	7	277	6	119	109	0	81	245	
Queue Length 95th (ft)	m54	413	109	m12	#710	m0	#235	182	0	133	#390	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	227	820	840	307	803	748	285	421	431	478	430	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.70	0.33	0.15	0.84	0.18	0.79	0.40	0.08	0.33	0.80	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 31.1

Intersection LOS: C

Intersection Capacity Utilization 86.8%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
12 s	56 s	21 s	31 s
			
Ø5	Ø6	Ø7	Ø8
12 s	56 s	18 s	34 s

Lanes, Volumes, Timings
20: US13 & SR8

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	191	241	165	130	74	232	1629	165	107	1581	48
Future Volume (vph)	107	191	241	165	130	74	232	1629	165	107	1581	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1665	1763	1583	1770	1845	1599	3400	5059	0	1703	5036	1524
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1665	1763	1583	1770	1845	1576	3400	5059	0	1703	5036	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			131			13			131
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		16.8			47.4			23.8			17.3	
Confl. Peds. (#/hr)						1						11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	1%	3%	1%	2%	6%	3%	6%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	102	212	254	174	137	78	244	1889	0	113	1664	51
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	25.0	25.0	25.0	23.0	64.0		20.0	61.0	61.0
Total Split (%)	27.3%	27.3%	27.3%	16.7%	16.7%	16.7%	15.3%	42.7%		13.3%	40.7%	40.7%
Maximum Green (s)	34.0	34.0	34.0	18.0	18.0	18.0	16.0	57.0		13.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	24.3	24.3	24.3	17.2	17.2	17.2	15.3	66.1		14.3	65.2	65.2
Actuated g/C Ratio	0.16	0.16	0.16	0.11	0.11	0.11	0.10	0.44		0.10	0.43	0.43
v/c Ratio	0.38	0.74	0.60	0.86	0.65	0.26	0.71	0.84		0.70	0.76	0.07
Control Delay	58.5	75.0	18.8	99.3	78.1	2.4	76.4	42.6		87.1	40.0	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.5	75.0	18.8	99.3	78.1	2.4	76.4	42.6		87.1	40.0	0.2
LOS	E	E	B	F	E	A	E	D		F	D	A
Approach Delay		46.9			72.4			46.4			41.8	

Lanes, Volumes, Timings
20: US13 & SR8

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	94	210	45	169	129	0	120	610		108	507	0
Queue Length 95th (ft)	148	288	129	#296	205	3	168	#777		#205	638	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			365			400		
Base Capacity (vph)	377	399	515	212	221	304	373	2238		169	2188	716
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.53	0.49	0.82	0.62	0.26	0.65	0.84		0.67	0.76	0.07

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 17 (11%), Referenced to phase 6: SBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 46.8

Intersection LOS: D

Intersection Capacity Utilization 83.6%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: US13 & SR8

			
Ø1	Ø2	Ø3	Ø4
20 s	64 s	25 s	41 s
			
Ø5	Ø6 (R)		
23 s	61 s		

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

Existing 2024 PM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	87	148	208	772	724	143
Future Volume (vph)	87	148	208	772	724	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1752	1553	1719	1845	1863	1599
Flt Permitted	0.950		0.228			
Satd. Flow (perm)	1752	1509	413	1845	1863	1563
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		153				147
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		3				3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	4%	5%	3%	2%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	90	153	214	796	746	147
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	30.0	90.0	60.0	60.0
Total Split (%)	25.0%	25.0%	25.0%	75.0%	50.0%	50.0%
Maximum Green (s)	23.0	23.0	23.0	83.0	53.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	Min	Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	11.7	11.7	94.3	94.3	73.9	73.9
Actuated g/C Ratio	0.10	0.10	0.79	0.79	0.62	0.62
v/c Ratio	0.53	0.54	0.46	0.55	0.65	0.14
Control Delay	62.1	14.9	3.5	4.1	22.3	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	14.9	3.5	4.1	22.3	6.9
LOS	E	B	A	A	C	A

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

Existing 2024 PM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	32.4			3.9	19.7	
Approach LOS	C			A	B	
Queue Length 50th (ft)	68	0	9	35	407	25
Queue Length 95th (ft)	118	61	m22	395	734	80
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	335	412	574	1449	1147	1019
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.37	0.37	0.55	0.65	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 13.7

Intersection LOS: B

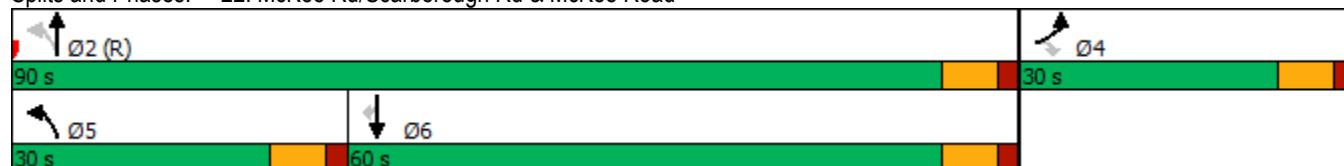
Intersection Capacity Utilization 73.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Existing 2024 PM

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	10	49	183	5	41	29	657	173	21	635	32
Future Volume (vph)	49	10	49	183	5	41	29	657	173	21	635	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1588	1656	1583	1698	1708	1583	1752	3505	1615	1805	3505	1429
Flt Permitted	0.950	0.967		0.950	0.955		0.373			0.364		
Satd. Flow (perm)	1588	1656	1583	1698	1708	1583	688	3505	1579	692	3505	1395
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			180			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Confl. Bikes (#/hr)									2			4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	0%	2%	1%	0%	2%	3%	3%	0%	0%	3%	13%
Shared Lane Traffic (%)	41%			49%								
Lane Group Flow (vph)	30	31	51	97	99	43	30	684	180	22	661	33
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	15.0	49.0	49.0	15.0	49.0	49.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	12.5%	40.8%	40.8%	12.5%	40.8%	40.8%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0	22.0	8.0	42.0	42.0	8.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	Min	Min
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				15.0	15.0	15.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	7.8	7.8	7.8	12.3	12.3	12.3	79.2	75.2	75.2	78.8	75.0	75.0
Actuated g/C Ratio	0.06	0.06	0.06	0.10	0.10	0.10	0.66	0.63	0.63	0.66	0.62	0.62
v/c Ratio	0.29	0.29	0.21	0.56	0.57	0.14	0.06	0.31	0.17	0.04	0.30	0.04
Control Delay	59.9	59.5	1.9	62.9	63.2	1.0	6.4	8.8	1.0	8.4	13.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	59.5	1.9	62.9	63.2	1.0	6.4	8.8	1.0	8.4	13.4	0.1
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		33.4			51.9			7.2			12.6	

Lanes, Volumes, Timings
23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			A			B		
Queue Length 50th (ft)	24	24	0	76	77	0	5	98	4	5	137	0
Queue Length 95th (ft)	55	57	0	131	133	0	m11	121	5	17	209	0
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	291	303	416	311	313	416	529	2195	1056	534	2190	926
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.10	0.12	0.31	0.32	0.10	0.06	0.31	0.17	0.04	0.30	0.04

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 16.1

Intersection LOS: B

Intersection Capacity Utilization 46.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

					
Ø1	Ø2 (R)		Ø3		Ø4
15 s	49 s		28 s		28 s
					
Ø5	Ø6				
15 s	49 s				

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	144	66	123	229	158	141	562	171	116	494	86
Future Volume (vph)	63	144	66	123	229	158	141	562	171	116	494	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1770	1845	1495	1752	1792	1524	1736	1792	1568	1719	1810	1538
Flt Permitted	0.442			0.450			0.285			0.253		
Satd. Flow (perm)	823	1845	1462	830	1792	1524	521	1792	1568	458	1810	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			145			209
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	3%	8%	3%	6%	6%	4%	6%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	152	69	129	241	166	148	592	180	122	520	91
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	27.0	27.0	12.0	28.0	28.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	20.0	28.0	28.0	20.0	28.0	28.0	25.0	57.0	57.0	15.0	47.0	47.0
Total Split (%)	16.7%	23.3%	23.3%	16.7%	23.3%	23.3%	20.8%	47.5%	47.5%	12.5%	39.2%	39.2%
Maximum Green (s)	14.0	22.0	22.0	14.0	22.0	22.0	18.0	50.0	50.0	8.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	26.3	17.5	17.5	32.6	22.7	22.7	67.0	56.7	56.7	63.0	54.7	54.7
Actuated g/C Ratio	0.22	0.15	0.15	0.27	0.19	0.19	0.56	0.47	0.47	0.52	0.46	0.46
v/c Ratio	0.27	0.57	0.17	0.41	0.71	0.36	0.38	0.70	0.22	0.37	0.63	0.11
Control Delay	32.0	55.2	0.9	35.0	58.2	3.9	12.6	18.9	1.6	13.4	21.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	55.2	0.9	35.0	58.2	3.9	12.6	18.9	1.6	13.4	21.1	0.4
LOS	C	E	A	C	E	A	B	B	A	B	C	A
Approach Delay		36.8			35.8			14.5			17.3	

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			B		
Queue Length 50th (ft)	37	110	0	75	179	0	25	128	0	22	102	0
Queue Length 95th (ft)	67	174	0	118	263	23	66	193	7	m34	540	m2
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	326	338	446	341	349	472	494	847	817	331	825	815
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.45	0.15	0.38	0.69	0.35	0.30	0.70	0.22	0.37	0.63	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 22.5

Intersection LOS: C

Intersection Capacity Utilization 73.9%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd

 Ø1	 Ø2	 Ø3	 Ø4
15 s	57 s	20 s	28 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25 s	47 s	20 s	28 s

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	106	471	218	116	630	163	304	570	109	137	518	114
Future Volume (vph)	106	471	218	116	630	163	304	570	109	137	518	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1752	3471	1583	1703	3539	1583	1770	3539	1553	1787	3471	1599
Flt Permitted	0.249			0.345			0.192			0.399		
Satd. Flow (perm)	459	3471	1561	618	3539	1561	358	3539	1528	751	3471	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			234			227			164			227
Link Speed (mph)		40			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		70.3			31.8			21.8			11.3	
Confl. Peds. (#/hr)			1			1			2			6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	4%	2%	6%	2%	2%	2%	2%	4%	1%	4%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	114	506	234	125	677	175	327	613	117	147	557	123
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	17.0	29.0	29.0	21.0	33.0	33.0	32.0	47.0	47.0	23.0	38.0	38.0
Total Split (%)	14.2%	24.2%	24.2%	17.5%	27.5%	27.5%	26.7%	39.2%	39.2%	19.2%	31.7%	31.7%
Maximum Green (s)	10.0	22.0	22.0	14.0	26.0	26.0	25.0	40.0	40.0	16.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	43.7	34.2	34.2	46.2	35.4	35.4	54.0	35.6	35.6	36.7	25.3	25.3
Actuated g/C Ratio	0.36	0.28	0.28	0.38	0.30	0.30	0.45	0.30	0.30	0.31	0.21	0.21
v/c Ratio	0.42	0.51	0.38	0.37	0.65	0.28	0.78	0.58	0.21	0.45	0.76	0.24
Control Delay	30.0	44.3	10.9	26.8	42.4	2.9	40.7	35.3	3.3	28.1	50.9	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	44.3	10.9	26.8	42.4	2.9	40.7	35.3	3.3	28.1	50.9	4.2
LOS	C	D	B	C	D	A	D	D	A	C	D	A
Approach Delay		33.3			33.3			33.4			39.9	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Existing 2024 PM
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			C			D		
Queue Length 50th (ft)	62	185	8	59	244	0	139	232	2	61	148	0
Queue Length 95th (ft)	84	#269	87	114	#370	24	274	205	m17	124	225	m26
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	283	988	612	380	1045	621	455	1194	624	396	896	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.51	0.38	0.33	0.65	0.28	0.72	0.51	0.19	0.37	0.62	0.22

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 34.8

Intersection LOS: C

Intersection Capacity Utilization 77.9%

ICU Level of Service D

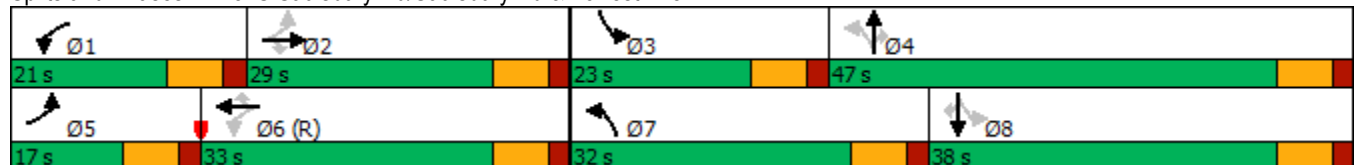
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

Existing 2024 PM
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	250	134	116	774	688	164
Future Volume (vph)	250	134	116	774	688	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1805	1583	1752	3505	3373	0
Flt Permitted	0.950		0.238			
Satd. Flow (perm)	1805	1560	438	3505	3373	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		143			36	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)		1	5			1
Confl. Bikes (#/hr)		1				4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	4%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	266	143	123	823	906	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	29.0	
Total Split (s)	33.0	33.0	18.0	87.0	69.0	
Total Split (%)	27.5%	27.5%	15.0%	72.5%	57.5%	
Maximum Green (s)	27.0	27.0	11.0	80.0	62.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	22.7	22.7	84.3	84.3	68.9	
Actuated g/C Ratio	0.19	0.19	0.70	0.70	0.57	
v/c Ratio	0.78	0.35	0.31	0.33	0.46	
Control Delay	61.6	8.3	7.7	5.5	31.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.6	8.3	7.7	5.5	31.1	
LOS	E	A	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

Existing 2024 PM
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	43.0			5.8	31.1	
Approach LOS	D			A	C	
Queue Length 50th (ft)	198	0	17	66	346	
Queue Length 95th (ft)	274	51	48	134	438	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	415	468	427	2478	1968	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.64	0.31	0.29	0.33	0.46	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.7

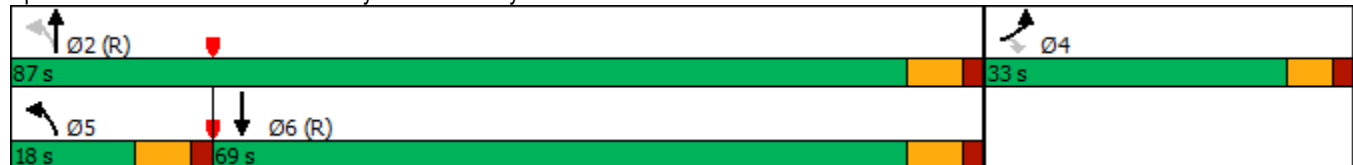
Intersection LOS: C

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Existing 2024 PM

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	114	230	86	76	379	390	46	334	39	244	451	74
Future Volume (vph)	114	230	86	76	379	390	46	334	39	244	451	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1641	3406	1538	1752	3471	1599	1736	3471	1568	1752	3505	1404
Flt Permitted	0.452			0.603			0.483			0.291		
Satd. Flow (perm)	781	3406	1517	1112	3471	1599	882	3471	1544	537	3505	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			406			191			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		41.2			26.4			14.0			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	6%	5%	3%	4%	1%	4%	4%	3%	3%	3%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	240	90	79	395	406	48	348	41	254	470	77
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	20.0	43.0	43.0	15.0	38.0	38.0	17.0	33.0	33.0	29.0	45.0	45.0
Total Split (%)	16.7%	35.8%	35.8%	12.5%	31.7%	31.7%	14.2%	27.5%	27.5%	24.2%	37.5%	37.5%
Maximum Green (s)	14.0	37.0	37.0	9.0	32.0	32.0	11.0	27.0	27.0	23.0	39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	61.4	52.6	52.6	56.7	48.4	48.4	25.1	17.5	17.5	43.5	32.1	32.1
Actuated g/C Ratio	0.51	0.44	0.44	0.47	0.40	0.40	0.21	0.15	0.15	0.36	0.27	0.27
v/c Ratio	0.25	0.16	0.12	0.14	0.28	0.46	0.20	0.69	0.11	0.64	0.50	0.16
Control Delay	17.4	23.9	0.3	16.7	27.1	4.9	26.1	55.7	0.5	53.1	44.3	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.4	23.9	0.3	16.7	27.1	4.9	26.1	55.7	0.5	53.1	44.3	10.0
LOS	B	C	A	B	C	A	C	E	A	D	D	B

Lanes, Volumes, Timings

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Existing 2024 PM

Dover East-West Freight Study

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Approach Delay		17.5			16.0			47.3			43.8	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	44	59	0	28	105	0	24	136	0	154	126	8
Queue Length 95th (ft)	93	108	0	66	180	79	43	178	0	251	200	43
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	515	1497	774	587	1399	887	287	780	495	433	1139	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.16	0.12	0.13	0.28	0.46	0.17	0.45	0.08	0.59	0.41	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 30.2

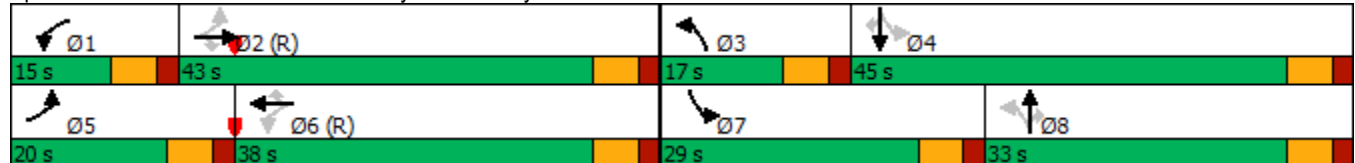
Intersection LOS: C

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	20.5											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	146	319	54	50	448	90	41	19	89	63	22	59
Future Vol, veh/h	146	319	54	50	448	90	41	19	89	63	22	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	6	6	3	1	0	5	2	5	5	5
Mvmt Flow	159	347	59	54	487	98	45	21	97	68	24	64

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	487	0	0	406	0	0	1334	1319	487	1271	1260	347
Stage 1	-	-	-	-	-	-	595	595	-	665	665	-
Stage 2	-	-	-	-	-	-	739	724	-	606	595	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.1	6.55	6.22	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.5	4.045	3.318	3.545	4.045	3.345
Pot Cap-1 Maneuver	1076	-	-	1131	-	-	132	155	581	143	168	689
Stage 1	-	-	-	-	-	-	494	488	-	444	453	-
Stage 2	-	-	-	-	-	-	412	426	-	479	488	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1076	-	-	1131	-	-	89	126	581	90	136	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	89	126	-	90	136	-
Stage 1	-	-	-	-	-	-	421	465	-	378	386	-
Stage 2	-	-	-	-	-	-	299	363	-	363	465	-

Approach	NB	SB	SE	NW
HCM Control Delay, s	2.5	0.7	45.9	140.4
HCM LOS			E	F

Minor Lane/Major Mvmt	NBL	NBT	NBRNWLn1	SELn1	SELn2	SBL	SBT	SBR
Capacity (veh/h)	1076	-	-	152	98	581	1131	-
HCM Lane V/C Ratio	0.147	-	-	1.03	0.665	0.167	0.048	-
HCM Control Delay (s)	8.9	-	-	140.4	95.6	12.4	8.3	-
HCM Lane LOS	A	-	-	F	F	B	A	-
HCM 95th %tile Q(veh)	0.5	-	-	7.9	3.3	0.6	0.2	-

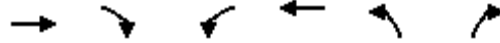
Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

Existing 2024 PM
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	522	78	90	455	64	91
Future Volume (vph)	522	78	90	455	64	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1845	1599	1787	1827	1770	1615
Flt Permitted			0.237		0.950	
Satd. Flow (perm)	1845	1565	446	1827	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		88				102
Link Speed (mph)	35			35	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	21.4			24.3	18.2	
Confl. Peds. (#/hr)			2			
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	1%	1%	4%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	587	88	101	511	72	102
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	15.0	5.0	5.0
Minimum Split (s)	21.0	21.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	27.3	27.3	35.7	37.7	7.5	7.5
Actuated g/C Ratio	0.51	0.51	0.67	0.71	0.14	0.14
v/c Ratio	0.62	0.10	0.22	0.40	0.29	0.32
Control Delay	19.7	3.8	5.3	6.2	25.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.7	3.8	5.3	6.2	25.9	9.1
LOS	B	A	A	A	C	A

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

Existing 2024 PM
Dover East-West Freight Study



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	17.6			6.0	16.0	
Approach LOS	B			A	B	
Queue Length 50th (ft)	170	0	11	73	23	0
Queue Length 95th (ft)	#345	22	26	130	55	35
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	961	857	506	1334	308	365
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.10	0.20	0.38	0.23	0.28

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.3

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 53.3%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

15 s	30 s	15 s
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

Existing 2024 PM
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	111	473	387	1424	1910	157
Future Volume (vph)	111	473	387	1424	1910	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3367	1553	3367	3406	3438	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3367	1528	3367	3406	3438	1549
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		181				157
Link Speed (mph)	35			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	11.9			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	6%	5%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	111	473	387	1424	1910	157
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	13.0	25.0	30.0	30.0
Total Split (s)	24.0	24.0	24.0	126.0	102.0	102.0
Total Split (%)	16.0%	16.0%	16.0%	84.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	17.0	119.0	95.0	95.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	18.5	18.5	17.0	118.5	94.5	94.5
Actuated g/C Ratio	0.12	0.12	0.11	0.79	0.63	0.63
v/c Ratio	0.27	1.36	1.02	0.53	0.88	0.15
Control Delay	61.8	210.1	114.4	6.5	29.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.8	210.1	114.4	6.5	29.2	1.8
LOS	E	F	F	A	C	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	181.9			29.5	27.1	
Approach LOS	F			C	C	
Queue Length 50th (ft)	51	~450	~205	224	770	0
Queue Length 95th (ft)	84	#676	#313	261	894	27
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	415	347	381	2702	2177	1038
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.36	1.02	0.53	0.88	0.15

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 124 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.36

Intersection Signal Delay: 48.4

Intersection LOS: D

Intersection Capacity Utilization 93.0%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 	 		 	 	 	 	 		 	 	 
Traffic Volume (vph)	190	1125	375	98	573	167	239	307	63	262	311	126
Future Volume (vph)	190	1125	375	98	573	167	239	307	63	262	311	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			412			184			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	20%	5%	5%	5%	10%	13%	4%	6%	5%	6%	6%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	1236	412	108	630	184	263	337	69	288	342	138
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	30.0	65.0	65.0	30.0	65.0	65.0	25.0	25.0	25.0	30.0	30.0	30.0
Total Split (%)	20.0%	43.3%	43.3%	20.0%	43.3%	43.3%	16.7%	16.7%	16.7%	20.0%	20.0%	20.0%
Maximum Green (s)	22.0	57.0	57.0	22.0	57.0	57.0	18.0	18.0	18.0	24.0	23.0	23.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	16.0	73.5	73.5	10.2	67.7	67.7	16.1	19.0	19.0	18.3	20.2	20.2
Actuated g/C Ratio	0.11	0.49	0.49	0.07	0.45	0.45	0.11	0.13	0.13	0.12	0.13	0.13
v/c Ratio	0.67	0.73	0.43	0.48	0.43	0.15	0.73	0.78	0.21	0.71	0.75	0.44
Control Delay	95.3	18.4	1.6	73.9	30.5	4.0	76.9	76.5	1.5	73.2	72.7	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	18.4	1.6	73.9	30.5	4.0	76.9	76.5	1.5	73.2	72.7	11.7
LOS	F	B	A	E	C	A	E	E	A	E	E	B
Approach Delay		23.3			30.3			68.9			61.9	
Approach LOS		C			C			E			E	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	107	322	0	53	221	0	129	168	0	141	171	0
Queue Length 95th (ft)	m142	438	25	85	303	27	178	#237	0	187	224	57
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	427	1684	963	489	1480	1235	404	442	326	528	522	340
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.73	0.43	0.22	0.43	0.15	0.65	0.76	0.21	0.55	0.66	0.41

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 39.1

Intersection LOS: D

Intersection Capacity Utilization 75.7%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

 Ø1	 Ø2	 Ø3	 Ø4
30 s	65 s	30 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
30 s	65 s	25 s	30 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	96	690	120	23	562	113	210	148	45	98	52	43
Future Volume (vph)	96	690	120	23	562	113	210	148	45	98	52	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1770	1810	1509	1597	1810	1553	1787	1827	1509	1656	1697	0
Flt Permitted	0.274			0.236			0.475			0.660		
Satd. Flow (perm)	510	1810	1474	397	1810	1512	894	1827	1470	1148	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			209			173		29	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)			1			1			1	1		
Confl. Bikes (#/hr)			2			4			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	5%	7%	13%	5%	4%	1%	4%	7%	9%	4%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	711	124	24	579	116	216	153	46	101	98	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	22.0	61.0	61.0	12.0	51.0	51.0	23.0	30.0	30.0	17.0	24.0	
Total Split (%)	18.3%	50.8%	50.8%	10.0%	42.5%	42.5%	19.2%	25.0%	25.0%	14.2%	20.0%	
Maximum Green (s)	17.0	54.0	54.0	7.0	44.0	44.0	18.0	24.0	24.0	12.0	18.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	74.8	67.2	67.2	69.3	61.0	61.0	33.8	17.6	17.6	22.7	11.6	
Actuated g/C Ratio	0.62	0.56	0.56	0.58	0.51	0.51	0.28	0.15	0.15	0.19	0.10	
v/c Ratio	0.25	0.70	0.14	0.08	0.63	0.13	0.58	0.57	0.13	0.39	0.52	
Control Delay	5.6	15.7	0.5	3.0	10.1	0.2	41.2	56.3	0.7	37.0	45.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	5.6	15.7	0.5	3.0	10.1	0.2	41.2	56.3	0.7	37.0	45.7	
LOS	A	B	A	A	B	A	D	E	A	D	D	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		12.6			8.3			42.3			41.3	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	8	421	0	2	66	1	137	112	0	60	52	
Queue Length 95th (ft)	m27	#504	m3	m2	m466	m0	197	176	0	100	105	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	502	1014	898	302	920	871	385	365	432	285	279	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.70	0.14	0.08	0.63	0.13	0.56	0.42	0.11	0.35	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 6:SETL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 19.2

Intersection LOS: B

Intersection Capacity Utilization 79.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

 Ø1	 Ø2	 Ø3	 Ø4
22 s	51 s	17 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	61 s	23 s	24 s

Lanes, Volumes, Timings
20: US13 & E Division St

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	42	96	151	190	122	65	189	1096	93	69	910	35
Future Volume (vph)	42	96	151	190	122	65	189	1096	93	69	910	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1715	1801	1615	1687	1881	1313	3467	4944	0	1367	4893	1568
Flt Permitted	0.950	0.998		0.950			0.950			0.950		
Satd. Flow (perm)	1715	1801	1615	1687	1881	1313	3467	4944	0	1367	4893	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			164		11				164
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)									1			6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	7%	1%	23%	1%	3%	9%	32%	6%	3%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	40	104	157	198	127	68	197	1239	0	72	948	36
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	20.0	37.0		20.0	37.0	37.0
Total Split (%)	34.2%	34.2%	34.2%	18.3%	18.3%	18.3%	16.7%	30.8%		16.7%	30.8%	30.8%
Maximum Green (s)	34.0	34.0	34.0	15.0	15.0	15.0	13.0	30.0		13.0	30.0	30.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	12.5	12.5	12.5	15.2	15.2	15.2	12.1	55.4		11.6	52.2	52.2
Actuated g/C Ratio	0.10	0.10	0.10	0.13	0.13	0.13	0.10	0.46		0.10	0.44	0.44
v/c Ratio	0.22	0.56	0.50	0.93	0.53	0.22	0.56	0.54		0.55	0.45	0.05
Control Delay	46.7	57.2	27.3	98.4	58.2	1.6	57.5	26.1		65.9	25.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.7	57.2	27.3	98.4	58.2	1.6	57.5	26.1		65.9	25.5	0.1
LOS	D	E	C	F	E	A	E	C		E	C	A
Approach Delay		40.2			68.7			30.4			27.4	

Lanes, Volumes, Timings
20: US13 & E Division St

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			C			C		
Queue Length 50th (ft)	32	87	54	154	94	0	76	253		54	183	0
Queue Length 95th (ft)	m53	m137	m113	#302	159	0	112	353		100	255	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			140			400		
Base Capacity (vph)	485	510	575	213	238	309	391	2288		158	2129	761
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.08	0.20	0.27	0.93	0.53	0.22	0.50	0.54		0.46	0.45	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 35.0

Intersection LOS: D

Intersection Capacity Utilization 66.4%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: US13 & E Division St

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	37 s	22 s	41 s
			
Ø5	Ø6 (R)		
20 s	37 s		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	224	112	671	697	63
Future Volume (vph)	56	224	112	671	697	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1626	1509	1671	1810	1810	1468
Flt Permitted	0.950		0.255			
Satd. Flow (perm)	1626	1471	449	1810	1810	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		243				68
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	7%	8%	5%	5%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	243	122	729	758	68
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	25.0	90.0	65.0	65.0
Total Split (%)	25.0%	25.0%	20.8%	75.0%	54.2%	54.2%
Maximum Green (s)	23.0	23.0	18.0	83.0	58.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	10.7	10.7	95.3	95.3	80.8	80.8
Actuated g/C Ratio	0.09	0.09	0.79	0.79	0.67	0.67
v/c Ratio	0.42	0.69	0.28	0.51	0.62	0.07
Control Delay	59.6	16.9	3.3	3.2	10.4	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	16.9	3.3	3.2	10.4	0.6
LOS	E	B	A	A	B	A
Approach Delay	25.5			3.2	9.6	

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C			A	A	
Queue Length 50th (ft)	46	0	14	91	140	0
Queue Length 95th (ft)	87	78	m14	63	606	0
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	311	478	539	1437	1218	1010
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.51	0.23	0.51	0.62	0.07

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 9.3

Intersection LOS: A

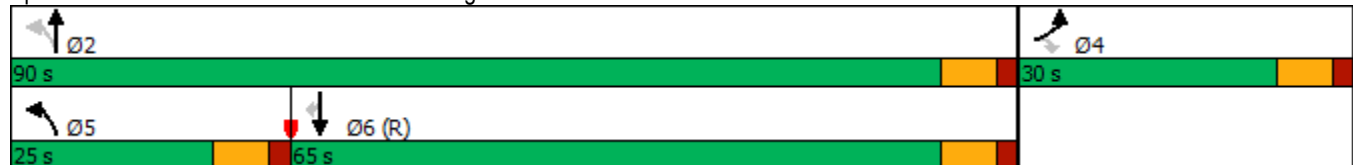
Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

2025 AM without SR8 Truck Restriction

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	6	13	65	6	15	48	566	113	16	682	86
Future Volume (vph)	28	6	13	65	6	15	48	566	113	16	682	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1649	1705	1404	1633	1663	1509	1770	3406	1583	1805	3406	1538
Flt Permitted	0.950	0.969		0.950	0.960		0.315			0.404		
Satd. Flow (perm)	1649	1705	1404	1633	1663	1509	587	3406	1583	768	3406	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			145			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	15%	5%	0%	7%	2%	6%	2%	0%	6%	5%
Shared Lane Traffic (%)	40%			46%								
Lane Group Flow (vph)	19	20	15	40	42	17	55	651	130	18	784	99
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	19.0	19.0	19.0	28.0	28.0	28.0	20.0	59.0	59.0	14.0	53.0	53.0
Total Split (%)	15.8%	15.8%	15.8%	23.3%	23.3%	23.3%	16.7%	49.2%	49.2%	11.7%	44.2%	44.2%
Maximum Green (s)	13.0	13.0	13.0	22.0	22.0	22.0	13.0	52.0	52.0	7.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				15.0	15.0	15.0					7.0	7.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)	7.0	7.0	7.0	8.5	8.5	8.5	90.2	88.6	88.6	86.2	82.8	82.8
Actuated g/C Ratio	0.06	0.06	0.06	0.07	0.07	0.07	0.75	0.74	0.74	0.72	0.69	0.69
v/c Ratio	0.20	0.20	0.07	0.35	0.36	0.07	0.11	0.26	0.11	0.03	0.33	0.09
Control Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.7	7.3	1.2	6.2	11.4	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.7	7.3	1.2	6.2	11.4	0.8
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		42.0			50.3			6.2			10.1	
Approach LOS		D			D			A			B	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	14	15	0	31	33	0	9	74	0	4	155	0
Queue Length 95th (ft)	40	41	0	66	68	0	20	111	6	12	218	7
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	178	184	290	299	304	403	579	2514	1206	617	2350	1106
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.05	0.13	0.14	0.04	0.09	0.26	0.11	0.03	0.33	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 11.4

Intersection LOS: B

Intersection Capacity Utilization 48.3%

ICU Level of Service A

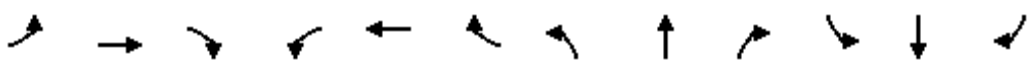
Analysis Period (min) 15

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

							
Ø1	Ø2		Ø3	Ø4		Ø5	Ø6 (R)
14 s	59 s		28 s	19 s		20 s	53 s

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	210	72	103	111	103	60	553	176	151	601	43
Future Volume (vph)	83	210	72	103	111	103	60	553	176	151	601	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1703	1863	1495	1736	1810	1553	1597	1810	1538	1719	1776	1583
Flt Permitted	0.654			0.330			0.209			0.158		
Satd. Flow (perm)	1172	1863	1461	603	1810	1553	351	1810	1538	286	1776	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			209			145
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Peds. (#/hr)			1									
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	2%	8%	4%	5%	4%	13%	5%	5%	5%	7%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	236	81	116	125	116	67	621	198	170	675	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	28.0	28.0	12.0	27.0	27.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	15.0	45.0	45.0	24.0	54.0	54.0
Total Split (%)	15.0%	27.5%	27.5%	15.0%	27.5%	27.5%	12.5%	37.5%	37.5%	20.0%	45.0%	45.0%
Maximum Green (s)	12.0	27.0	27.0	12.0	27.0	27.0	8.0	38.0	38.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	30.2	20.4	20.4	31.8	21.1	21.1	57.9	50.5	50.5	68.8	58.2	58.2
Actuated g/C Ratio	0.25	0.17	0.17	0.26	0.18	0.18	0.48	0.42	0.42	0.57	0.48	0.48
v/c Ratio	0.27	0.75	0.19	0.45	0.39	0.26	0.27	0.82	0.26	0.54	0.78	0.06
Control Delay	30.8	61.6	1.0	34.8	46.3	1.4	13.3	30.2	2.7	26.0	25.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	61.6	1.0	34.8	46.3	1.4	13.3	30.2	2.7	26.0	25.4	0.2
LOS	C	E	A	C	D	A	B	C	A	C	C	A
Approach Delay		42.6			28.0			22.8			24.1	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			C		
Queue Length 50th (ft)	52	176	0	66	86	0	16	182	11	24	478	0
Queue Length 95th (ft)	85	245	0	102	137	0	m30	#758	m24	m108	#731	m0
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	369	419	497	279	407	518	255	761	768	369	861	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.56	0.16	0.42	0.31	0.22	0.26	0.82	0.26	0.46	0.78	0.06

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 27.2

Intersection LOS: C

Intersection Capacity Utilization 76.1%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd

			
Ø1	Ø2	Ø3	Ø4
24 s	45 s	18 s	33 s
			
Ø5	Ø6 (R)	Ø7	Ø8
15 s	54 s	18 s	33 s

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	179	560	258	93	356	129	148	508	116	189	498	126
Future Volume (vph)	179	560	258	93	356	129	148	508	116	189	498	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1626	3505	1538	1612	3610	1524	1583	3505	1568	1703	3406	1429
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1626	3505	1538	1612	3610	1502	1583	3505	1543	1703	3406	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			293			164			164			164
Link Speed (mph)		35			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		80.4			31.8			21.8			11.3	
Confl. Peds. (#/hr)						1			2			3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	11%	3%	5%	12%	0%	6%	14%	3%	3%	6%	6%	13%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	203	636	293	106	405	147	168	577	132	215	566	143
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	24.0	36.0	36.0	18.0	30.0	30.0	20.0	40.0	40.0	26.0	46.0	46.0
Total Split (%)	20.0%	30.0%	30.0%	15.0%	25.0%	25.0%	16.7%	33.3%	33.3%	21.7%	38.3%	38.3%
Maximum Green (s)	17.0	29.0	29.0	11.0	23.0	23.0	13.0	33.0	33.0	19.0	39.0	39.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	19.0	35.0	35.0	12.0	28.0	28.0	15.2	27.0	27.0	18.0	29.9	29.9
Actuated g/C Ratio	0.16	0.29	0.29	0.10	0.23	0.23	0.13	0.22	0.22	0.15	0.25	0.25
v/c Ratio	0.79	0.62	0.45	0.66	0.48	0.31	0.84	0.73	0.28	0.84	0.67	0.30
Control Delay	67.6	43.8	10.6	72.8	30.8	5.9	94.5	35.6	4.9	90.3	32.1	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	43.8	10.6	72.8	30.8	5.9	94.5	35.6	4.9	90.3	32.1	3.4
LOS	E	D	B	E	C	A	F	D	A	F	C	A
Approach Delay		39.5			32.0			42.3			41.2	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			D			D		
Queue Length 50th (ft)	155	247	36	67	108	5	114	215	28	163	127	0
Queue Length 95th (ft)	#271	312	89	#164	170	22	#275	256	16	m#245	127	m7
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	262	1021	655	167	842	476	200	963	543	272	1106	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.62	0.45	0.63	0.48	0.31	0.84	0.60	0.24	0.79	0.51	0.25

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 39.2

Intersection LOS: D

Intersection Capacity Utilization 70.4%

ICU Level of Service C

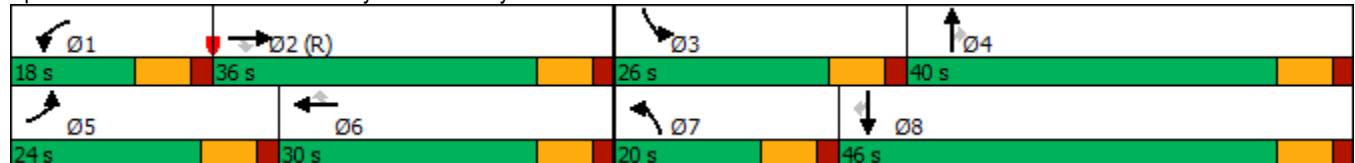
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	37	88	706	709	139
Future Volume (vph)	66	37	88	706	709	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1671	1495	1787	3406	3247	0
Flt Permitted	0.950		0.258			
Satd. Flow (perm)	1671	1476	484	3406	3247	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			29	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)			5			
Confl. Bikes (#/hr)		1				2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	1%	6%	9%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	41	98	784	942	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	32.0	
Total Split (s)	31.0	31.0	17.0	89.0	72.0	
Total Split (%)	25.8%	25.8%	14.2%	74.2%	60.0%	
Maximum Green (s)	25.0	25.0	10.0	82.0	65.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	10.6	10.6	98.9	100.3	85.0	
Actuated g/C Ratio	0.09	0.09	0.82	0.84	0.71	
v/c Ratio	0.50	0.25	0.21	0.28	0.41	
Control Delay	62.8	17.9	2.8	1.9	20.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.8	17.9	2.8	1.9	20.7	
LOS	E	B	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.6			2.0	20.7	
Approach LOS	D			A	C	
Queue Length 50th (ft)	55	0	6	26	346	
Queue Length 95th (ft)	101	34	m20	66	411	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	348	339	507	2846	2309	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.12	0.19	0.28	0.41	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 13.7

Intersection LOS: B

Intersection Capacity Utilization 49.7%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2025 AM without SR8 Truck Restriction

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	338	37	32	197	225	97	439	92	372	244	92
Future Volume (vph)	159	338	37	32	197	225	97	439	92	372	244	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1656	3471	1455	1703	3406	1553	1736	3505	1538	1736	3374	1302
Flt Permitted	0.502			0.529			0.585			0.192		
Satd. Flow (perm)	875	3471	1435	948	3406	1553	1069	3505	1518	351	3374	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			250			245			191
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		35.3			22.6			12.2			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	9%	4%	11%	6%	6%	4%	4%	3%	5%	4%	7%	24%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	376	41	36	219	250	105	477	100	413	271	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	22.0	40.0	40.0	13.0	31.0	31.0	20.0	28.0	28.0	39.0	47.0	47.0
Total Split (%)	18.3%	33.3%	33.3%	10.8%	25.8%	25.8%	16.7%	23.3%	23.3%	32.5%	39.2%	39.2%
Maximum Green (s)	16.0	34.0	34.0	7.0	25.0	25.0	14.0	22.0	22.0	33.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	47.9	39.9	39.9	35.1	28.3	28.3	30.4	20.8	20.8	60.1	44.5	44.5
Actuated g/C Ratio	0.40	0.33	0.33	0.29	0.24	0.24	0.25	0.17	0.17	0.50	0.37	0.37
v/c Ratio	0.40	0.33	0.07	0.11	0.27	0.45	0.32	0.79	0.22	0.74	0.22	0.17
Control Delay	30.0	34.8	0.2	28.1	42.3	8.6	21.8	57.2	1.1	59.2	21.4	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.0	34.8	0.2	28.1	42.3	8.6	21.8	57.2	1.1	59.2	21.4	3.8
LOS	C	C	A	C	D	A	C	E	A	E	C	A

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay	31.0			24.6			43.5			39.0		
Approach LOS	C			C			D			D		
Queue Length 50th (ft)	94	125	0	18	75	0	40	185	0	279	34	0
Queue Length 95th (ft)	165	185	0	44	123	76	62	246	0	398	95	38
Internal Link Dist (ft)	1734			1081			637			806		
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	455	1259	642	326	903	595	387	656	483	590	1305	620
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.30	0.06	0.11	0.24	0.42	0.27	0.73	0.21	0.70	0.21	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 35.5

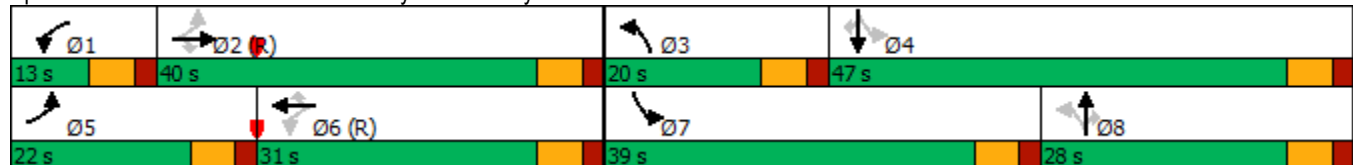
Intersection LOS: D

Intersection Capacity Utilization 76.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	18.5											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	84	467	69	64	320	23	85	23	166	43	15	41
Future Vol, veh/h	84	467	69	64	320	23	85	23	166	43	15	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	5	5	9	4	4	3	5	5	5
Mvmt Flow	91	508	75	70	348	25	92	25	180	47	16	45

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	348	0	0	583	0	0	1246	1253	348	1191	1178	508
Stage 1	-	-	-	-	-	-	488	488	-	690	690	-
Stage 2	-	-	-	-	-	-	758	765	-	501	488	-
Critical Hdwy	4.12	-	-	4.15	-	-	7.14	6.54	6.23	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.245	-	-	3.536	4.036	3.327	3.545	4.045	3.345
Pot Cap-1 Maneuver	1211	-	-	977	-	-	149	170	693	162	188	559
Stage 1	-	-	-	-	-	-	558	547	-	431	442	-
Stage 2	-	-	-	-	-	-	396	409	-	547	545	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1211	-	-	977	-	-	113	146	693	93	161	559
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	146	-	93	161	-
Stage 1	-	-	-	-	-	-	516	508	-	399	409	-
Stage 2	-	-	-	-	-	-	324	378	-	357	506	-

Approach	NB			SB			SE			NW		
HCM Control Delay, s	1.1			1.4			65.6			67.1		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	NBLn1	NBLn2	NBLn3	NBLn4	NBLn5	NBLn6	NBLn7	NBLn8	NBLn9
Capacity (veh/h)	1211	-	-	157	119	693	977	-	-	-	-	-
HCM Lane V/C Ratio	0.075	-	-	0.685	0.986	0.26	0.071	-	-	-	-	-
HCM Control Delay (s)	8.2	-	-	67.1	148.1	12	9	-	-	-	-	-
HCM Lane LOS	A	-	-	F	F	B	A	-	-	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4	6.5	1	0.2	-	-	-	-	-

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	493	36	25	576	44	45
Future Volume (vph)	493	36	25	576	44	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1827	1524	1556	1827	1719	1455
Flt Permitted			0.298		0.950	
Satd. Flow (perm)	1827	1524	488	1827	1719	1455
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				51
Link Speed (mph)	40			40	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	18.7			21.2	18.2	
Confl. Peds. (#/hr)			2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	6%	16%	4%	5%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	554	40	28	647	49	51
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	30.0	30.0	30.7	34.2	7.0	7.0
Actuated g/C Ratio	0.66	0.66	0.67	0.75	0.15	0.15
v/c Ratio	0.46	0.04	0.06	0.47	0.18	0.19
Control Delay	12.9	4.6	4.5	6.6	21.8	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	4.6	4.5	6.6	21.8	9.9
LOS	B	A	A	A	C	A
Approach Delay	12.4			6.5	15.7	

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 AM without SR8 Truck Restriction
Dover East-West Freight Study



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			A	B	
Queue Length 50th (ft)	75	0	3	95	9	0
Queue Length 95th (ft)	#308	15	10	184	41	24
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	1240	1047	524	1572	354	340
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.04	0.05	0.41	0.14	0.15

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 45.6

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 9.7

Intersection LOS: A

Intersection Capacity Utilization 45.3%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

 Ø1	 Ø2	 Ø4
15 s	30 s	15 s
 Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2025 AM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	132	368	429	1686	998	161
Future Volume (vph)	132	368	429	1686	998	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3335	1524	3400	3438	3282	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3335	1502	3400	3438	3282	1490
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		314				175
Link Speed (mph)	40			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	10.4			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	6%	3%	5%	10%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	400	466	1833	1085	175
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	18.0	18.0	30.0	30.0
Total Split (s)	24.0	24.0	32.0	126.0	94.0	94.0
Total Split (%)	16.0%	16.0%	21.3%	84.0%	62.7%	62.7%
Maximum Green (s)	18.0	18.0	25.0	119.0	87.0	87.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	19.1	19.1	25.0	117.9	85.9	85.9
Actuated g/C Ratio	0.13	0.13	0.17	0.79	0.57	0.57
v/c Ratio	0.34	0.86	0.82	0.68	0.58	0.19
Control Delay	59.7	32.5	72.8	10.2	23.9	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.7	32.5	72.8	10.2	23.9	3.2
LOS	E	C	E	B	C	A

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	39.6			22.9	21.0	
Approach LOS	D			C	C	
Queue Length 50th (ft)	67	84	228	371	348	0
Queue Length 95th (ft)	92	206	290	633	508	42
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	490	488	595	2796	1996	974
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.82	0.78	0.66	0.54	0.18

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 94 (63%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 24.6

Intersection LOS: C

Intersection Capacity Utilization 61.6%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	 	 		 	 	 	 	 		 	 	
Traffic Volume (vph)	190	1125	375	101	573	167	239	313	63	262	323	126
Future Volume (vph)	190	1125	375	101	573	167	239	313	63	262	323	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	2918	3438	1538	3335	3282	2515	3367	3374	1538	3303	3282	1417
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	3438	1538	3335	3282	2515	3367	3374	1538	3303	3282	1417
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			412			184			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	20%	5%	5%	5%	10%	13%	4%	7%	5%	6%	10%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	209	1236	412	111	630	184	263	344	69	288	355	138
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	30.0	65.0	65.0	30.0	65.0	65.0	25.0	25.0	25.0	30.0	30.0	30.0
Total Split (%)	20.0%	43.3%	43.3%	20.0%	43.3%	43.3%	16.7%	16.7%	16.7%	20.0%	20.0%	20.0%
Maximum Green (s)	22.0	57.0	57.0	22.0	57.0	57.0	18.0	18.0	18.0	24.0	23.0	23.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	16.0	72.9	72.9	10.4	67.3	67.3	16.1	19.4	19.4	18.3	20.6	20.6
Actuated g/C Ratio	0.11	0.49	0.49	0.07	0.45	0.45	0.11	0.13	0.13	0.12	0.14	0.14
v/c Ratio	0.67	0.74	0.43	0.48	0.43	0.15	0.73	0.79	0.21	0.71	0.79	0.43
Control Delay	95.3	18.9	1.6	73.9	30.7	4.0	76.9	76.8	1.5	73.2	75.6	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	18.9	1.6	73.9	30.7	4.0	76.9	76.8	1.5	73.2	75.6	11.6
LOS	F	B	A	E	C	A	E	E	A	E	E	B
Approach Delay		23.6			30.5			69.1			63.4	
Approach LOS		C			C			E			E	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	106	348	0	55	223	0	129	172	0	141	178	0
Queue Length 95th (ft)	m142	443	25	87	303	27	178	#247	0	187	234	57
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	427	1671	959	489	1472	1229	404	444	328	528	503	340
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.74	0.43	0.23	0.43	0.15	0.65	0.77	0.21	0.55	0.71	0.41

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 39.7

Intersection LOS: D

Intersection Capacity Utilization 76.0%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

 Ø1	 Ø2	 Ø3	 Ø4
30 s	65 s	30 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
30 s	65 s	25 s	30 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	96	705	120	23	568	113	210	148	45	98	52	43
Future Volume (vph)	96	705	120	23	568	113	210	148	45	98	52	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1770	1776	1509	1597	1792	1553	1787	1827	1509	1656	1697	0
Flt Permitted	0.269			0.224			0.475			0.660		
Satd. Flow (perm)	501	1776	1474	377	1792	1512	894	1827	1470	1148	1697	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			209			173		29	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)			1			1			1	1		
Confl. Bikes (#/hr)			2			4			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	7%	7%	13%	6%	4%	1%	4%	7%	9%	4%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	727	124	24	586	116	216	153	46	101	98	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	22.0	61.0	61.0	12.0	51.0	51.0	23.0	30.0	30.0	17.0	24.0	
Total Split (%)	18.3%	50.8%	50.8%	10.0%	42.5%	42.5%	19.2%	25.0%	25.0%	14.2%	20.0%	
Maximum Green (s)	17.0	54.0	54.0	7.0	44.0	44.0	18.0	24.0	24.0	12.0	18.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	74.8	67.3	67.3	69.3	61.1	61.1	33.7	17.5	17.5	22.8	11.6	
Actuated g/C Ratio	0.62	0.56	0.56	0.58	0.51	0.51	0.28	0.15	0.15	0.19	0.10	
v/c Ratio	0.25	0.73	0.14	0.09	0.64	0.13	0.58	0.58	0.13	0.39	0.52	
Control Delay	6.2	17.4	0.6	2.9	9.9	0.2	41.3	56.4	0.7	37.0	45.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	6.2	17.4	0.6	2.9	9.9	0.2	41.3	56.4	0.7	37.0	45.7	
LOS	A	B	A	A	A	A	D	E	A	D	D	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		14.0			8.2			42.4			41.3	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	8	453	0	1	62	0	137	113	0	60	52	
Queue Length 95th (ft)	m31	#721	m8	m2	m532	m0	197	176	0	100	105	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	498	995	898	291	911	872	385	365	432	285	279	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.20	0.73	0.14	0.08	0.64	0.13	0.56	0.42	0.11	0.35	0.35	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 6:SETL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 19.7

Intersection LOS: B

Intersection Capacity Utilization 80.4%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

 Ø1	 Ø2	 Ø3	 Ø4
22 s	51 s	17 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	61 s	23 s	24 s

Lanes, Volumes, Timings
20: US13 & E Division St

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	39	90	144	190	110	65	177	1096	93	32	910	35
Future Volume (vph)	39	90	144	190	110	65	177	1096	93	32	910	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1603	1699	1538	1687	1712	1313	3273	4944	0	1367	4893	1455
Flt Permitted	0.950	0.998		0.950			0.950			0.950		
Satd. Flow (perm)	1603	1699	1538	1687	1712	1313	3273	4944	0	1367	4893	1426
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			164		11				164
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)									1			6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	7%	6%	5%	7%	11%	23%	7%	3%	9%	32%	6%	11%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	37	98	150	198	115	68	184	1239	0	33	948	36
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	20.0	37.0		20.0	37.0	37.0
Total Split (%)	34.2%	34.2%	34.2%	18.3%	18.3%	18.3%	16.7%	30.8%		16.7%	30.8%	30.8%
Maximum Green (s)	34.0	34.0	34.0	15.0	15.0	15.0	13.0	30.0		13.0	30.0	30.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	12.5	12.5	12.5	15.2	15.2	15.2	12.0	61.2		8.4	52.3	52.3
Actuated g/C Ratio	0.10	0.10	0.10	0.13	0.13	0.13	0.10	0.51		0.07	0.44	0.44
v/c Ratio	0.22	0.56	0.49	0.93	0.53	0.22	0.56	0.49		0.35	0.44	0.05
Control Delay	46.7	57.4	26.2	98.0	58.9	1.6	57.9	21.9		62.2	25.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	46.7	57.4	26.2	98.0	58.9	1.6	57.9	21.9		62.2	25.5	0.1
LOS	D	E	C	F	E	A	E	C		E	C	A
Approach Delay		39.6			69.0			26.5			25.8	

Lanes, Volumes, Timings
20: US13 & E Division St

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			C			C		
Queue Length 50th (ft)	30	83	50	154	85	0	71	239		25	183	0
Queue Length 95th (ft)	m48	m130	m106	#302	148	0	106	329		58	255	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			365			400		
Base Capacity (vph)	454	481	553	213	217	309	369	2525		148	2132	714
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.08	0.20	0.27	0.93	0.53	0.22	0.50	0.49		0.22	0.44	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 32.7

Intersection LOS: C

Intersection Capacity Utilization 62.2%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: US13 & E Division St

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	37 s	22 s	41 s
			
Ø5	Ø6 (R)		
20 s	37 s		

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	56	224	112	677	712	63
Future Volume (vph)	56	224	112	677	712	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1626	1509	1671	1792	1776	1468
Flt Permitted	0.950		0.246			
Satd. Flow (perm)	1626	1471	433	1792	1776	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		243				68
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	7%	8%	6%	7%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	61	243	122	736	774	68
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	25.0	90.0	65.0	65.0
Total Split (%)	25.0%	25.0%	20.8%	75.0%	54.2%	54.2%
Maximum Green (s)	23.0	23.0	18.0	83.0	58.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	10.7	10.7	95.3	95.3	80.6	80.6
Actuated g/C Ratio	0.09	0.09	0.79	0.79	0.67	0.67
v/c Ratio	0.42	0.69	0.29	0.52	0.65	0.07
Control Delay	59.6	16.9	3.0	2.8	10.9	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	16.9	3.0	2.8	10.9	0.5
LOS	E	B	A	A	B	A
Approach Delay	25.5			2.9	10.1	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C			A	B	
Queue Length 50th (ft)	46	0	14	100	150	0
Queue Length 95th (ft)	87	78	m14	63	636	0
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	311	478	529	1422	1192	1008
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.51	0.23	0.52	0.65	0.07

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 9.3

Intersection LOS: A

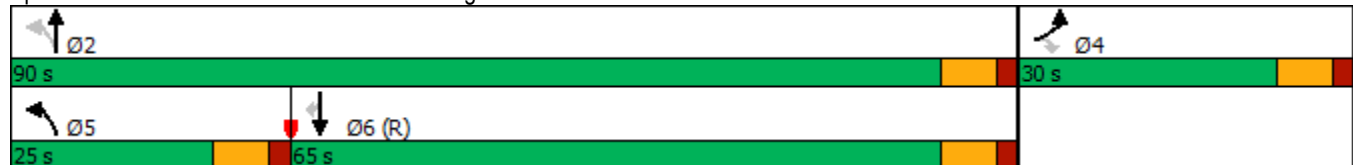
Intersection Capacity Utilization 67.8%

ICU Level of Service C

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

2025 AM with SR8 Truck Restriction

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	28	6	13	65	6	15	48	572	113	16	697	86
Future Volume (vph)	28	6	13	65	6	15	48	572	113	16	697	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1649	1705	1404	1633	1663	1509	1770	3374	1583	1805	3343	1538
Flt Permitted	0.950	0.969		0.950	0.960		0.308			0.402		
Satd. Flow (perm)	1649	1705	1404	1633	1663	1509	574	3374	1583	764	3343	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			145			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	15%	5%	0%	7%	2%	7%	2%	0%	8%	5%
Shared Lane Traffic (%)	40%			46%								
Lane Group Flow (vph)	19	20	15	40	42	17	55	657	130	18	801	99
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	19.0	19.0	19.0	28.0	28.0	28.0	20.0	59.0	59.0	14.0	53.0	53.0
Total Split (%)	15.8%	15.8%	15.8%	23.3%	23.3%	23.3%	16.7%	49.2%	49.2%	11.7%	44.2%	44.2%
Maximum Green (s)	13.0	13.0	13.0	22.0	22.0	22.0	13.0	52.0	52.0	7.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				15.0	15.0	15.0					7.0	7.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)	7.0	7.0	7.0	8.5	8.5	8.5	90.2	88.6	88.6	86.2	82.8	82.8
Actuated g/C Ratio	0.06	0.06	0.06	0.07	0.07	0.07	0.75	0.74	0.74	0.72	0.69	0.69
v/c Ratio	0.20	0.20	0.07	0.35	0.36	0.07	0.11	0.26	0.11	0.03	0.35	0.09
Control Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.9	7.5	1.2	6.2	11.6	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.0	58.0	0.5	60.4	60.7	0.5	5.9	7.5	1.2	6.2	11.6	0.8
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		42.0			50.3			6.4			10.3	
Approach LOS		D			D			A			B	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	14	15	0	31	33	0	9	58	1	4	160	0
Queue Length 95th (ft)	40	41	0	66	68	0	19	112	5	12	225	7
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	178	184	290	299	304	403	571	2490	1206	614	2307	1106
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.05	0.13	0.14	0.04	0.10	0.26	0.11	0.03	0.35	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 11.6

Intersection LOS: B

Intersection Capacity Utilization 48.7%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

							
Ø1	Ø2		Ø3		Ø4		
14 s	59 s		28 s		19 s		
							
Ø5	Ø6 (R)						
20 s	53 s						

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	210	72	103	111	103	60	559	179	151	616	43
Future Volume (vph)	83	210	72	103	111	103	60	559	179	151	616	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1703	1863	1495	1736	1810	1553	1597	1792	1509	1719	1743	1583
Flt Permitted	0.654			0.330			0.194			0.152		
Satd. Flow (perm)	1172	1863	1461	603	1810	1553	326	1792	1509	275	1743	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			209			145
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Peds. (#/hr)			1									
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	2%	8%	4%	5%	4%	13%	6%	7%	5%	9%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	236	81	116	125	116	67	628	201	170	692	48
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	28.0	28.0	12.0	27.0	27.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	15.0	45.0	45.0	24.0	54.0	54.0
Total Split (%)	15.0%	27.5%	27.5%	15.0%	27.5%	27.5%	12.5%	37.5%	37.5%	20.0%	45.0%	45.0%
Maximum Green (s)	12.0	27.0	27.0	12.0	27.0	27.0	8.0	38.0	38.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	30.2	20.4	20.4	31.8	21.1	21.1	57.9	50.5	50.5	68.8	58.2	58.2
Actuated g/C Ratio	0.25	0.17	0.17	0.26	0.18	0.18	0.48	0.42	0.42	0.57	0.48	0.48
v/c Ratio	0.27	0.75	0.19	0.45	0.39	0.26	0.29	0.83	0.27	0.55	0.82	0.06
Control Delay	30.8	61.6	1.0	34.8	46.3	1.4	14.2	31.7	3.0	27.7	26.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.8	61.6	1.0	34.8	46.3	1.4	14.2	31.7	3.0	27.7	26.6	0.2
LOS	C	E	A	C	D	A	B	C	A	C	C	A
Approach Delay		42.6			28.0			24.0			25.4	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			C		
Queue Length 50th (ft)	52	176	0	66	86	0	16	188	13	37	375	0
Queue Length 95th (ft)	85	245	0	102	137	0	m30	#773	m26	m104	#772	m0
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	369	419	497	279	407	518	245	754	756	364	845	842
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.56	0.16	0.42	0.31	0.22	0.27	0.83	0.27	0.47	0.82	0.06

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization 76.4%

ICU Level of Service D

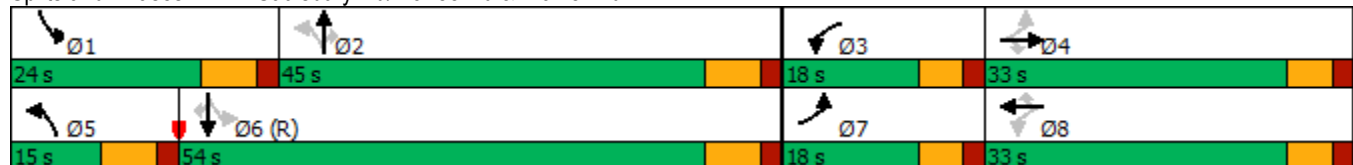
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd



Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 AM with SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	188	544	265	93	329	129	160	508	116	189	498	141
Future Volume (vph)	188	544	265	93	329	129	160	508	116	189	498	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1626	3438	1583	1612	3343	1524	1719	3505	1568	1703	3406	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1626	3438	1583	1612	3343	1502	1719	3505	1543	1703	3406	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			301			164			164			164
Link Speed (mph)		35			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		80.4			31.8			21.8			11.3	
Confl. Peds. (#/hr)						1			2			3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	11%	5%	2%	12%	8%	6%	5%	3%	3%	6%	6%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	618	301	106	374	147	182	577	132	215	566	160
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	24.0	36.0	36.0	18.0	30.0	30.0	20.0	40.0	40.0	26.0	46.0	46.0
Total Split (%)	20.0%	30.0%	30.0%	15.0%	25.0%	25.0%	16.7%	33.3%	33.3%	21.7%	38.3%	38.3%
Maximum Green (s)	17.0	29.0	29.0	11.0	23.0	23.0	13.0	33.0	33.0	19.0	39.0	39.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	20.0	34.9	34.9	12.0	26.9	26.9	15.2	27.0	27.0	18.1	29.9	29.9
Actuated g/C Ratio	0.17	0.29	0.29	0.10	0.22	0.22	0.13	0.22	0.22	0.15	0.25	0.25
v/c Ratio	0.79	0.62	0.45	0.66	0.50	0.32	0.83	0.73	0.28	0.84	0.67	0.31
Control Delay	66.2	43.7	10.6	72.7	32.2	6.0	93.4	35.2	4.6	89.7	32.7	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.2	43.7	10.6	72.7	32.2	6.0	93.4	35.2	4.6	89.7	32.7	4.0
LOS	E	D	B	E	C	A	F	D	A	F	C	A
Approach Delay		39.1			32.9			42.5			40.8	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			D			D		
Queue Length 50th (ft)	162	241	37	67	102	4	127	211	28	164	134	0
Queue Length 95th (ft)	#292	304	90	#162	159	21	#291	257	16	m#232	125	m8
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	271	1000	673	167	755	466	218	963	543	272	1106	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.62	0.45	0.63	0.50	0.32	0.83	0.60	0.24	0.79	0.51	0.26

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 39.3

Intersection LOS: D

Intersection Capacity Utilization 70.9%

ICU Level of Service C

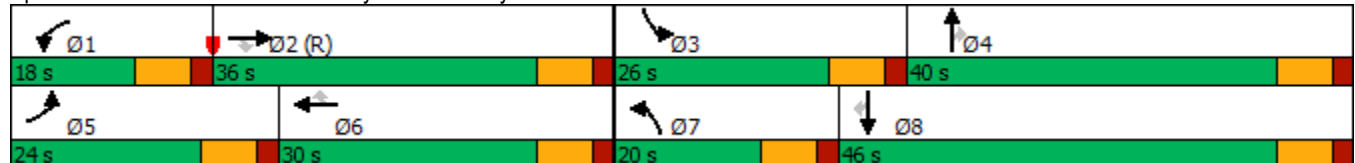
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	37	88	718	716	139
Future Volume (vph)	66	37	88	718	716	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1671	1495	1787	3438	3276	0
Flt Permitted	0.950		0.255			
Satd. Flow (perm)	1671	1476	479	3438	3276	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			29	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)			5			
Confl. Bikes (#/hr)		1				2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	1%	5%	8%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	41	98	798	950	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	32.0	
Total Split (s)	31.0	31.0	17.0	89.0	72.0	
Total Split (%)	25.8%	25.8%	14.2%	74.2%	60.0%	
Maximum Green (s)	25.0	25.0	10.0	82.0	65.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	10.6	10.6	98.9	100.3	85.0	
Actuated g/C Ratio	0.09	0.09	0.82	0.84	0.71	
v/c Ratio	0.50	0.25	0.21	0.28	0.41	
Control Delay	62.8	17.9	2.8	1.9	20.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.8	17.9	2.8	1.9	20.6	
LOS	E	B	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.6			2.0	20.6	
Approach LOS	D			A	C	
Queue Length 50th (ft)	55	0	6	26	347	
Queue Length 95th (ft)	101	34	m19	66	413	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	348	339	503	2873	2329	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.12	0.19	0.28	0.41	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 13.6

Intersection LOS: B

Intersection Capacity Utilization 49.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2025 AM with SR8 Truck Restriction

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	159	338	37	32	197	225	97	451	92	372	251	92
Future Volume (vph)	159	338	37	32	197	225	97	451	92	372	251	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1656	3471	1455	1703	3406	1553	1736	3406	1538	1736	3282	1302
Flt Permitted	0.496			0.529			0.579			0.186		
Satd. Flow (perm)	865	3471	1435	948	3406	1553	1058	3406	1518	340	3282	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			250			245			191
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		35.3			22.6			12.2			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.89	0.89	0.89
Heavy Vehicles (%)	9%	4%	11%	6%	6%	4%	4%	6%	5%	4%	10%	24%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	177	376	41	36	219	250	108	501	102	418	282	103
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	22.0	40.0	40.0	13.0	31.0	31.0	20.0	28.0	28.0	39.0	47.0	47.0
Total Split (%)	18.3%	33.3%	33.3%	10.8%	25.8%	25.8%	16.7%	23.3%	23.3%	32.5%	39.2%	39.2%
Maximum Green (s)	16.0	34.0	34.0	7.0	25.0	25.0	14.0	22.0	22.0	33.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	46.4	38.6	38.6	33.6	27.0	27.0	31.4	21.8	21.8	61.6	46.0	46.0
Actuated g/C Ratio	0.39	0.32	0.32	0.28	0.22	0.22	0.26	0.18	0.18	0.51	0.38	0.38
v/c Ratio	0.42	0.34	0.07	0.12	0.29	0.46	0.33	0.81	0.21	0.74	0.22	0.17
Control Delay	31.2	35.7	0.2	28.8	43.2	8.8	21.3	58.0	1.0	58.9	18.8	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	35.7	0.2	28.8	43.2	8.8	21.3	58.0	1.0	58.9	18.8	3.6
LOS	C	D	A	C	D	A	C	E	A	E	B	A

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		31.9			25.1			44.3			37.8	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	97	128	0	18	77	0	40	193	0	279	27	0
Queue Length 95th (ft)	165	185	0	44	123	76	64	#265	0	400	96	37
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	440	1239	635	313	879	586	394	651	488	596	1295	629
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.30	0.06	0.12	0.25	0.43	0.27	0.77	0.21	0.70	0.22	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 35.8

Intersection LOS: D

Intersection Capacity Utilization 77.2%

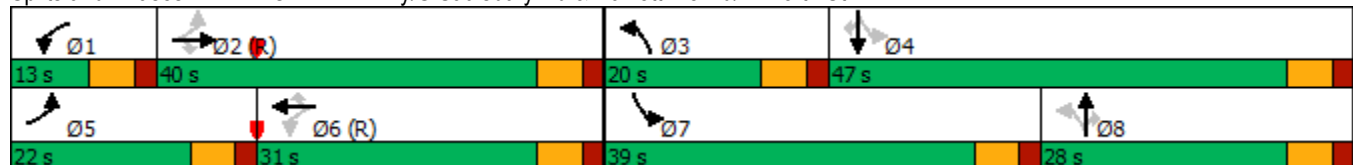
ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	19.6											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	84	479	69	64	327	23	85	23	166	43	15	41
Future Vol, veh/h	84	479	69	64	327	23	85	23	166	43	15	41
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	6	4	5	8	9	4	4	3	5	5	5
Mvmt Flow	91	521	75	70	355	25	92	25	180	47	16	45

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	355	0	0	596	0	0	1266	1273	355	1211	1198	521
Stage 1	-	-	-	-	-	-	495	495	-	703	703	-
Stage 2	-	-	-	-	-	-	771	778	-	508	495	-
Critical Hdwy	4.12	-	-	4.15	-	-	7.14	6.54	6.23	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.14	5.54	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.245	-	-	3.536	4.036	3.327	3.545	4.045	3.345
Pot Cap-1 Maneuver	1204	-	-	966	-	-	144	166	687	157	183	550
Stage 1	-	-	-	-	-	-	553	543	-	423	436	-
Stage 2	-	-	-	-	-	-	390	404	-	542	541	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1204	-	-	966	-	-	109	142	687	89	157	550
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	142	-	89	157	-
Stage 1	-	-	-	-	-	-	511	504	-	391	403	-
Stage 2	-	-	-	-	-	-	318	373	-	352	502	-

Approach	NB			SB			SE			NW		
HCM Control Delay, s	1.1			1.4			70.8			71.9		
HCM LOS							F			F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	NBLn1	NBLn2	NBLn3	SBL	SBT	SBR
Capacity (veh/h)	1204	-	-	152	115	687	966	-	-
HCM Lane V/C Ratio	0.076	-	-	0.708	1.021	0.263	0.072	-	-
HCM Control Delay (s)	8.2	-	-	71.9	161	12.1	9	-	-
HCM Lane LOS	A	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.2	6.8	1.1	0.2	-	-

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	500	36	25	588	44	45
Future Volume (vph)	500	36	25	588	44	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1792	1524	1556	1792	1719	1455
Flt Permitted			0.293		0.950	
Satd. Flow (perm)	1792	1524	480	1792	1719	1455
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		40				51
Link Speed (mph)	40			40	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	18.7			21.2	18.2	
Confl. Peds. (#/hr)			2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	6%	16%	6%	5%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	562	40	28	661	49	51
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	30.2	30.2	31.0	34.4	7.0	7.0
Actuated g/C Ratio	0.66	0.66	0.68	0.75	0.15	0.15
v/c Ratio	0.48	0.04	0.06	0.49	0.19	0.19
Control Delay	13.4	4.6	4.5	6.9	21.9	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.4	4.6	4.5	6.9	21.9	9.9
LOS	B	A	A	A	C	A
Approach Delay	12.8			6.8	15.8	

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			A	B	
Queue Length 50th (ft)	77	0	3	99	9	0
Queue Length 95th (ft)	#320	15	10	194	41	24
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	1212	1043	520	1535	353	339
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.04	0.05	0.43	0.14	0.15

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 45.8

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 10.0

Intersection LOS: B

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

 Ø1 15 s	 Ø2 30 s	 Ø4 15 s
 Ø6 45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰↰	↱↱	↱↱	↰
Traffic Volume (vph)	132	375	441	1674	998	161
Future Volume (vph)	132	375	441	1674	998	161
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3335	1495	3303	3471	3282	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3335	1474	3303	3471	3282	1490
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		314				175
Link Speed (mph)	40			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	10.4			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	8%	6%	4%	10%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	408	479	1820	1085	175
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	18.0	18.0	30.0	30.0
Total Split (s)	24.0	24.0	32.0	126.0	94.0	94.0
Total Split (%)	16.0%	16.0%	21.3%	84.0%	62.7%	62.7%
Maximum Green (s)	18.0	18.0	25.0	119.0	87.0	87.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	17.9	17.9	25.8	119.1	86.4	86.4
Actuated g/C Ratio	0.12	0.12	0.17	0.79	0.58	0.58
v/c Ratio	0.36	0.90	0.84	0.66	0.57	0.19
Control Delay	62.4	39.1	74.2	8.7	22.7	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.4	39.1	74.2	8.7	22.7	2.6
LOS	E	D	E	A	C	A

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2025 AM with SR8 Truck Restriction
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	45.2			22.3	19.9	
Approach LOS	D			C	B	
Queue Length 50th (ft)	65	93	233	394	371	0
Queue Length 95th (ft)	103	#297	#329	406	402	33
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	451	471	582	2810	1972	965
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.87	0.82	0.65	0.55	0.18

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 94 (63%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 24.6

Intersection LOS: C

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings

2025 PM without SR8 Truck Restriction

8: Scarborough Rd/Scarborough Road & US13

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	157	1012	341	111	1292	279	363	300	90	256	241	225
Future Volume (vph)	157	1012	341	111	1292	279	363	300	90	256	241	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	3367	3539	1568	3433	3574	2760	3467	3406	1599	3400	3505	1468
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1548	3433	3574	2760	3467	3406	1599	3400	3505	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			371			303			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	3%	2%	1%	3%	1%	6%	1%	3%	3%	10%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	1100	371	121	1404	303	395	326	98	278	262	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	20.0	83.0	83.0	20.0	83.0	83.0	27.0	20.0	20.0	27.0	20.0	20.0
Total Split (%)	13.3%	55.3%	55.3%	13.3%	55.3%	55.3%	18.0%	13.3%	13.3%	18.0%	13.3%	13.3%
Maximum Green (s)	12.0	75.0	75.0	12.0	75.0	75.0	20.0	13.0	13.0	21.0	13.0	13.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	11.3	74.2	74.2	10.3	73.2	73.2	20.2	19.2	19.2	17.3	15.2	15.2
Actuated g/C Ratio	0.08	0.49	0.49	0.07	0.49	0.49	0.13	0.13	0.13	0.12	0.10	0.10
v/c Ratio	0.67	0.63	0.39	0.51	0.81	0.20	0.85	0.75	0.30	0.71	0.74	0.88
Control Delay	103.4	14.9	1.2	75.0	36.8	2.3	80.2	74.0	4.2	74.1	78.5	56.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.4	14.9	1.2	75.0	36.8	2.3	80.2	74.0	4.2	74.1	78.5	56.9
LOS	F	B	A	E	D	A	F	E	A	E	E	E
Approach Delay		21.1			33.6			68.6			70.2	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	91	230	0	59	608	0	193	164	0	137	135	102
Queue Length 95th (ft)	132	90	2	94	678	27	#280	#296	14	183	#214	#278
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	269	1771	960	274	1787	1531	478	435	331	476	355	279
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.62	0.39	0.44	0.79	0.20	0.83	0.75	0.30	0.58	0.74	0.88

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 82.2%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	83 s	27 s	20 s
			
Ø5	Ø6 (R)	Ø7	Ø8
20 s	83 s	27 s	20 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	62	550	266	44	647	131	215	160	32	152	251	80
Future Volume (vph)	62	550	266	44	647	131	215	160	32	152	251	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1805	1845	1583	1805	1810	1583	1787	1881	1524	1770	1804	0
Flt Permitted	0.139			0.234			0.189			0.582		
Satd. Flow (perm)	264	1845	1544	445	1810	1540	356	1881	1487	1084	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			280			118			127		12	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)			5			8			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	5%	2%	1%	1%	6%	2%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	579	280	46	681	138	226	168	34	160	348	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	12.0	56.0	56.0	12.0	56.0	56.0	18.0	31.0	31.0	21.0	34.0	
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%	15.0%	25.8%	25.8%	17.5%	28.3%	
Maximum Green (s)	7.0	49.0	49.0	7.0	49.0	49.0	13.0	25.0	25.0	16.0	28.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	60.9	53.4	53.4	60.7	53.2	53.2	41.1	26.6	26.6	39.3	25.7	
Actuated g/C Ratio	0.51	0.44	0.44	0.51	0.44	0.44	0.34	0.22	0.22	0.33	0.21	
v/c Ratio	0.30	0.71	0.33	0.15	0.85	0.18	0.80	0.40	0.08	0.38	0.88	
Control Delay	20.7	31.2	8.4	7.7	25.1	1.1	49.3	43.4	0.4	28.0	67.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.7	31.2	8.4	7.7	25.1	1.1	49.3	43.4	0.4	28.0	67.2	
LOS	C	C	A	A	C	A	D	D	A	C	E	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		23.6			20.4			43.1			54.9	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	14	147	13	7	293	5	120	110	0	82	248	
Queue Length 95th (ft)	m54	420	112	m12	#721	m0	#240	184	0	134	#395	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	223	820	842	304	803	748	283	419	430	477	430	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.71	0.33	0.15	0.85	0.18	0.80	0.40	0.08	0.34	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 31.5

Intersection LOS: C

Intersection Capacity Utilization 87.4%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
12 s	56 s	21 s	31 s
			
Ø5	Ø6	Ø7	Ø8
12 s	56 s	18 s	34 s

Lanes, Volumes, Timings
20: US13 & E Division St

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	191	241	165	130	74	232	1629	165	107	1581	48
Future Volume (vph)	107	191	241	165	130	74	232	1629	165	107	1581	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1665	1763	1583	1770	1845	1599	3400	5059	0	1703	5036	1524
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1665	1763	1583	1770	1845	1576	3400	5059	0	1703	5036	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			131			13			131
Link Speed (mph)		25			25			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			56.8			23.8			17.3	
Confl. Peds. (#/hr)						1						11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	1%	3%	1%	2%	6%	3%	6%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	102	212	254	174	137	78	244	1889	0	113	1664	51
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	25.0	25.0	25.0	23.0	64.0		20.0	61.0	61.0
Total Split (%)	27.3%	27.3%	27.3%	16.7%	16.7%	16.7%	15.3%	42.7%		13.3%	40.7%	40.7%
Maximum Green (s)	34.0	34.0	34.0	18.0	18.0	18.0	16.0	57.0		13.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	24.5	24.5	24.5	17.2	17.2	17.2	15.3	66.0		14.3	65.0	65.0
Actuated g/C Ratio	0.16	0.16	0.16	0.11	0.11	0.11	0.10	0.44		0.10	0.43	0.43
v/c Ratio	0.38	0.74	0.59	0.86	0.65	0.26	0.71	0.85		0.70	0.76	0.07
Control Delay	58.3	74.4	18.7	99.3	78.1	2.4	76.4	42.8		87.1	40.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.3	74.4	18.7	99.3	78.1	2.4	76.4	42.8		87.1	40.2	0.2
LOS	E	E	B	F	E	A	E	D		F	D	A
Approach Delay		46.6			72.4			46.6			42.0	

Lanes, Volumes, Timings
20: US13 & E Division St

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	94	210	45	169	129	0	120	610		108	507	0
Queue Length 95th (ft)	148	288	129	#296	205	3	168	#777		#205	638	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			140			400		
Base Capacity (vph)	377	399	515	212	221	304	373	2232		169	2182	714
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.53	0.49	0.82	0.62	0.26	0.65	0.85		0.67	0.76	0.07

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 17 (11%), Referenced to phase 6: SBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 46.9

Intersection LOS: D

Intersection Capacity Utilization 83.6%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: US13 & E Division St

			
Ø1	Ø2	Ø3	Ø4
20 s	64 s	25 s	41 s
			
Ø5	Ø6 (R)		
23 s	61 s		

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	149	209	778	729	144
Future Volume (vph)	88	149	209	778	729	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1752	1553	1719	1845	1863	1599
Flt Permitted	0.950		0.223			
Satd. Flow (perm)	1752	1509	404	1845	1863	1563
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154				148
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		3				3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	4%	5%	3%	2%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	154	215	802	752	148
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	30.0	90.0	60.0	60.0
Total Split (%)	25.0%	25.0%	25.0%	75.0%	50.0%	50.0%
Maximum Green (s)	23.0	23.0	23.0	83.0	53.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	Min	Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	11.8	11.8	94.2	94.2	73.5	73.5
Actuated g/C Ratio	0.10	0.10	0.78	0.78	0.61	0.61
v/c Ratio	0.53	0.54	0.46	0.55	0.66	0.15
Control Delay	62.1	14.8	3.5	4.1	23.0	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	14.8	3.5	4.1	23.0	7.1
LOS	E	B	A	A	C	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	32.4			4.0	20.4	
Approach LOS	C			A	C	
Queue Length 50th (ft)	68	0	8	31	422	26
Queue Length 95th (ft)	119	61	m22	m410	740	80
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	335	413	569	1448	1141	1014
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.37	0.38	0.55	0.66	0.15

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 14.0

Intersection LOS: B

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

2025 PM without SR8 Truck Restriction

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	10	49	184	5	41	29	663	174	21	640	32
Future Volume (vph)	49	10	49	184	5	41	29	663	174	21	640	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1588	1656	1583	1698	1708	1583	1752	3505	1615	1805	3505	1429
Flt Permitted	0.950	0.967		0.950	0.955		0.370			0.361		
Satd. Flow (perm)	1588	1656	1583	1698	1708	1583	683	3505	1579	686	3505	1395
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			179			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Confl. Bikes (#/hr)									2			4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	0%	2%	1%	0%	2%	3%	3%	0%	0%	3%	13%
Shared Lane Traffic (%)	41%			49%								
Lane Group Flow (vph)	30	31	51	98	99	43	30	691	181	22	667	33
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	15.0	49.0	49.0	15.0	49.0	49.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	12.5%	40.8%	40.8%	12.5%	40.8%	40.8%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0	22.0	8.0	42.0	42.0	8.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	Min	Min
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				15.0	15.0	15.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	7.8	7.8	7.8	12.3	12.3	12.3	79.2	75.2	75.2	78.8	75.0	75.0
Actuated g/C Ratio	0.06	0.06	0.06	0.10	0.10	0.10	0.66	0.63	0.63	0.66	0.62	0.62
v/c Ratio	0.29	0.29	0.21	0.57	0.57	0.14	0.06	0.31	0.17	0.04	0.30	0.04
Control Delay	59.9	59.5	1.9	63.2	63.2	1.0	6.4	8.8	1.0	8.4	13.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	59.5	1.9	63.2	63.2	1.0	6.4	8.8	1.0	8.4	13.4	0.1
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		33.4			52.1			7.2			12.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			A			B		
Queue Length 50th (ft)	24	24	0	76	77	0	5	92	4	5	138	0
Queue Length 95th (ft)	55	57	0	131	133	0	m11	121	5	17	211	0
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	291	303	416	311	313	416	526	2195	1056	530	2190	926
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.10	0.12	0.32	0.32	0.10	0.06	0.31	0.17	0.04	0.30	0.04

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 16.1

Intersection LOS: B

Intersection Capacity Utilization 46.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

15 s	49 s	28 s	28 s
15 s	49 s		

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	145	66	124	231	159	142	566	172	117	498	87
Future Volume (vph)	63	145	66	124	231	159	142	566	172	117	498	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1770	1845	1495	1752	1792	1524	1736	1792	1568	1719	1810	1538
Flt Permitted	0.441			0.446			0.279			0.251		
Satd. Flow (perm)	821	1845	1462	823	1792	1524	510	1792	1568	454	1810	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			145			209
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	3%	8%	3%	6%	6%	4%	6%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	153	69	131	243	167	149	596	181	123	524	92
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	27.0	27.0	12.0	28.0	28.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	20.0	28.0	28.0	20.0	28.0	28.0	25.0	57.0	57.0	15.0	47.0	47.0
Total Split (%)	16.7%	23.3%	23.3%	16.7%	23.3%	23.3%	20.8%	47.5%	47.5%	12.5%	39.2%	39.2%
Maximum Green (s)	14.0	22.0	22.0	14.0	22.0	22.0	18.0	50.0	50.0	8.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	26.3	17.5	17.5	32.7	22.8	22.8	66.9	56.6	56.6	62.8	54.6	54.6
Actuated g/C Ratio	0.22	0.15	0.15	0.27	0.19	0.19	0.56	0.47	0.47	0.52	0.46	0.46
v/c Ratio	0.27	0.57	0.17	0.42	0.72	0.36	0.38	0.71	0.22	0.38	0.64	0.11
Control Delay	31.9	55.3	0.9	35.0	58.3	4.0	13.3	19.1	1.7	13.6	21.4	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.9	55.3	0.9	35.0	58.3	4.0	13.3	19.1	1.7	13.6	21.4	0.4
LOS	C	E	A	D	E	A	B	B	A	B	C	A
Approach Delay		36.9			35.9			14.8			17.5	

Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			B		
Queue Length 50th (ft)	37	111	0	76	180	0	25	129	0	22	126	0
Queue Length 95th (ft)	67	175	0	120	265	24	68	198	7	m34	547	m2
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	326	338	446	341	350	473	489	845	816	329	823	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.45	0.15	0.38	0.69	0.35	0.30	0.71	0.22	0.37	0.64	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.7

Intersection LOS: C

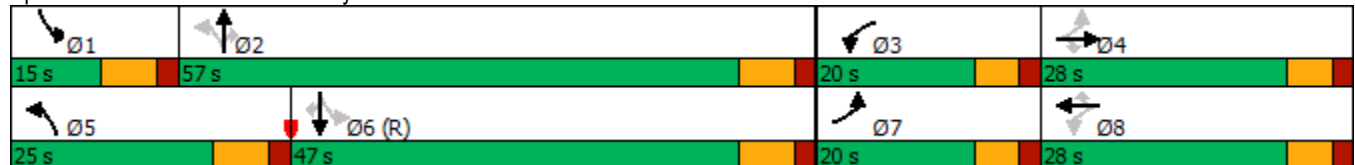
Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd



Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	107	475	220	117	635	164	304	570	109	138	522	115
Future Volume (vph)	107	475	220	117	635	164	304	570	109	138	522	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1752	3471	1583	1703	3539	1583	1770	3539	1553	1787	3471	1599
Flt Permitted	0.243			0.341			0.190			0.400		
Satd. Flow (perm)	448	3471	1561	611	3539	1561	354	3539	1528	752	3471	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			237			227			164			227
Link Speed (mph)		40			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		70.3			31.8			21.8			11.3	
Confl. Peds. (#/hr)			1			1			2			6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	4%	2%	6%	2%	2%	2%	2%	4%	1%	4%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	511	237	126	683	176	327	613	117	148	561	124
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	17.0	29.0	29.0	21.0	33.0	33.0	32.0	47.0	47.0	23.0	38.0	38.0
Total Split (%)	14.2%	24.2%	24.2%	17.5%	27.5%	27.5%	26.7%	39.2%	39.2%	19.2%	31.7%	31.7%
Maximum Green (s)	10.0	22.0	22.0	14.0	26.0	26.0	25.0	40.0	40.0	16.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	43.6	34.0	34.0	46.1	35.3	35.3	54.1	35.7	35.7	36.9	25.4	25.4
Actuated g/C Ratio	0.36	0.28	0.28	0.38	0.29	0.29	0.45	0.30	0.30	0.31	0.21	0.21
v/c Ratio	0.43	0.52	0.39	0.38	0.66	0.28	0.79	0.58	0.21	0.45	0.76	0.24
Control Delay	30.3	44.6	10.9	26.9	42.7	3.0	40.9	35.1	3.3	28.3	51.2	4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	44.6	10.9	26.9	42.7	3.0	40.9	35.1	3.3	28.3	51.2	4.2
LOS	C	D	B	C	D	A	D	D	A	C	D	A
Approach Delay		33.4			33.6			33.4			40.2	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			C			D		
Queue Length 50th (ft)	63	187	8	59	247	0	139	232	2	63	150	0
Queue Length 95th (ft)	85	#274	88	114	#375	24	277	206	m18	125	227	m27
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	280	984	612	378	1039	618	454	1194	624	397	896	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.52	0.39	0.33	0.66	0.28	0.72	0.51	0.19	0.37	0.63	0.22

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.79

Intersection Signal Delay: 35.0

Intersection LOS: C

Intersection Capacity Utilization 78.2%

ICU Level of Service D

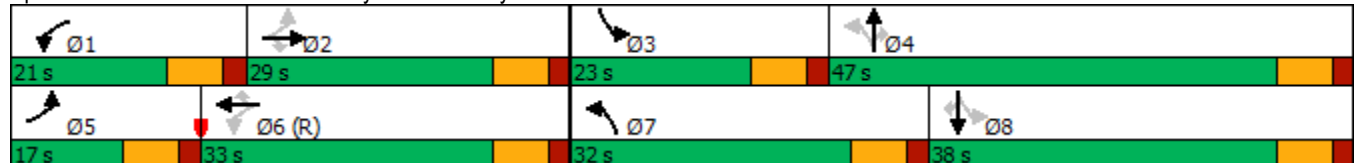
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	252	135	117	780	694	165
Future Volume (vph)	252	135	117	780	694	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1805	1583	1752	3505	3373	0
Flt Permitted	0.950		0.235			
Satd. Flow (perm)	1805	1560	433	3505	3373	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		144			36	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)		1	5			1
Confl. Bikes (#/hr)		1				4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	4%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	268	144	124	830	914	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	29.0	
Total Split (s)	33.0	33.0	18.0	87.0	69.0	
Total Split (%)	27.5%	27.5%	15.0%	72.5%	57.5%	
Maximum Green (s)	27.0	27.0	11.0	80.0	62.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	22.9	22.9	84.1	84.1	68.7	
Actuated g/C Ratio	0.19	0.19	0.70	0.70	0.57	
v/c Ratio	0.78	0.35	0.31	0.34	0.47	
Control Delay	61.5	8.3	7.9	5.7	31.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.5	8.3	7.9	5.7	31.5	
LOS	E	A	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	42.9			6.0	31.5	
Approach LOS	D			A	C	
Queue Length 50th (ft)	199	0	17	67	350	
Queue Length 95th (ft)	275	51	50	141	441	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	415	469	424	2475	1964	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.65	0.31	0.29	0.34	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 61.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2025 PM without SR8 Truck Restriction

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	232	87	77	382	393	46	337	39	246	454	75
Future Volume (vph)	115	232	87	77	382	393	46	337	39	246	454	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1641	3406	1538	1752	3471	1599	1736	3471	1568	1752	3505	1404
Flt Permitted	0.449			0.601			0.481			0.287		
Satd. Flow (perm)	776	3406	1517	1109	3471	1599	879	3471	1544	529	3505	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			409			191			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		41.2			26.4			14.0			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	6%	5%	3%	4%	1%	4%	4%	3%	3%	3%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	242	91	80	398	409	48	351	41	256	473	78
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	20.0	43.0	43.0	15.0	38.0	38.0	17.0	33.0	33.0	29.0	45.0	45.0
Total Split (%)	16.7%	35.8%	35.8%	12.5%	31.7%	31.7%	14.2%	27.5%	27.5%	24.2%	37.5%	37.5%
Maximum Green (s)	14.0	37.0	37.0	9.0	32.0	32.0	11.0	27.0	27.0	23.0	39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	61.1	52.3	52.3	56.4	48.1	48.1	25.2	17.6	17.6	43.7	32.4	32.4
Actuated g/C Ratio	0.51	0.44	0.44	0.47	0.40	0.40	0.21	0.15	0.15	0.36	0.27	0.27
v/c Ratio	0.26	0.16	0.12	0.14	0.29	0.46	0.20	0.69	0.11	0.64	0.50	0.16
Control Delay	17.5	24.1	0.3	16.8	27.4	5.0	25.9	55.7	0.5	53.6	44.4	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.5	24.1	0.3	16.8	27.4	5.0	25.9	55.7	0.5	53.6	44.4	9.9
LOS	B	C	A	B	C	A	C	E	A	D	D	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		17.6			16.1			47.3			44.0	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	44	60	0	29	106	0	24	137	0	157	128	9
Queue Length 95th (ft)	95	109	0	67	182	79	43	180	0	251	197	43
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	511	1490	771	583	1389	885	287	780	495	433	1140	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.16	0.12	0.14	0.29	0.46	0.17	0.45	0.08	0.59	0.41	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 30.4

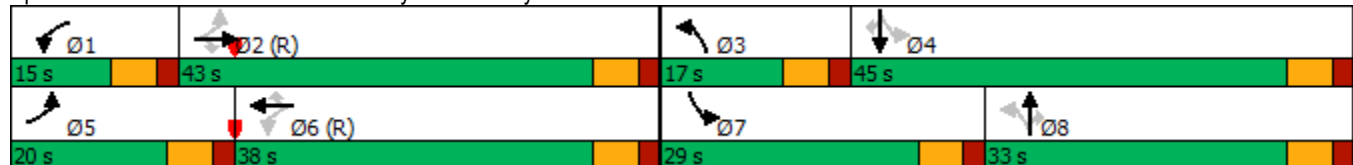
Intersection LOS: C

Intersection Capacity Utilization 67.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	21.3											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	147	321	54	50	451	91	41	19	90	63	22	59
Future Vol, veh/h	147	321	54	50	451	91	41	19	90	63	22	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	6	6	3	1	0	5	2	5	5	5
Mvmt Flow	160	349	59	54	490	99	45	21	98	68	24	64

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	490	0	0	408	0	0	1341	1326	490	1278	1267	349
Stage 1	-	-	-	-	-	-	598	598	-	669	669	-
Stage 2	-	-	-	-	-	-	743	728	-	609	598	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.1	6.55	6.22	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.5	4.045	3.318	3.545	4.045	3.345
Pot Cap-1 Maneuver	1073	-	-	1129	-	-	131	153	578	141	166	688
Stage 1	-	-	-	-	-	-	492	486	-	442	451	-
Stage 2	-	-	-	-	-	-	410	424	-	477	486	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1073	-	-	1129	-	-	88	124	578	88	134	688
Mov Cap-2 Maneuver	-	-	-	-	-	-	88	124	-	88	134	-
Stage 1	-	-	-	-	-	-	419	463	-	376	384	-
Stage 2	-	-	-	-	-	-	297	361	-	360	463	-

Approach	NB			SB			SE			NW		
HCM Control Delay, s	2.5			0.7			46.5			148		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	NWLn1	SELn1	SELn2	SBL	SBT	SBR
Capacity (veh/h)	1073	-	-	149	97	578	1129	-	-
HCM Lane V/C Ratio	0.149	-	-	1.05	0.672	0.169	0.048	-	-
HCM Control Delay (s)	8.9	-	-	148	97.5	12.5	8.3	-	-
HCM Lane LOS	A	-	-	F	F	B	A	-	-
HCM 95th %tile Q(veh)	0.5	-	-	8.1	3.3	0.6	0.2	-	-

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	147	321	54	50	451	91	41	19	90	63	22	59
Future Volume (vph)	147	321	54	50	451	91	41	19	90	63	22	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	275		300	0		225	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Satd. Flow (prot)	1770	1827	1524	1703	1845	1599	0	1809	1583	0	1674	0
Flt Permitted	0.950			0.950				0.967			0.979	
Satd. Flow (perm)	1770	1827	1524	1703	1845	1599	0	1809	1583	0	1674	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		1819			3131			1258			345	
Travel Time (s)		35.4			61.0			28.6			9.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	6%	6%	3%	1%	0%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	160	349	59	54	490	99	0	66	98	0	156	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 56.8%

ICU Level of Service B

Analysis Period (min) 15

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	525	79	91	458	64	92
Future Volume (vph)	525	79	91	458	64	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1845	1599	1787	1827	1770	1615
Flt Permitted			0.234		0.950	
Satd. Flow (perm)	1845	1565	440	1827	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		89				103
Link Speed (mph)	35			35	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	21.4			24.3	18.2	
Confl. Peds. (#/hr)			2			
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	1%	1%	4%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	590	89	102	515	72	103
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	15.0	5.0	5.0
Minimum Split (s)	21.0	21.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	27.4	27.4	35.8	37.8	7.5	7.5
Actuated g/C Ratio	0.51	0.51	0.67	0.71	0.14	0.14
v/c Ratio	0.62	0.11	0.22	0.40	0.29	0.33
Control Delay	19.8	3.8	5.4	6.2	25.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	3.8	5.4	6.2	25.9	9.1
LOS	B	A	A	A	C	A

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 PM without SR8 Truck Restriction
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	17.7			6.1	16.0	
Approach LOS	B			A	B	
Queue Length 50th (ft)	171	0	11	74	23	0
Queue Length 95th (ft)	#348	22	26	131	55	34
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	960	857	503	1333	308	366
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.10	0.20	0.39	0.23	0.28

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.62

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 53.5%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2025 PM without SR8 Truck Restriction

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	112	477	390	1435	1924	158
Future Volume (vph)	112	477	390	1435	1924	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3367	1553	3367	3406	3438	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3367	1528	3367	3406	3438	1549
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		180				158
Link Speed (mph)	35			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	11.9			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	6%	5%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	477	390	1435	1924	158
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	13.0	25.0	30.0	30.0
Total Split (s)	24.0	24.0	24.0	126.0	102.0	102.0
Total Split (%)	16.0%	16.0%	16.0%	84.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	17.0	119.0	95.0	95.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	18.4	18.4	17.0	118.6	94.6	94.6
Actuated g/C Ratio	0.12	0.12	0.11	0.79	0.63	0.63
v/c Ratio	0.27	1.38	1.02	0.53	0.89	0.15
Control Delay	61.9	218.4	116.1	6.5	29.6	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	218.4	116.1	6.5	29.6	1.8
LOS	E	F	F	A	C	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	188.6			29.9	27.5	
Approach LOS	F			C	C	
Queue Length 50th (ft)	52	~460	~208	226	782	0
Queue Length 95th (ft)	84	#688	#317	265	908	27
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	413	345	381	2702	2177	1038
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.38	1.02	0.53	0.88	0.15

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 124 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.38

Intersection Signal Delay: 49.6

Intersection LOS: D

Intersection Capacity Utilization 93.7%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	157	1012	341	114	1292	279	363	303	90	256	245	225
Future Volume (vph)	157	1012	341	114	1292	279	363	303	90	256	245	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	3367	3539	1568	3335	3574	2760	3467	3374	1599	3400	3438	1468
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1548	3335	3574	2760	3467	3374	1599	3400	3438	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			371			303			145			145
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	3%	5%	1%	3%	1%	7%	1%	3%	5%	10%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	1100	371	124	1404	303	395	329	98	278	266	245
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	20.0	83.0	83.0	20.0	83.0	83.0	27.0	20.0	20.0	27.0	20.0	20.0
Total Split (%)	13.3%	55.3%	55.3%	13.3%	55.3%	55.3%	18.0%	13.3%	13.3%	18.0%	13.3%	13.3%
Maximum Green (s)	12.0	75.0	75.0	12.0	75.0	75.0	20.0	13.0	13.0	21.0	13.0	13.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	11.3	73.8	73.8	10.5	72.9	72.9	20.2	19.5	19.5	17.3	15.5	15.5
Actuated g/C Ratio	0.08	0.49	0.49	0.07	0.49	0.49	0.13	0.13	0.13	0.12	0.10	0.10
v/c Ratio	0.67	0.63	0.39	0.53	0.81	0.20	0.85	0.75	0.29	0.71	0.75	0.87
Control Delay	103.6	15.3	1.3	75.8	37.1	2.3	80.2	73.8	4.2	74.1	78.9	55.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.6	15.3	1.3	75.8	37.1	2.3	80.2	73.8	4.2	74.1	78.9	55.4
LOS	F	B	A	E	D	A	F	E	A	E	E	E
Approach Delay		21.3			33.9			68.6			69.9	

Lanes, Volumes, Timings
8: Scarborough Rd/Scarborough Road & US13

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			C			E			E	
Queue Length 50th (ft)	91	238	0	61	608	0	193	165	0	137	137	102
Queue Length 95th (ft)	132	90	2	96	678	27	#280	#301	14	183	#222	#278
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	269	1769	959	266	1787	1531	478	438	333	476	356	282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.62	0.39	0.47	0.79	0.20	0.83	0.75	0.29	0.58	0.75	0.87

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 2:NWT and 6:SET, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 41.0

Intersection LOS: D

Intersection Capacity Utilization 82.3%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	83 s	27 s	20 s
			
Ø5	Ø6 (R)	Ø7	Ø8
20 s	83 s	27 s	20 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	62	557	266	44	650	131	215	160	32	152	251	80
Future Volume (vph)	62	557	266	44	650	131	215	160	32	152	251	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1805	1810	1583	1805	1810	1583	1787	1881	1524	1770	1804	0
Flt Permitted	0.136			0.227			0.191			0.580		
Satd. Flow (perm)	258	1810	1544	431	1810	1540	359	1881	1487	1080	1804	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			280			118			127		12	
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)			5			8			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	0%	5%	2%	1%	1%	6%	2%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	586	280	46	684	138	226	168	34	160	348	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	12.0	56.0	56.0	12.0	56.0	56.0	18.0	31.0	31.0	21.0	34.0	
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%	15.0%	25.8%	25.8%	17.5%	28.3%	
Maximum Green (s)	7.0	49.0	49.0	7.0	49.0	49.0	13.0	25.0	25.0	16.0	28.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	61.0	53.4	53.4	60.7	53.3	53.3	41.0	26.6	26.6	39.3	25.7	
Actuated g/C Ratio	0.51	0.44	0.44	0.51	0.44	0.44	0.34	0.22	0.22	0.33	0.21	
v/c Ratio	0.30	0.73	0.33	0.16	0.85	0.18	0.80	0.40	0.08	0.38	0.88	
Control Delay	20.9	31.9	8.6	7.8	26.1	1.1	49.4	43.4	0.4	28.0	67.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	20.9	31.9	8.6	7.8	26.1	1.1	49.4	43.4	0.4	28.0	67.2	
LOS	C	C	A	A	C	A	D	D	A	C	E	

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		24.1			21.1			43.1			54.9	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	14	149	13	7	291	2	120	110	0	82	248	
Queue Length 95th (ft)	m54	430	112	m12	#726	m0	#239	184	0	134	#395	
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		
Base Capacity (vph)	221	805	842	298	803	749	282	419	430	476	430	
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	
Reduced v/c Ratio	0.29	0.73	0.33	0.15	0.85	0.18	0.80	0.40	0.08	0.34	0.81	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 31.9

Intersection LOS: C

Intersection Capacity Utilization 87.5%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
12 s	56 s	21 s	31 s
			
Ø5	Ø6	Ø7	Ø8
12 s	56 s	18 s	34 s

Lanes, Volumes, Timings
20: US13 & E Division St

2025 PM with SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	189	239	165	127	74	227	1629	165	107	1581	45
Future Volume (vph)	105	189	239	165	127	74	227	1629	165	107	1581	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1665	1763	1583	1770	1845	1599	3400	5059	0	1703	5036	1524
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1665	1763	1583	1770	1845	1576	3400	5059	0	1703	5036	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			202			131			13			131
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		16.8			47.4			23.8			17.3	
Confl. Peds. (#/hr)						1						11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	1%	3%	1%	2%	6%	3%	6%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	100	210	252	174	134	78	239	1889	0	113	1664	47
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	25.0	25.0	25.0	23.0	64.0		20.0	61.0	61.0
Total Split (%)	27.3%	27.3%	27.3%	16.7%	16.7%	16.7%	15.3%	42.7%		13.3%	40.7%	40.7%
Maximum Green (s)	34.0	34.0	34.0	18.0	18.0	18.0	16.0	57.0		13.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	24.1	24.1	24.1	17.2	17.2	17.2	15.2	66.3		14.4	65.5	65.5
Actuated g/C Ratio	0.16	0.16	0.16	0.11	0.11	0.11	0.10	0.44		0.10	0.44	0.44
v/c Ratio	0.37	0.74	0.60	0.86	0.63	0.26	0.69	0.84		0.69	0.76	0.07
Control Delay	58.5	75.0	18.6	99.3	77.2	2.4	76.1	42.4		86.9	39.7	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	58.5	75.0	18.6	99.3	77.2	2.4	76.1	42.4		86.9	39.7	0.2
LOS	E	E	B	F	E	A	E	D		F	D	A
Approach Delay		46.7			72.1			46.2			41.7	

Lanes, Volumes, Timings
20: US13 & E Division St

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	93	209	43	169	126	0	118	608		108	504	0
Queue Length 95th (ft)	146	286	127	#296	201	3	165	#777		#203	638	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			140			400		
Base Capacity (vph)	377	399	515	212	221	304	373	2241		169	2197	718
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.27	0.53	0.49	0.82	0.61	0.26	0.64	0.84		0.67	0.76	0.07

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 17 (11%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 135

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 46.6

Intersection LOS: D

Intersection Capacity Utilization 83.5%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: US13 & E Division St

			
Ø1	Ø2	Ø3	Ø4
20 s	64 s	25 s	41 s
			
Ø5	Ø6 (R)		
23 s	61 s		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	88	149	209	781	736	144
Future Volume (vph)	88	149	209	781	736	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1752	1553	1719	1827	1845	1599
Flt Permitted	0.950		0.216			
Satd. Flow (perm)	1752	1509	391	1827	1845	1563
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154				148
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		3				3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	4%	5%	4%	3%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	154	215	805	759	148
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	30.0	90.0	60.0	60.0
Total Split (%)	25.0%	25.0%	25.0%	75.0%	50.0%	50.0%
Maximum Green (s)	23.0	23.0	23.0	83.0	53.0	53.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	Min	Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	11.8	11.8	94.2	94.2	73.1	73.1
Actuated g/C Ratio	0.10	0.10	0.78	0.78	0.61	0.61
v/c Ratio	0.53	0.54	0.46	0.56	0.68	0.15
Control Delay	62.1	14.8	3.5	4.2	24.6	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	14.8	3.5	4.2	24.6	7.3
LOS	E	B	A	A	C	A

Lanes, Volumes, Timings
22: McKee Rd/Scarborough Rd & McKee Road

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	32.4			4.0	21.7	
Approach LOS	C			A	C	
Queue Length 50th (ft)	68	0	6	21	448	26
Queue Length 95th (ft)	119	61	m22	m460	748	81
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	335	413	561	1434	1123	1009
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.37	0.38	0.56	0.68	0.15

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 14.6

Intersection LOS: B

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



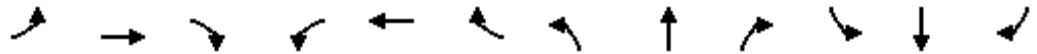
Lanes, Volumes, Timings

2025 PM with SR8 Truck Restriction

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	10	49	184	5	41	29	666	174	21	647	32
Future Volume (vph)	49	10	49	184	5	41	29	666	174	21	647	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1588	1656	1583	1698	1708	1583	1752	3471	1615	1805	3471	1429
Flt Permitted	0.950	0.967		0.950	0.955		0.366			0.359		
Satd. Flow (perm)	1588	1656	1583	1698	1708	1583	675	3471	1579	682	3471	1395
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			179			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Confl. Bikes (#/hr)									2			4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	0%	2%	1%	0%	2%	3%	4%	0%	0%	4%	13%
Shared Lane Traffic (%)	41%			49%								
Lane Group Flow (vph)	30	31	51	98	99	43	30	694	181	22	674	33
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	15.0	49.0	49.0	15.0	49.0	49.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	12.5%	40.8%	40.8%	12.5%	40.8%	40.8%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0	22.0	8.0	42.0	42.0	8.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	Min	Min
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				15.0	15.0	15.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	7.8	7.8	7.8	12.3	12.3	12.3	79.2	75.2	75.2	78.8	75.0	75.0
Actuated g/C Ratio	0.06	0.06	0.06	0.10	0.10	0.10	0.66	0.63	0.63	0.66	0.62	0.62
v/c Ratio	0.29	0.29	0.21	0.57	0.57	0.14	0.06	0.32	0.17	0.04	0.31	0.04
Control Delay	59.9	59.5	1.9	63.2	63.2	1.0	6.3	8.7	1.0	8.4	13.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.9	59.5	1.9	63.2	63.2	1.0	6.3	8.7	1.0	8.4	13.5	0.1
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		33.4			52.1			7.1			12.7	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			A			B		
Queue Length 50th (ft)	24	24	0	76	77	0	5	80	4	5	141	0
Queue Length 95th (ft)	55	57	0	131	133	0	m11	120	4	17	214	0
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	291	303	416	311	313	416	521	2174	1056	528	2169	926
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.10	0.12	0.32	0.32	0.10	0.06	0.32	0.17	0.04	0.31	0.04

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 16.1

Intersection LOS: B

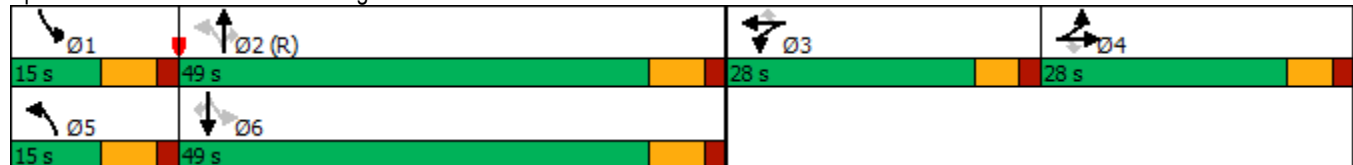
Intersection Capacity Utilization 46.8%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave



Lanes, Volumes, Timings
24: Saulsbury Rd/McKee Rd & Walker Rd

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	145	66	124	231	159	142	569	175	117	505	87
Future Volume (vph)	63	145	66	124	231	159	142	569	175	117	505	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1770	1845	1495	1752	1792	1524	1736	1792	1538	1719	1792	1538
Flt Permitted	0.441			0.446			0.272			0.248		
Satd. Flow (perm)	821	1845	1462	823	1792	1524	497	1792	1538	449	1792	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			145			209
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	3%	8%	3%	6%	6%	4%	6%	5%	5%	6%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	66	153	69	131	243	167	149	599	184	123	532	92
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	27.0	27.0	12.0	28.0	28.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	20.0	28.0	28.0	20.0	28.0	28.0	25.0	57.0	57.0	15.0	47.0	47.0
Total Split (%)	16.7%	23.3%	23.3%	16.7%	23.3%	23.3%	20.8%	47.5%	47.5%	12.5%	39.2%	39.2%
Maximum Green (s)	14.0	22.0	22.0	14.0	22.0	22.0	18.0	50.0	50.0	8.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	26.2	17.5	17.5	32.8	22.8	22.8	67.0	56.6	56.6	62.8	54.6	54.6
Actuated g/C Ratio	0.22	0.15	0.15	0.27	0.19	0.19	0.56	0.47	0.47	0.52	0.46	0.46
v/c Ratio	0.27	0.57	0.17	0.42	0.72	0.36	0.39	0.71	0.23	0.38	0.65	0.11
Control Delay	32.0	55.4	0.9	35.0	58.3	4.0	13.7	19.2	1.8	13.7	21.9	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.0	55.4	0.9	35.0	58.3	4.0	13.7	19.2	1.8	13.7	21.9	0.4
LOS	C	E	A	D	E	A	B	B	A	B	C	A
Approach Delay		37.0			35.9			14.9			17.9	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			B		
Queue Length 50th (ft)	37	111	0	76	180	0	26	131	0	22	186	0
Queue Length 95th (ft)	67	175	0	120	265	24	70	202	7	m33	#567	m2
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	326	338	446	341	350	473	483	845	802	326	814	813
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.45	0.15	0.38	0.69	0.35	0.31	0.71	0.23	0.38	0.65	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.9

Intersection LOS: C

Intersection Capacity Utilization 74.4%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd

15 s	57 s	20 s	28 s
25 s	47 s	20 s	28 s

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 PM with SR8 Truck Restriction

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	113	465	224	117	621	164	313	570	109	138	522	115
Future Volume (vph)	113	465	224	117	621	164	313	570	109	138	522	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1671	3471	1553	1703	3610	1583	1736	3539	1553	1787	3471	1509
Flt Permitted	0.244			0.349			0.189			0.413		
Satd. Flow (perm)	429	3471	1531	626	3610	1561	345	3539	1528	777	3471	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			241			227			164			227
Link Speed (mph)		40			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		70.3			31.8			21.8			11.3	
Confl. Peds. (#/hr)			1			1			2			6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	8%	4%	4%	6%	0%	2%	4%	2%	4%	1%	4%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	122	500	241	126	668	176	337	613	117	148	561	124
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	17.0	29.0	29.0	21.0	33.0	33.0	32.0	47.0	47.0	23.0	38.0	38.0
Total Split (%)	14.2%	24.2%	24.2%	17.5%	27.5%	27.5%	26.7%	39.2%	39.2%	19.2%	31.7%	31.7%
Maximum Green (s)	10.0	22.0	22.0	14.0	26.0	26.0	25.0	40.0	40.0	16.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	43.4	33.4	33.4	45.2	34.3	34.3	54.7	36.3	36.3	36.8	25.4	25.4
Actuated g/C Ratio	0.36	0.28	0.28	0.38	0.29	0.29	0.46	0.30	0.30	0.31	0.21	0.21
v/c Ratio	0.47	0.52	0.40	0.38	0.65	0.29	0.81	0.57	0.20	0.44	0.76	0.25
Control Delay	32.4	44.8	11.0	27.2	42.9	3.0	43.3	34.4	3.2	28.3	51.7	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	44.8	11.0	27.2	42.9	3.0	43.3	34.4	3.2	28.3	51.7	4.4
LOS	C	D	B	C	D	A	D	C	A	C	D	A
Approach Delay		33.6			33.6			33.8			40.5	

Lanes, Volumes, Timings
25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			C			C			D		
Queue Length 50th (ft)	68	185	8	60	245	0	143	231	2	66	153	0
Queue Length 95th (ft)	95	263	88	114	#356	24	290	206	m18	m124	227	m27
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	268	966	600	378	1033	608	446	1195	624	402	896	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.52	0.40	0.33	0.65	0.29	0.76	0.51	0.19	0.37	0.63	0.23

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 35.2

Intersection LOS: D

Intersection Capacity Utilization 78.6%

ICU Level of Service D

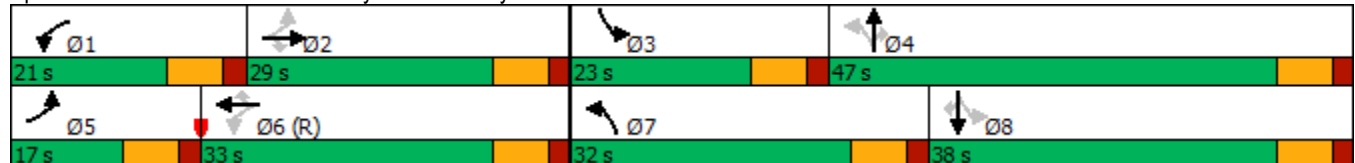
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	252	135	117	787	698	165
Future Volume (vph)	252	135	117	787	698	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1805	1583	1752	3471	3346	0
Flt Permitted	0.950		0.233			
Satd. Flow (perm)	1805	1560	429	3471	3346	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		144			35	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)		1	5			1
Confl. Bikes (#/hr)		1				4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	4%	5%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	268	144	124	837	919	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	29.0	
Total Split (s)	33.0	33.0	18.0	87.0	69.0	
Total Split (%)	27.5%	27.5%	15.0%	72.5%	57.5%	
Maximum Green (s)	27.0	27.0	11.0	80.0	62.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	22.9	22.9	84.1	84.1	68.7	
Actuated g/C Ratio	0.19	0.19	0.70	0.70	0.57	
v/c Ratio	0.78	0.35	0.32	0.34	0.48	
Control Delay	61.5	8.3	7.9	5.7	31.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	61.5	8.3	7.9	5.7	31.8	
LOS	E	A	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	42.9			5.9	31.8	
Approach LOS	D			A	C	
Queue Length 50th (ft)	199	0	17	68	352	
Queue Length 95th (ft)	275	51	50	141	444	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	415	469	422	2451	1948	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.65	0.31	0.29	0.34	0.47	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 61.8%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



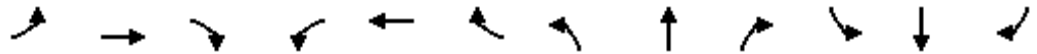
Lanes, Volumes, Timings

2025 PM with SR8 Truck Restriction

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	232	87	77	382	393	46	344	39	246	458	75
Future Volume (vph)	115	232	87	77	382	393	46	344	39	246	458	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1641	3406	1538	1752	3471	1599	1736	3406	1568	1752	3471	1404
Flt Permitted	0.447			0.601			0.479			0.288		
Satd. Flow (perm)	772	3406	1517	1109	3471	1599	875	3406	1544	531	3471	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			409			191			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		41.2			26.4			14.0			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	6%	5%	3%	4%	1%	4%	6%	3%	3%	4%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	242	91	80	398	409	48	358	41	256	477	78
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	20.0	43.0	43.0	15.0	38.0	38.0	17.0	33.0	33.0	29.0	45.0	45.0
Total Split (%)	16.7%	35.8%	35.8%	12.5%	31.7%	31.7%	14.2%	27.5%	27.5%	24.2%	37.5%	37.5%
Maximum Green (s)	14.0	37.0	37.0	9.0	32.0	32.0	11.0	27.0	27.0	23.0	39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	60.7	51.9	51.9	56.0	47.6	47.6	25.6	18.0	18.0	44.2	32.9	32.9
Actuated g/C Ratio	0.51	0.43	0.43	0.47	0.40	0.40	0.21	0.15	0.15	0.37	0.27	0.27
v/c Ratio	0.26	0.16	0.12	0.14	0.29	0.46	0.20	0.70	0.10	0.64	0.50	0.16
Control Delay	17.8	24.4	0.3	17.1	27.7	5.1	25.6	55.7	0.5	52.9	44.4	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	24.4	0.3	17.1	27.7	5.1	25.6	55.7	0.5	52.9	44.4	9.8
LOS	B	C	A	B	C	A	C	E	A	D	D	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		17.8			16.3			47.4			43.8	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	45	61	0	29	107	0	24	140	0	156	129	9
Queue Length 95th (ft)	95	110	0	67	183	79	43	183	0	251	200	43
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	507	1482	767	579	1377	881	290	766	495	435	1133	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.16	0.12	0.14	0.29	0.46	0.17	0.47	0.08	0.59	0.42	0.14

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 30.5

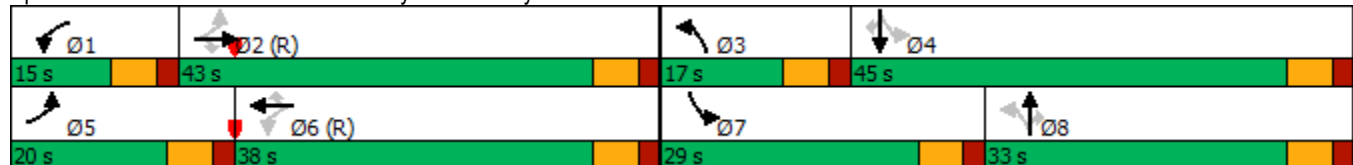
Intersection LOS: C

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



Intersection												
Int Delay, s/veh	22.4											
Movement	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Vol, veh/h	147	328	54	50	455	91	41	19	90	63	22	59
Future Vol, veh/h	147	328	54	50	455	91	41	19	90	63	22	59
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Yield	-	-	Yield	-	-	None
Storage Length	300	-	300	275	-	300	-	-	225	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	6	6	6	4	1	0	5	2	5	5	5
Mvmt Flow	160	357	59	54	495	99	45	21	98	68	24	64

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	495	0	0	416	0	0	1354	1339	495	1291	1280	357
Stage 1	-	-	-	-	-	-	603	603	-	677	677	-
Stage 2	-	-	-	-	-	-	751	736	-	614	603	-
Critical Hdwy	4.12	-	-	4.16	-	-	7.1	6.55	6.22	7.15	6.55	6.25
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.55	-	6.15	5.55	-
Follow-up Hdwy	2.218	-	-	2.254	-	-	3.5	4.045	3.318	3.545	4.045	3.345
Pot Cap-1 Maneuver	1069	-	-	1122	-	-	128	151	575	138	163	680
Stage 1	-	-	-	-	-	-	489	484	-	438	448	-
Stage 2	-	-	-	-	-	-	406	421	-	474	484	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1069	-	-	1122	-	-	86	122	575	85	132	680
Mov Cap-2 Maneuver	-	-	-	-	-	-	86	122	-	85	132	-
Stage 1	-	-	-	-	-	-	416	461	-	372	381	-
Stage 2	-	-	-	-	-	-	293	358	-	358	461	-

Approach	NB			SB			SE			NW		
HCM Control Delay, s	2.5			0.7			48.1			159		
HCM LOS							E			F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	NBLn1	NBLn2	NBLn3	NBLn4	NBLn5	NBLn6	NBLn7	NBLn8	NBLn9
Capacity (veh/h)	1069	-	-	145	95	575	1122	-	-	-	-	-
HCM Lane V/C Ratio	0.149	-	-	1.079	0.686	0.17	0.048	-	-	-	-	-
HCM Control Delay (s)	9	-	-	159	101.5	12.5	8.4	-	-	-	-	-
HCM Lane LOS	A	-	-	F	F	B	A	-	-	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	8.4	3.4	0.6	0.2	-	-	-	-	-

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	529	79	91	465	64	92
Future Volume (vph)	529	79	91	465	64	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1827	1599	1787	1810	1770	1615
Flt Permitted			0.232		0.950	
Satd. Flow (perm)	1827	1565	436	1810	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		89				103
Link Speed (mph)	35			35	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	21.4			24.3	18.2	
Confl. Peds. (#/hr)			2			
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	1%	1%	5%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	594	89	102	522	72	103
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	15.0	5.0	5.0
Minimum Split (s)	21.0	21.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	27.5	27.5	35.9	38.0	7.6	7.6
Actuated g/C Ratio	0.51	0.51	0.67	0.71	0.14	0.14
v/c Ratio	0.63	0.11	0.22	0.41	0.29	0.33
Control Delay	20.1	3.8	5.4	6.3	25.9	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	3.8	5.4	6.3	25.9	9.1
LOS	C	A	A	A	C	A

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	18.0			6.1	16.0	
Approach LOS	B			A	B	
Queue Length 50th (ft)	174	0	11	75	23	0
Queue Length 95th (ft)	#354	22	26	134	55	34
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	948	855	500	1316	307	365
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.10	0.20	0.40	0.23	0.28

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 53.6

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.63

Intersection Signal Delay: 12.8

Intersection LOS: B

Intersection Capacity Utilization 53.7%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2025 PM with SR8 Truck Restriction
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	 	 	
Traffic Volume (vph)	112	481	397	1428	1924	158
Future Volume (vph)	112	481	397	1428	1924	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3367	1553	3303	3438	3438	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3367	1528	3303	3438	3438	1549
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		180				158
Link Speed (mph)	35			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	11.9			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	6%	5%	5%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	112	481	397	1428	1924	158
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	13.0	25.0	30.0	30.0
Total Split (s)	24.0	24.0	24.0	126.0	102.0	102.0
Total Split (%)	16.0%	16.0%	16.0%	84.0%	68.0%	68.0%
Maximum Green (s)	18.0	18.0	17.0	119.0	95.0	95.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	18.4	18.4	17.0	118.6	94.6	94.6
Actuated g/C Ratio	0.12	0.12	0.11	0.79	0.63	0.63
v/c Ratio	0.27	1.39	1.06	0.53	0.89	0.15
Control Delay	61.9	223.2	125.2	6.4	29.6	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.9	223.2	125.2	6.4	29.6	1.8
LOS	E	F	F	A	C	A

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	192.7			32.2	27.5	
Approach LOS	F			C	C	
Queue Length 50th (ft)	52	~468	~219	223	782	0
Queue Length 95th (ft)	84	#696	#329	261	908	27
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	413	345	374	2727	2177	1038
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.39	1.06	0.52	0.88	0.15

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 124 (83%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.39

Intersection Signal Delay: 51.2

Intersection LOS: D

Intersection Capacity Utilization 93.9%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings

2052 AM without SR8 Truck Restriction-Added Lanes

8: Scarborough Rd/Scarborough Road & US13

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	229	1352	509	127	688	201	356	442	95	315	414	151
Future Volume (vph)	229	1352	509	127	688	201	356	442	95	315	414	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	3438	1538	3335	3282	2515	3367	3406	1538	3303	3406	1417
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			464			221			145			166
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	20%	5%	5%	5%	10%	13%	4%	6%	5%	6%	6%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	1486	559	140	756	221	391	486	104	346	455	166
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	30.0	65.0	65.0	30.0	65.0	65.0	25.0	25.0	25.0	30.0	30.0	30.0
Total Split (%)	20.0%	43.3%	43.3%	20.0%	43.3%	43.3%	16.7%	16.7%	16.7%	20.0%	20.0%	20.0%
Maximum Green (s)	22.0	57.0	57.0	22.0	57.0	57.0	18.0	18.0	18.0	24.0	23.0	23.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	17.9	67.4	67.4	11.6	61.1	61.1	18.0	21.5	21.5	20.5	23.0	23.0
Actuated g/C Ratio	0.12	0.45	0.45	0.08	0.41	0.41	0.12	0.14	0.14	0.14	0.15	0.15
v/c Ratio	0.72	0.96	0.59	0.54	0.57	0.19	0.97	1.00	0.30	0.77	0.87	0.46
Control Delay	88.8	34.0	3.1	74.1	36.8	3.9	102.2	102.2	4.9	74.1	79.9	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.8	34.0	3.1	74.1	36.8	3.9	102.2	102.2	4.9	74.1	79.9	12.1
LOS	F	C	A	E	D	A	F	F	A	E	E	B
Approach Delay		32.5			35.0			91.9			66.2	
Approach LOS		C			C			F			E	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	123	587	27	69	298	0	199	~263	0	170	232	0
Queue Length 95th (ft)	m137	m#907	m39	104	382	30	#306	#420	20	221	#323	70
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	427	1543	946	489	1336	1154	404	488	344	528	522	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.96	0.59	0.29	0.57	0.19	0.97	1.00	0.30	0.66	0.87	0.46

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 6:SET, Start of Green

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 50.0

Intersection LOS: D

Intersection Capacity Utilization 88.1%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

 Ø1	 Ø2	 Ø3	 Ø4
30 s	65 s	30 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
30 s	65 s	25 s	30 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	174	1000	188	30	844	150	332	178	56	237	102	99
Future Volume (vph)	174	1000	188	30	844	150	332	178	56	237	102	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1770	3438	1509	1597	3438	1553	1787	1827	1509	1656	1827	1538
Flt Permitted	0.205			0.212			0.471			0.621		
Satd. Flow (perm)	382	3438	1474	356	3438	1512	886	1827	1486	1081	1827	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			209			173			273
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)			1			1			1	1		
Confl. Bikes (#/hr)			2			4			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	5%	7%	13%	5%	4%	1%	4%	7%	9%	4%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	179	1031	194	31	870	155	342	184	58	244	105	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	22.0	61.0	61.0	12.0	51.0	51.0	23.0	30.0	30.0	17.0	24.0	
Total Split (%)	18.3%	50.8%	50.8%	10.0%	42.5%	42.5%	19.2%	25.0%	25.0%	14.2%	20.0%	
Maximum Green (s)	17.0	54.0	54.0	7.0	44.0	44.0	18.0	24.0	24.0	12.0	18.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	70.2	61.0	61.0	60.5	52.0	52.0	39.6	18.0	18.0	29.5	12.8	0.0
Actuated g/C Ratio	0.58	0.51	0.51	0.50	0.43	0.43	0.33	0.15	0.15	0.25	0.11	0.00
v/c Ratio	0.51	0.59	0.23	0.13	0.58	0.20	0.76	0.67	0.16	0.72	0.54	0.37
Control Delay	17.9	20.9	4.3	5.6	11.3	0.6	45.4	60.1	0.9	45.8	60.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.9	20.9	4.3	5.6	11.3	0.6	45.4	60.1	0.9	45.8	60.6	3.9
LOS	B	C	A	A	B	A	D	E	A	D	E	A

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		18.2			9.6			45.6			39.7	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	58	207	14	4	71	0	211	137	0	143	79	0
Queue Length 95th (ft)	m65	m214	m17	m4	274	m4	#330	204	0	#238	132	0
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		175
Base Capacity (vph)	420	1758	848	255	1489	773	450	365	435	341	274	273
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.59	0.23	0.12	0.58	0.20	0.76	0.50	0.13	0.72	0.38	0.37

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 6:SETL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.0

Intersection LOS: C

Intersection Capacity Utilization 78.9%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

 Ø1	 Ø2	 Ø3	 Ø4
22 s	51 s	17 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	61 s	23 s	24 s

Lanes, Volumes, Timings
20: US13 & SR8

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	115	182	229	146	79	227	1316	111	82	1093	42
Future Volume (vph)	51	115	182	229	146	79	227	1316	111	82	1093	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1681	1702	1380	1687	1712	1313	3273	4944	0	1367	4893	1455
Flt Permitted	0.950	0.998		0.950			0.950			0.950		
Satd. Flow (perm)	1681	1702	1380	1687	1712	1313	3273	4944	0	1367	4893	1426
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190			164		11				164
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)									1			6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	6%	17%	7%	11%	23%	7%	3%	9%	32%	6%	11%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	48	125	190	239	152	82	236	1487	0	85	1139	44
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	20.0	37.0		20.0	37.0	37.0
Total Split (%)	34.2%	34.2%	34.2%	18.3%	18.3%	18.3%	16.7%	30.8%		16.7%	30.8%	30.8%
Maximum Green (s)	34.0	34.0	34.0	15.0	15.0	15.0	13.0	30.0		13.0	30.0	30.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	14.7	14.7	14.7	15.0	15.0	15.0	13.9	52.4		12.8	48.4	48.4
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.44		0.11	0.40	0.40
v/c Ratio	0.23	0.60	0.57	1.14	0.71	0.27	0.62	0.69		0.59	0.58	0.07
Control Delay	40.8	48.4	24.0	151.3	69.3	2.1	57.8	31.6		66.3	30.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	40.8	48.4	24.0	151.3	69.3	2.1	57.8	31.6		66.3	30.5	0.2
LOS	D	D	C	F	E	A	E	C		E	C	A
Approach Delay		34.6			99.1			35.2			31.9	

Lanes, Volumes, Timings
20: US13 & SR8

2052 AM without SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			F			D			C		
Queue Length 50th (ft)	38	103	64	~215	115	0	91	343		64	245	0
Queue Length 95th (ft)	m47	m115	m81	#378	#210	0	129	#517		113	343	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			140			400		
Base Capacity (vph)	476	482	527	210	214	307	398	2164		165	1975	673
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.10	0.26	0.36	1.14	0.71	0.27	0.59	0.69		0.52	0.58	0.07

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 41.9

Intersection LOS: D

Intersection Capacity Utilization 74.5%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: US13 & SR8

			
Ø1	Ø2 (R)	Ø3	Ø4
20 s	37 s	22 s	41 s
			
Ø5	Ø6 (R)		
20 s	37 s		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	344	181	939	937	88
Future Volume (vph)	101	344	181	939	937	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1626	1509	1671	1810	1810	1468
Flt Permitted	0.950		0.053			
Satd. Flow (perm)	1626	1471	93	1810	1810	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		308				96
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	7%	8%	5%	5%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	374	197	1021	1018	96
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	25.0	90.0	65.0	65.0
Total Split (%)	25.0%	25.0%	20.8%	75.0%	54.2%	54.2%
Maximum Green (s)	23.0	23.0	18.0	83.0	58.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	14.7	14.7	91.3	91.3	70.9	70.9
Actuated g/C Ratio	0.12	0.12	0.76	0.76	0.59	0.59
v/c Ratio	0.56	0.83	0.80	0.74	0.95	0.11
Control Delay	58.8	26.6	58.7	9.7	36.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.8	26.6	58.7	9.7	36.0	0.6
LOS	E	C	E	A	D	A
Approach Delay	33.9			17.6	33.0	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C			B	C	
Queue Length 50th (ft)	83	48	81	33	785	0
Queue Length 95th (ft)	131	157	m151	797	#1201	1
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	311	530	307	1377	1069	907
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.71	0.64	0.74	0.95	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 83.5%

ICU Level of Service E

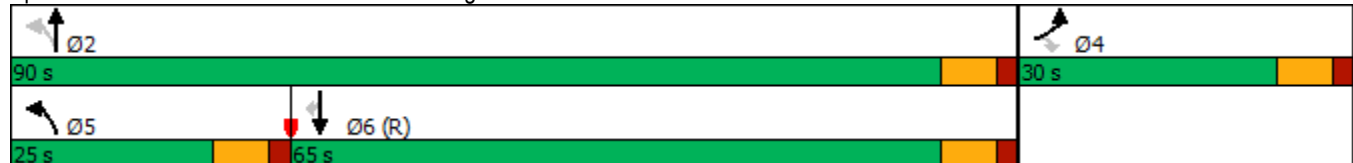
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

2052 AM without SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	7	16	81	7	18	58	841	141	19	928	103
Future Volume (vph)	34	7	16	81	7	18	58	841	141	19	928	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1649	1702	1404	1633	1663	1509	1770	3406	1583	1805	3406	1538
Flt Permitted	0.950	0.968		0.950	0.960		0.212			0.263		
Satd. Flow (perm)	1649	1702	1404	1633	1663	1509	395	3406	1583	500	3406	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			145			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	15%	5%	0%	7%	2%	6%	2%	0%	6%	5%
Shared Lane Traffic (%)	40%			46%								
Lane Group Flow (vph)	23	24	18	50	51	21	67	967	162	22	1067	118
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	19.0	19.0	19.0	28.0	28.0	28.0	20.0	59.0	59.0	14.0	53.0	53.0
Total Split (%)	15.8%	15.8%	15.8%	23.3%	23.3%	23.3%	16.7%	49.2%	49.2%	11.7%	44.2%	44.2%
Maximum Green (s)	13.0	13.0	13.0	22.0	22.0	22.0	13.0	52.0	52.0	7.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				15.0	15.0	15.0					7.0	7.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)	7.3	7.3	7.3	9.1	9.1	9.1	85.9	82.7	82.7	82.7	79.2	79.2
Actuated g/C Ratio	0.06	0.06	0.06	0.08	0.08	0.08	0.72	0.69	0.69	0.69	0.66	0.66
v/c Ratio	0.23	0.24	0.08	0.41	0.40	0.08	0.19	0.41	0.14	0.05	0.47	0.11
Control Delay	58.6	58.5	0.7	61.8	61.5	0.6	4.0	6.1	0.7	6.9	14.9	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	58.5	0.7	61.8	61.5	0.6	4.0	6.1	0.7	6.9	14.9	1.4
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		42.5			51.1			5.3			13.4	
Approach LOS		D			D			A			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	17	18	0	40	40	0	8	103	1	5	244	0
Queue Length 95th (ft)	45	46	0	77	78	0	m10	188	m10	14	336	16
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	178	184	290	299	304	403	442	2347	1136	423	2248	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.06	0.17	0.17	0.05	0.15	0.41	0.14	0.05	0.47	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.47

Intersection Signal Delay: 12.2

Intersection LOS: B

Intersection Capacity Utilization 55.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

 Ø1	 Ø2	 Ø3	 Ø4
14 s	59 s	28 s	19 s
 Ø5	 Ø6 (R)		
20 s	53 s		

Lanes, Volumes, Timings

2052 AM without SR8 Truck Restriction-Added Lanes

24: Saulsbury Rd/McKee Rd & Walker Rd

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	252	88	133	133	162	76	804	226	265	922	62
Future Volume (vph)	104	252	88	133	133	162	76	804	226	265	922	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1703	1863	1495	1736	1810	1553	1597	3438	1538	1719	3374	1583
Flt Permitted	0.600			0.263			0.214			0.131		
Satd. Flow (perm)	1075	1863	1475	480	1810	1553	360	3438	1538	237	3374	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			211			145
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Peds. (#/hr)			1									
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	2%	8%	4%	5%	4%	13%	5%	5%	5%	7%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	283	99	149	149	182	85	903	254	298	1036	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	28.0	28.0	12.0	27.0	27.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	15.0	45.0	45.0	24.0	54.0	54.0
Total Split (%)	15.0%	27.5%	27.5%	15.0%	27.5%	27.5%	12.5%	37.5%	37.5%	20.0%	45.0%	45.0%
Maximum Green (s)	12.0	27.0	27.0	12.0	27.0	27.0	8.0	38.0	38.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	33.1	22.6	22.6	34.4	23.2	23.2	49.0	41.3	41.3	67.2	55.1	55.1
Actuated g/C Ratio	0.28	0.19	0.19	0.29	0.19	0.19	0.41	0.34	0.34	0.56	0.46	0.46
v/c Ratio	0.33	0.81	0.22	0.59	0.43	0.38	0.38	0.76	0.38	0.81	0.67	0.09
Control Delay	30.4	64.2	1.1	38.0	45.7	4.9	20.1	33.5	7.2	52.1	19.9	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	64.2	1.1	38.0	45.7	4.9	20.1	33.5	7.2	52.1	19.9	0.2
LOS	C	E	A	D	D	A	C	C	A	D	B	A
Approach Delay		43.7			27.8			27.2			25.8	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			C		
Queue Length 50th (ft)	64	210	0	82	102	0	27	178	22	118	322	0
Queue Length 95th (ft)	103	295	0	128	160	33	m34	m189	m28	#321	354	m1
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	372	419	500	266	407	518	233	1183	668	366	1549	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.68	0.20	0.56	0.37	0.35	0.36	0.76	0.38	0.81	0.67	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 29.0

Intersection LOS: C

Intersection Capacity Utilization 79.3%

ICU Level of Service D

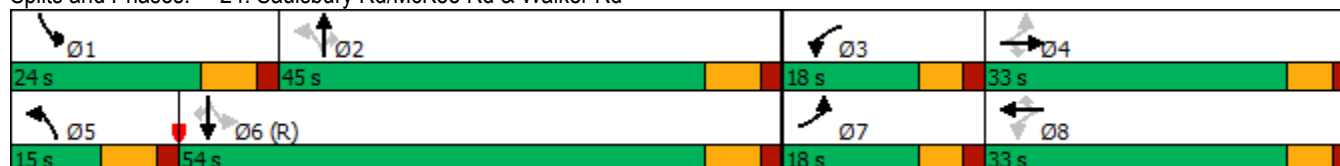
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd



Lanes, Volumes, Timings

2052 AM without SR8 Truck Restriction-Added Lanes

25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	222	673	312	121	427	187	180	727	153	286	738	165
Future Volume (vph)	222	673	312	121	427	187	180	727	153	286	738	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1703	3438	1583	1612	3343	1524	1719	3505	1568	1703	3406	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1703	3438	1583	1612	3343	1502	1719	3505	1543	1703	3406	1555
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355			213			174			164
Link Speed (mph)		35			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		80.4			31.8			21.8			11.3	
Confl. Peds. (#/hr)						1			2			3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	5%	2%	12%	8%	6%	5%	3%	3%	6%	6%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	765	355	138	485	213	205	826	174	325	839	188
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	25.0	36.0	36.0	18.0	29.0	29.0	25.0	36.0	36.0	30.0	41.0	41.0
Total Split (%)	20.8%	30.0%	30.0%	15.0%	24.2%	24.2%	20.8%	30.0%	30.0%	25.0%	34.2%	34.2%
Maximum Green (s)	18.0	29.0	29.0	11.0	22.0	22.0	18.0	29.0	29.0	23.0	34.0	34.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	18.0	28.9	28.9	11.0	21.9	21.9	17.0	29.0	29.0	23.1	35.2	35.2
Actuated g/C Ratio	0.15	0.24	0.24	0.09	0.18	0.18	0.14	0.24	0.24	0.19	0.29	0.29
v/c Ratio	0.99	0.93	0.55	0.94	0.80	0.48	0.85	0.98	0.35	0.99	0.84	0.33
Control Delay	103.3	65.3	10.4	112.3	49.1	11.7	100.5	54.2	4.3	107.7	32.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.3	65.3	10.4	112.3	49.1	11.7	100.5	54.2	4.3	107.7	32.6	3.3
LOS	F	E	B	F	D	B	F	D	A	F	C	A
Approach Delay		58.1			50.0			54.9			46.6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			D			D			D		
Queue Length 50th (ft)	201	314	35	110	138	13	160	330	23	243	282	2
Queue Length 95th (ft)	#348	#408	84	m#222	237	m74	#265	#452	34	#434	#314	15
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530	300		200	200		900	465		325	175	
Base Capacity (vph)	255	830	651	147	612	449	257	847	504	328	998	571
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.92	0.55	0.94	0.79	0.47	0.80	0.98	0.35	0.99	0.84	0.33

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 52.6

Intersection LOS: D

Intersection Capacity Utilization 84.6%

ICU Level of Service E

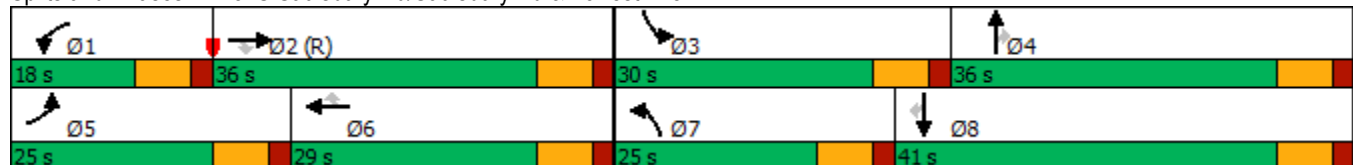
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	37	105	981	1004	167
Future Volume (vph)	66	37	105	981	1004	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1671	1495	1787	3438	3284	0
Flt Permitted	0.950		0.160			
Satd. Flow (perm)	1671	1476	301	3438	3284	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			24	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)			5			
Confl. Bikes (#/hr)		1				2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	1%	5%	8%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	41	117	1090	1302	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	32.0	
Total Split (s)	31.0	31.0	17.0	89.0	72.0	
Total Split (%)	25.8%	25.8%	14.2%	74.2%	60.0%	
Maximum Green (s)	25.0	25.0	10.0	82.0	65.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	10.6	10.6	98.9	100.3	84.7	
Actuated g/C Ratio	0.09	0.09	0.82	0.84	0.71	
v/c Ratio	0.50	0.25	0.35	0.38	0.56	
Control Delay	62.8	17.9	7.9	1.7	26.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.8	17.9	7.9	1.7	26.0	
LOS	E	B	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 AM without SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.6			2.3	26.0	
Approach LOS	D			A	C	
Queue Length 50th (ft)	55	0	10	32	522	
Queue Length 95th (ft)	101	34	m23	m21	m406	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	348	339	372	2873	2326	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.12	0.31	0.38	0.56	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 16.0

Intersection LOS: B

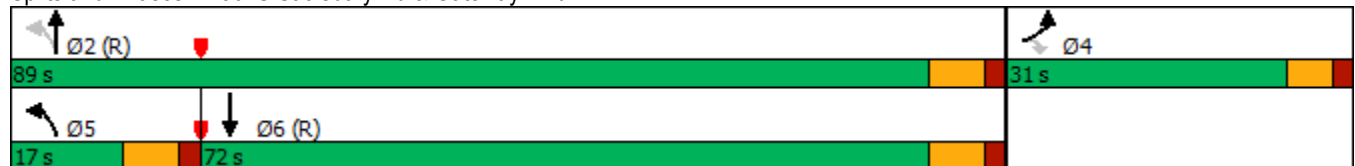
Intersection Capacity Utilization 59.7%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2052 AM without SR8 Truck Restriction-Added Lanes

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	409	51	67	242	297	124	634	148	468	423	110
Future Volume (vph)	191	409	51	67	242	297	124	634	148	468	423	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1656	3471	1455	1703	3406	1553	1736	3505	1538	1736	3374	1302
Flt Permitted	0.374			0.490			0.483			0.137		
Satd. Flow (perm)	652	3471	1435	878	3406	1553	882	3505	1518	250	3374	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			330			245			191
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		35.3			22.6			12.2			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	9%	4%	11%	6%	6%	4%	4%	3%	5%	4%	7%	24%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	454	57	74	269	330	135	689	161	520	470	122
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	22.0	40.0	40.0	13.0	31.0	31.0	20.0	28.0	28.0	39.0	47.0	47.0
Total Split (%)	18.3%	33.3%	33.3%	10.8%	25.8%	25.8%	16.7%	23.3%	23.3%	32.5%	39.2%	39.2%
Maximum Green (s)	16.0	34.0	34.0	7.0	25.0	25.0	14.0	22.0	22.0	33.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	39.1	28.7	28.7	25.0	18.2	18.2	33.0	23.1	23.1	68.9	53.0	53.0
Actuated g/C Ratio	0.33	0.24	0.24	0.21	0.15	0.15	0.28	0.19	0.19	0.57	0.44	0.44
v/c Ratio	0.63	0.55	0.12	0.32	0.52	0.64	0.43	1.02	0.33	0.82	0.32	0.18
Control Delay	40.0	43.3	0.5	32.8	50.8	10.9	22.9	88.6	2.0	53.2	31.5	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	43.3	0.5	32.8	50.8	10.9	22.9	88.6	2.0	53.2	31.5	9.2
LOS	D	D	A	C	D	B	C	F	A	D	C	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.0			29.3			65.4			39.2	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	129	170	0	41	104	0	44	~312	0	394	119	15
Queue Length 95th (ft)	186	213	0	73	142	84	85	#434	2	#541	256	58
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	345	1000	549	232	709	584	372	674	489	637	1491	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.45	0.10	0.32	0.38	0.57	0.36	1.02	0.33	0.82	0.32	0.18

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 44.6

Intersection LOS: D

Intersection Capacity Utilization 87.6%

ICU Level of Service E

Analysis Period (min) 15

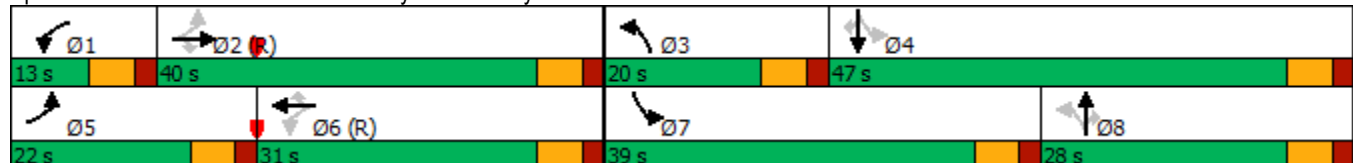
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	100	646	82	77	528	39	104	28	200	43	15	41
Future Volume (vph)	100	646	82	77	528	39	104	28	200	43	15	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	275		300	0		225	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Satd. Flow (prot)	1770	1827	1553	1719	1810	1482	0	1757	1568	0	1672	0
Flt Permitted	0.249			0.127				0.962			0.979	
Satd. Flow (perm)	464	1827	1553	230	1810	1482	0	1757	1568	0	1672	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			217			33
Link Speed (mph)		40			40			30				25
Link Distance (ft)		1819			3131			1258				345
Travel Time (s)		31.0			53.4			28.6				9.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	4%	5%	5%	9%	4%	4%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	702	89	84	574	42	0	143	217	0	108	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2		2	6		6			4			
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	21.0	21.0	21.0	18.0	18.0	
Total Split (s)	11.0	40.0	40.0	11.0	40.0	40.0	21.0	21.0	21.0	18.0	18.0	
Total Split (%)	12.2%	44.4%	44.4%	12.2%	44.4%	44.4%	23.3%	23.3%	23.3%	20.0%	20.0%	
Maximum Green (s)	5.0	33.0	33.0	5.0	33.0	33.0	15.0	15.0	15.0	12.0	12.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	7.0		6.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)					5.0	5.0	8.0	8.0	8.0	5.0	5.0	
Pedestrian Calls (#/hr)					0	0	0	0	0	0	0	
Act Effct Green (s)	39.1	34.3	34.3	39.1	34.3	34.3		11.5	11.5		8.9	
Actuated g/C Ratio	0.49	0.43	0.43	0.49	0.43	0.43		0.15	0.15		0.11	
v/c Ratio	0.35	0.89	0.11	0.40	0.73	0.06		0.56	0.53		0.50	
Control Delay	14.7	40.8	0.3	17.0	29.8	0.2		43.0	10.1		34.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	14.7	40.8	0.3	17.0	29.8	0.2		43.0	10.1		34.8	
LOS	B	D	A	B	C	A		D	B		C	
Approach Delay		33.6			26.5			23.2			34.8	
Approach LOS		C			C			C			C	

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Queue Length 50th (ft)	27	359	0	20	264	0		72	0		38	
Queue Length 95th (ft)	60	#651	0	48	#489	0		133	60		89	
Internal Link Dist (ft)		1739			3051			1178			265	
Turn Bay Length (ft)	300		300	275		300			225			
Base Capacity (vph)	314	791	775	211	784	745		346	483		291	
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	
Reduced v/c Ratio	0.35	0.89	0.11	0.40	0.73	0.06		0.41	0.45		0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 29.5

Intersection LOS: C

Intersection Capacity Utilization 66.5%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 55: POW MIA Pkwy & Delmarva Corrugated Packaging

 Ø1	 Ø2	 Ø3	 Ø4
11 s	40 s	18 s	21 s
 Ø5	 Ø6		
11 s	40 s		

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	679	92	30	740	88	54
Future Volume (vph)	679	92	30	740	88	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1827	1524	1556	1827	1719	1455
Flt Permitted			0.155		0.950	
Satd. Flow (perm)	1827	1524	254	1827	1719	1455
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		103				61
Link Speed (mph)	40			40	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	18.7			21.2	18.2	
Confl. Peds. (#/hr)			2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	6%	16%	4%	5%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	763	103	34	831	99	61
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	30.5	30.5	33.7	35.3	7.7	7.7
Actuated g/C Ratio	0.59	0.59	0.65	0.68	0.15	0.15
v/c Ratio	0.71	0.11	0.11	0.67	0.39	0.23
Control Delay	20.8	3.4	5.0	10.6	26.4	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.8	3.4	5.0	10.6	26.4	9.8
LOS	C	A	A	B	C	A
Approach Delay	18.8			10.4	20.0	

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			B	C	
Queue Length 50th (ft)	138	0	4	160	25	0
Queue Length 95th (ft)	#485	23	11	285	71	27
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	1075	939	368	1413	302	306
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.11	0.09	0.59	0.33	0.20

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 51.9

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 15.0

Intersection LOS: B

Intersection Capacity Utilization 54.7%

ICU Level of Service A

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

 Ø1	 Ø2	 Ø4
15 s	30 s	15 s
 Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2052 AM without SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	191	496	547	2024	1199	211
Future Volume (vph)	191	496	547	2024	1199	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3335	1524	3400	4940	4715	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3335	1502	3400	4940	4715	1490
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		285				229
Link Speed (mph)	40			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	10.4			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	6%	3%	5%	10%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	208	539	595	2200	1303	229
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	18.0	18.0	30.0	30.0
Total Split (s)	24.0	24.0	32.0	126.0	94.0	94.0
Total Split (%)	16.0%	16.0%	21.3%	84.0%	62.7%	62.7%
Maximum Green (s)	18.0	18.0	25.0	119.0	87.0	87.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	45.2	45.2	25.0	91.8	59.8	59.8
Actuated g/C Ratio	0.30	0.30	0.17	0.61	0.40	0.40
v/c Ratio	0.21	0.83	1.05	0.73	0.69	0.31
Control Delay	42.7	35.1	110.7	21.7	39.0	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	35.1	110.7	21.7	39.0	3.5
LOS	D	D	F	C	D	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	37.2			40.6	33.7	
Approach LOS	D			D	C	
Queue Length 50th (ft)	76	246	~325	554	398	0
Queue Length 95th (ft)	132	#564	#449	395	354	43
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	1005	651	566	3919	2734	960
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.83	1.05	0.56	0.48	0.24

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 94 (63%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 38.0

Intersection LOS: D

Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	229	1352	509	131	688	201	356	449	95	315	428	151
Future Volume (vph)	229	1352	509	131	688	201	356	449	95	315	428	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	2918	3438	1538	3335	3282	2515	3367	3374	1538	3303	3282	1417
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2918	3438	1538	3335	3282	2515	3367	3374	1538	3303	3282	1417
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			459			221			145			166
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	20%	5%	5%	5%	10%	13%	4%	7%	5%	6%	10%	14%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	252	1486	559	144	756	221	391	493	104	346	470	166
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	30.0	65.0	65.0	30.0	65.0	65.0	25.0	25.0	25.0	30.0	30.0	30.0
Total Split (%)	20.0%	43.3%	43.3%	20.0%	43.3%	43.3%	16.7%	16.7%	16.7%	20.0%	20.0%	20.0%
Maximum Green (s)	22.0	57.0	57.0	22.0	57.0	57.0	18.0	18.0	18.0	24.0	23.0	23.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	17.9	67.2	67.2	11.8	61.1	61.1	18.0	21.5	21.5	20.5	23.0	23.0
Actuated g/C Ratio	0.12	0.45	0.45	0.08	0.41	0.41	0.12	0.14	0.14	0.14	0.15	0.15
v/c Ratio	0.72	0.96	0.59	0.55	0.57	0.19	0.97	1.02	0.30	0.77	0.93	0.46
Control Delay	88.8	34.5	3.2	74.2	36.8	3.9	102.2	107.4	4.9	74.1	89.0	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.8	34.5	3.2	74.2	36.8	3.9	102.2	107.4	4.9	74.1	89.0	12.1
LOS	F	C	A	E	D	A	F	F	A	E	F	B
Approach Delay		32.8			35.1			94.6			70.8	
Approach LOS		C			D			F			E	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Queue Length 50th (ft)	123	593	27	71	298	0	199	~273	0	170	242	0
Queue Length 95th (ft)	m137	m#910	m40	107	382	30	#306	#430	20	221	#351	70
Internal Link Dist (ft)		1184			3729			1638			893	
Turn Bay Length (ft)	500		420	500		520	352		850	400		400
Base Capacity (vph)	427	1540	942	489	1336	1154	404	483	344	528	503	357
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.96	0.59	0.29	0.57	0.19	0.97	1.02	0.30	0.66	0.93	0.46

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 110 (73%), Referenced to phase 6:SET, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 51.5

Intersection LOS: D

Intersection Capacity Utilization 88.5%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13

 Ø1	 Ø2	 Ø3	 Ø4
30 s	65 s	30 s	25 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
30 s	65 s	25 s	30 s

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 AM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	174	1018	188	30	851	150	332	178	56	237	102	99
Future Volume (vph)	174	1018	188	30	851	150	332	178	56	237	102	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1770	3374	1509	1597	3406	1553	1787	1827	1509	1656	1827	1538
Flt Permitted	0.203			0.205			0.471			0.621		
Satd. Flow (perm)	378	3374	1474	345	3406	1512	886	1827	1486	1081	1827	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			194			209			173			273
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)			1			1			1	1		
Confl. Bikes (#/hr)			2			4			2			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	7%	7%	13%	6%	4%	1%	4%	7%	9%	4%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	179	1049	194	31	877	155	342	184	58	244	105	102
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	22.0	61.0	61.0	12.0	51.0	51.0	23.0	30.0	30.0	17.0	24.0	
Total Split (%)	18.3%	50.8%	50.8%	10.0%	42.5%	42.5%	19.2%	25.0%	25.0%	14.2%	20.0%	
Maximum Green (s)	17.0	54.0	54.0	7.0	44.0	44.0	18.0	24.0	24.0	12.0	18.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	70.3	61.1	61.1	60.6	52.1	52.1	39.5	18.0	18.0	29.4	12.8	0.0
Actuated g/C Ratio	0.59	0.51	0.51	0.50	0.43	0.43	0.33	0.15	0.15	0.24	0.11	0.00
v/c Ratio	0.51	0.61	0.23	0.13	0.59	0.20	0.76	0.67	0.16	0.72	0.54	0.37
Control Delay	18.0	21.4	4.3	5.4	11.3	0.6	45.6	60.1	0.9	46.0	60.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	21.4	4.3	5.4	11.3	0.6	45.6	60.1	0.9	46.0	60.6	3.9
LOS	B	C	A	A	B	A	D	E	A	D	E	A

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 AM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		18.6			9.5			45.7			39.9	
Approach LOS		B			A			D			D	
Queue Length 50th (ft)	60	223	14	4	71	0	211	137	0	143	79	0
Queue Length 95th (ft)	m63	m211	m16	m4	290	m4	#330	204	0	#238	132	0
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		175
Base Capacity (vph)	418	1725	848	250	1479	774	449	365	435	340	274	273
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.61	0.23	0.12	0.59	0.20	0.76	0.50	0.13	0.72	0.38	0.37

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 56 (47%), Referenced to phase 6:SETL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

 Ø1	 Ø2	 Ø3	 Ø4
22 s	51 s	17 s	30 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
12 s	61 s	23 s	24 s

Lanes, Volumes, Timings
20: US13 & SR8

2052 AM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	108	174	229	132	79	213	1316	111	82	1093	38
Future Volume (vph)	47	108	174	229	132	79	213	1316	111	82	1093	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1715	1801	1615	1687	1881	1313	3467	4944	0	1367	4893	1568
Flt Permitted	0.950	0.998		0.950			0.950			0.950		
Satd. Flow (perm)	1715	1801	1615	1687	1881	1313	3467	4944	0	1367	4893	1537
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			181			164			11			164
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)									1			6
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	7%	1%	23%	1%	3%	9%	32%	6%	3%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	44	118	181	239	138	82	222	1487	0	85	1139	40
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	22.0	22.0	22.0	20.0	37.0		20.0	37.0	37.0
Total Split (%)	34.2%	34.2%	34.2%	18.3%	18.3%	18.3%	16.7%	30.8%		16.7%	30.8%	30.8%
Maximum Green (s)	34.0	34.0	34.0	15.0	15.0	15.0	13.0	30.0		13.0	30.0	30.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	13.4	13.4	13.4	15.0	15.0	15.0	12.9	53.7		12.8	50.7	50.7
Actuated g/C Ratio	0.11	0.11	0.11	0.12	0.12	0.12	0.11	0.45		0.11	0.42	0.42
v/c Ratio	0.23	0.59	0.53	1.14	0.59	0.27	0.60	0.67		0.59	0.55	0.05
Control Delay	41.1	48.7	23.4	151.3	60.6	2.1	57.5	30.2		66.3	28.4	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	41.1	48.7	23.4	151.3	60.6	2.1	57.5	30.2		66.3	28.4	0.1
LOS	D	D	C	F	E	A	E	C		E	C	A
Approach Delay		34.4			97.4			33.8			30.1	

Lanes, Volumes, Timings
20: US13 & SR8

2052 AM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			F			C			C		
Queue Length 50th (ft)	35	97	60	~215	102	0	86	338		64	238	0
Queue Length 95th (ft)	m45	m113	m82	#378	171	0	123	#471		113	327	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			140			400		
Base Capacity (vph)	485	510	587	210	235	307	403	2216		165	2065	743
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.09	0.23	0.31	1.14	0.59	0.27	0.55	0.67		0.52	0.55	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 91 (76%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 40.3

Intersection LOS: D

Intersection Capacity Utilization 73.5%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 20: US13 & SR8

					
Ø1	Ø2 (R)		Ø3	Ø4	
20 s	37 s		22 s	41 s	
					
Ø5	Ø6 (R)				
20 s	37 s				



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	101	344	181	946	955	88
Future Volume (vph)	101	344	181	946	955	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1626	1509	1671	1792	1776	1468
Flt Permitted	0.950		0.051			
Satd. Flow (perm)	1626	1471	90	1792	1776	1468
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		305				96
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		2				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	11%	7%	8%	6%	7%	10%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	110	374	197	1028	1038	96
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	30.0	30.0	25.0	90.0	65.0	65.0
Total Split (%)	25.0%	25.0%	20.8%	75.0%	54.2%	54.2%
Maximum Green (s)	23.0	23.0	18.0	83.0	58.0	58.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	14.7	14.7	91.3	91.3	70.9	70.9
Actuated g/C Ratio	0.12	0.12	0.76	0.76	0.59	0.59
v/c Ratio	0.55	0.83	0.81	0.75	0.99	0.11
Control Delay	58.6	27.3	60.1	10.1	43.7	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	27.3	60.1	10.1	43.7	0.5
LOS	E	C	E	B	D	A
Approach Delay	34.4			18.1	40.0	



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach LOS	C			B	D	
Queue Length 50th (ft)	83	51	83	280	793	0
Queue Length 95th (ft)	131	160	m153	804	#1248	1
Internal Link Dist (ft)	1596		2176		3206	
Turn Bay Length (ft)	500		250		480	
Base Capacity (vph)	311	528	305	1362	1049	906
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.71	0.65	0.75	0.99	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 15 (13%), Referenced to phase 6: SBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 29.6

Intersection LOS: C

Intersection Capacity Utilization 84.5%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

2052 AM with SR8 Truck Restriction-Added Lanes

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	7	16	81	7	18	58	848	141	19	946	103
Future Volume (vph)	34	7	16	81	7	18	58	848	141	19	946	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1649	1702	1404	1633	1663	1509	1770	3374	1583	1805	3343	1538
Flt Permitted	0.950	0.968		0.950	0.960		0.206			0.260		
Satd. Flow (perm)	1649	1702	1404	1633	1663	1509	384	3374	1583	494	3343	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			145			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	4%	0%	15%	5%	0%	7%	2%	7%	2%	0%	8%	5%
Shared Lane Traffic (%)	40%			46%								
Lane Group Flow (vph)	23	24	18	50	51	21	67	975	162	22	1087	118
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	19.0	19.0	19.0	28.0	28.0	28.0	20.0	59.0	59.0	14.0	53.0	53.0
Total Split (%)	15.8%	15.8%	15.8%	23.3%	23.3%	23.3%	16.7%	49.2%	49.2%	11.7%	44.2%	44.2%
Maximum Green (s)	13.0	13.0	13.0	22.0	22.0	22.0	13.0	52.0	52.0	7.0	46.0	46.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)				7.0	7.0	7.0					7.0	7.0
Flash Dont Walk (s)				15.0	15.0	15.0					7.0	7.0
Pedestrian Calls (#/hr)				0	0	0					0	0
Act Effct Green (s)	7.3	7.3	7.3	9.1	9.1	9.1	85.9	82.7	82.7	82.7	79.2	79.2
Actuated g/C Ratio	0.06	0.06	0.06	0.08	0.08	0.08	0.72	0.69	0.69	0.69	0.66	0.66
v/c Ratio	0.23	0.24	0.08	0.41	0.40	0.08	0.19	0.42	0.14	0.05	0.49	0.11
Control Delay	58.6	58.5	0.7	61.8	61.5	0.6	3.9	6.1	0.8	6.9	15.2	1.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	58.6	58.5	0.7	61.8	61.5	0.6	3.9	6.1	0.8	6.9	15.2	1.4
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		42.5			51.1			5.3			13.8	
Approach LOS		D			D			A			B	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	17	18	0	40	40	0	7	109	1	5	253	0
Queue Length 95th (ft)	45	46	0	77	78	0	m10	194	m10	14	349	16
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	178	184	290	299	304	403	435	2325	1136	419	2206	1064
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.06	0.17	0.17	0.05	0.15	0.42	0.14	0.05	0.49	0.11

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 90 (75%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.49

Intersection Signal Delay: 12.3

Intersection LOS: B

Intersection Capacity Utilization 56.1%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

 Ø1	 Ø2	 Ø3	 Ø4
14 s	59 s	28 s	19 s
 Ø5	 Ø6 (R)		
20 s	53 s		

Lanes, Volumes, Timings

2052 AM with SR8 Truck Restriction-Added Lanes

24: Saulsbury Rd/McKee Rd & Walker Rd

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	252	88	133	133	162	76	811	226	265	940	62
Future Volume (vph)	104	252	88	133	133	162	76	811	226	265	940	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1703	1863	1495	1736	1810	1553	1597	3406	1509	1719	3312	1583
Flt Permitted	0.600			0.263			0.205			0.127		
Satd. Flow (perm)	1075	1863	1475	480	1810	1553	345	3406	1509	230	3312	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			210			145
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Peds. (#/hr)			1									
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	2%	8%	4%	5%	4%	13%	6%	7%	5%	9%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	117	283	99	149	149	182	85	911	254	298	1056	70
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	28.0	28.0	12.0	27.0	27.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	18.0	33.0	33.0	18.0	33.0	33.0	15.0	45.0	45.0	24.0	54.0	54.0
Total Split (%)	15.0%	27.5%	27.5%	15.0%	27.5%	27.5%	12.5%	37.5%	37.5%	20.0%	45.0%	45.0%
Maximum Green (s)	12.0	27.0	27.0	12.0	27.0	27.0	8.0	38.0	38.0	17.0	47.0	47.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	33.1	22.6	22.6	34.4	23.2	23.2	49.0	41.2	41.2	67.2	55.1	55.1
Actuated g/C Ratio	0.28	0.19	0.19	0.29	0.19	0.19	0.41	0.34	0.34	0.56	0.46	0.46
v/c Ratio	0.33	0.81	0.22	0.59	0.43	0.38	0.38	0.78	0.39	0.82	0.69	0.09
Control Delay	30.4	64.2	1.1	38.0	45.7	4.9	20.5	33.6	7.1	53.0	20.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.4	64.2	1.1	38.0	45.7	4.9	20.5	33.6	7.1	53.0	20.5	0.2
LOS	C	E	A	D	D	A	C	C	A	D	C	A
Approach Delay		43.7			27.8			27.3			26.3	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			C			C			C		
Queue Length 50th (ft)	64	210	0	82	102	0	28	181	23	125	337	1
Queue Length 95th (ft)	103	295	0	128	160	33	m34	m193	m29	#326	371	m0
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	372	419	500	266	407	518	228	1170	656	364	1520	805
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.68	0.20	0.56	0.37	0.35	0.37	0.78	0.39	0.82	0.69	0.09

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 110 (92%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 29.2

Intersection LOS: C

Intersection Capacity Utilization 79.5%

ICU Level of Service D

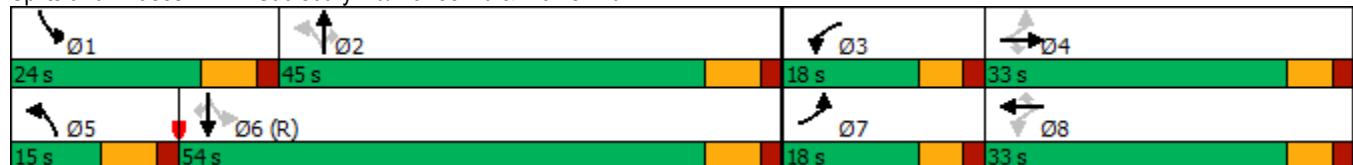
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd



Lanes, Volumes, Timings

2052 AM with SR8 Truck Restriction-Added Lanes

25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	233	654	320	121	395	187	194	727	153	286	738	183
Future Volume (vph)	233	654	320	121	395	187	194	727	153	286	738	183
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1626	3505	1538	1612	3610	1524	1583	3505	1568	1703	3406	1429
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1626	3505	1538	1612	3610	1502	1583	3505	1543	1703	3406	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			364			227			227			227
Link Speed (mph)		35			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		80.4			31.8			21.8			11.3	
Confl. Peds. (#/hr)						1			2			3
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	11%	3%	5%	12%	0%	6%	14%	3%	3%	6%	6%	13%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	265	743	364	138	449	213	220	826	174	325	839	208
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	27.0	36.0	36.0	18.0	27.0	27.0	24.0	36.0	36.0	30.0	42.0	42.0
Total Split (%)	22.5%	30.0%	30.0%	15.0%	22.5%	22.5%	20.0%	30.0%	30.0%	25.0%	35.0%	35.0%
Maximum Green (s)	20.0	29.0	29.0	11.0	20.0	20.0	17.0	29.0	29.0	23.0	35.0	35.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	20.0	28.5	28.5	11.0	19.5	19.5	17.5	29.0	29.0	23.5	35.0	35.0
Actuated g/C Ratio	0.17	0.24	0.24	0.09	0.16	0.16	0.15	0.24	0.24	0.20	0.29	0.29
v/c Ratio	0.98	0.89	0.57	0.94	0.77	0.49	0.95	0.98	0.32	0.98	0.84	0.36
Control Delay	98.0	61.1	10.8	113.5	45.6	9.3	119.1	53.8	3.2	103.3	32.6	2.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.0	61.1	10.8	113.5	45.6	9.3	119.1	53.8	3.2	103.3	32.6	2.8
LOS	F	E	B	F	D	A	F	D	A	F	C	A
Approach Delay		54.9			47.7			58.4			44.8	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			E			D		
Queue Length 50th (ft)	210	302	37	111	128	9	177	331	18	243	245	1
Queue Length 95th (ft)	#358	#382	95	#230	204	41	#327	#452	28	#433	297	14
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530	300		200	200		900	465		325	175	
Base Capacity (vph)	271	847	647	147	601	439	231	847	545	333	993	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.88	0.56	0.94	0.75	0.49	0.95	0.98	0.32	0.98	0.84	0.36

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green, Master Intersection

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 51.7

Intersection LOS: D

Intersection Capacity Utilization 84.8%

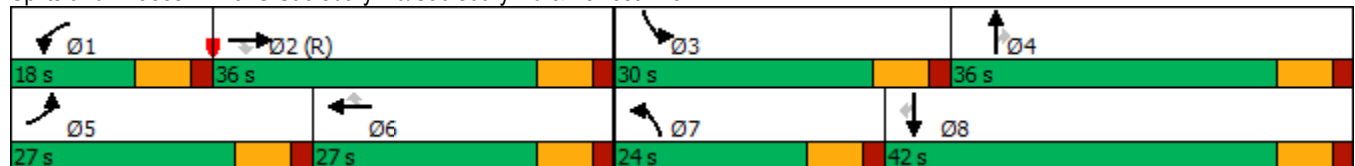
ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 AM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	66	37	105	995	1012	167
Future Volume (vph)	66	37	105	995	1012	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1671	1495	1787	3406	3258	0
Flt Permitted	0.950		0.158			
Satd. Flow (perm)	1671	1476	297	3406	3258	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		41			24	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)			5			
Confl. Bikes (#/hr)		1				2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	8%	8%	1%	6%	9%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	41	117	1106	1310	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	32.0	
Total Split (s)	31.0	31.0	17.0	89.0	72.0	
Total Split (%)	25.8%	25.8%	14.2%	74.2%	60.0%	
Maximum Green (s)	25.0	25.0	10.0	82.0	65.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	10.6	10.6	98.9	100.3	84.7	
Actuated g/C Ratio	0.09	0.09	0.82	0.84	0.71	
v/c Ratio	0.50	0.25	0.35	0.39	0.57	
Control Delay	62.8	17.9	8.1	1.9	25.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	62.8	17.9	8.1	1.9	25.3	
LOS	E	B	A	A	C	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 AM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.6			2.5	25.3	
Approach LOS	D			A	C	
Queue Length 50th (ft)	55	0	11	32	525	
Queue Length 95th (ft)	101	34	m22	m20	m386	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	348	339	368	2846	2307	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.21	0.12	0.32	0.39	0.57	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 43 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 59.9%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2052 AM with SR8 Truck Restriction-Added Lanes

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	191	409	51	67	242	297	124	648	148	468	431	110
Future Volume (vph)	191	409	51	67	242	297	124	648	148	468	431	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1656	3471	1455	1703	3406	1553	1736	3406	1538	1736	3282	1302
Flt Permitted	0.374			0.490			0.478			0.137		
Satd. Flow (perm)	652	3471	1435	878	3406	1553	873	3406	1518	250	3282	1302
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			330			245			191
Link Speed (mph)		35			35			40			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		35.3			22.6			12.2			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92	0.92	0.90	0.90	0.90
Heavy Vehicles (%)	9%	4%	11%	6%	6%	4%	4%	6%	5%	4%	10%	24%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	212	454	57	74	269	330	135	704	161	520	479	122
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	22.0	40.0	40.0	13.0	31.0	31.0	20.0	28.0	28.0	39.0	47.0	47.0
Total Split (%)	18.3%	33.3%	33.3%	10.8%	25.8%	25.8%	16.7%	23.3%	23.3%	32.5%	39.2%	39.2%
Maximum Green (s)	16.0	34.0	34.0	7.0	25.0	25.0	14.0	22.0	22.0	33.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	39.1	28.7	28.7	25.0	18.2	18.2	33.0	23.1	23.1	68.9	53.0	53.0
Actuated g/C Ratio	0.33	0.24	0.24	0.21	0.15	0.15	0.28	0.19	0.19	0.57	0.44	0.44
v/c Ratio	0.63	0.55	0.12	0.32	0.52	0.64	0.43	1.07	0.33	0.82	0.33	0.18
Control Delay	40.0	43.3	0.5	32.8	50.8	10.9	23.0	103.3	2.0	52.3	31.5	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	43.3	0.5	32.8	50.8	10.9	23.0	103.3	2.0	52.3	31.5	8.7
LOS	D	D	A	C	D	B	C	F	A	D	C	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		39.0			29.3			76.1			38.7	
Approach LOS		D			C			E			D	
Queue Length 50th (ft)	129	170	0	41	104	0	44	~332	0	395	125	16
Queue Length 95th (ft)	186	213	0	73	142	84	85	#455	2	#544	260	55
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	345	1000	549	232	709	584	370	655	489	637	1450	682
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.45	0.10	0.32	0.38	0.57	0.36	1.07	0.33	0.82	0.33	0.18

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 63 (53%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 47.6

Intersection LOS: D

Intersection Capacity Utilization 88.0%

ICU Level of Service E

Analysis Period (min) 15

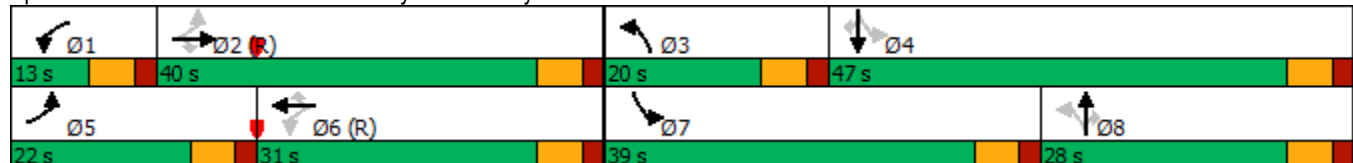
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	100	660	82	77	536	39	104	28	200	43	15	41
Future Volume (vph)	100	660	82	77	536	39	104	28	200	43	15	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	275		300	0		225	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Satd. Flow (prot)	1770	1792	1553	1719	1759	1482	0	1757	1568	0	1672	0
Flt Permitted	0.240			0.117				0.962			0.979	
Satd. Flow (perm)	447	1792	1553	212	1759	1482	0	1757	1568	0	1672	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			217			33
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		1819			3131			1258			345	
Travel Time (s)		31.0			53.4			28.6			9.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	6%	4%	5%	8%	9%	4%	4%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	717	89	84	583	42	0	143	217	0	108	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2		2	6		6			4			
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	21.0	21.0	21.0	18.0	18.0	
Total Split (s)	11.0	40.0	40.0	11.0	40.0	40.0	21.0	21.0	21.0	18.0	18.0	
Total Split (%)	12.2%	44.4%	44.4%	12.2%	44.4%	44.4%	23.3%	23.3%	23.3%	20.0%	20.0%	
Maximum Green (s)	5.0	33.0	33.0	5.0	33.0	33.0	15.0	15.0	15.0	12.0	12.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	7.0		6.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)					5.0	5.0	8.0	8.0	8.0	5.0	5.0	
Pedestrian Calls (#/hr)					0	0	0	0	0	0	0	
Act Effct Green (s)	39.1	34.3	34.3	39.1	34.3	34.3		11.5	11.5		8.9	
Actuated g/C Ratio	0.49	0.43	0.43	0.49	0.43	0.43		0.15	0.15		0.11	
v/c Ratio	0.36	0.92	0.11	0.41	0.77	0.06		0.56	0.53		0.50	
Control Delay	14.8	45.8	0.3	17.7	31.7	0.2		43.0	10.1		34.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	14.8	45.8	0.3	17.7	31.7	0.2		43.0	10.1		34.8	
LOS	B	D	A	B	C	A		D	B		C	
Approach Delay		37.7			28.2			23.2			34.8	
Approach LOS		D			C			C			C	

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Queue Length 50th (ft)	27	~390	0	20	274	0		72	0		38	
Queue Length 95th (ft)	60	#678	0	48	#512	0		133	60		89	
Internal Link Dist (ft)		1739			3051			1178			265	
Turn Bay Length (ft)	300		300	275		300			225			
Base Capacity (vph)	307	776	775	203	762	745		346	483		291	
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	
Reduced v/c Ratio	0.36	0.92	0.11	0.41	0.77	0.06		0.41	0.45		0.37	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 79.2

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 31.8

Intersection LOS: C

Intersection Capacity Utilization 67.3%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 55: POW MIA Pkwy & Delmarva Corrugated Packaging

 Ø1	 Ø2	 Ø3	 Ø4
11 s	40 s	18 s	21 s
 Ø5	 Ø6		
11 s	40 s		

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 AM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	687	92	30	754	88	54
Future Volume (vph)	687	92	30	754	88	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1792	1524	1556	1792	1719	1455
Flt Permitted			0.153		0.950	
Satd. Flow (perm)	1792	1524	251	1792	1719	1455
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		103				61
Link Speed (mph)	40			40	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	18.7			21.2	18.2	
Confl. Peds. (#/hr)			2			
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	6%	6%	16%	6%	5%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	772	103	34	847	99	61
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	15.0	15.0	5.0	15.0	5.0	5.0
Minimum Split (s)	22.0	22.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	31.1	31.1	34.2	35.8	7.7	7.7
Actuated g/C Ratio	0.59	0.59	0.65	0.68	0.15	0.15
v/c Ratio	0.73	0.11	0.11	0.69	0.39	0.23
Control Delay	21.5	3.4	5.0	11.2	26.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	3.4	5.0	11.2	26.8	9.8
LOS	C	A	A	B	C	A
Approach Delay	19.4			10.9	20.3	

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 AM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach LOS	B			B	C	
Queue Length 50th (ft)	143	0	4	170	26	0
Queue Length 95th (ft)	#499	23	11	305	71	27
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	1062	945	365	1372	298	303
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.11	0.09	0.62	0.33	0.20

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 52.4

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 15.6

Intersection LOS: B

Intersection Capacity Utilization 55.4%

ICU Level of Service B

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2052 AM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰↰	↑↑↑	↑↑↑	↱
Traffic Volume (vph)	191	504	561	2010	1199	211
Future Volume (vph)	191	504	561	2010	1199	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3335	1495	3303	4988	4715	1509
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3335	1474	3303	4988	4715	1490
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		285				229
Link Speed (mph)	40			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	10.4			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)						2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	5%	8%	6%	4%	10%	7%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	208	548	610	2185	1303	229
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	18.0	18.0	30.0	30.0
Total Split (s)	24.0	24.0	32.0	126.0	94.0	94.0
Total Split (%)	16.0%	16.0%	21.3%	84.0%	62.7%	62.7%
Maximum Green (s)	18.0	18.0	25.0	119.0	87.0	87.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	46.4	46.4	25.0	90.6	58.6	58.6
Actuated g/C Ratio	0.31	0.31	0.17	0.60	0.39	0.39
v/c Ratio	0.20	0.84	1.11	0.73	0.71	0.32
Control Delay	41.3	36.0	127.6	22.2	40.2	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	36.0	127.6	22.2	40.2	3.8
LOS	D	D	F	C	D	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	37.5			45.2	34.8	
Approach LOS	D			D	C	
Queue Length 50th (ft)	76	261	~350	540	396	0
Queue Length 95th (ft)	128	#570	#473	423	371	45
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	1032	653	550	3957	2734	960
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.84	1.11	0.55	0.48	0.24

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 94 (63%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 40.9

Intersection LOS: D

Intersection Capacity Utilization 65.3%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings

2052 PM wo SR8 Truck Restriction-Added Lanes

8: Scarborough Rd/Scarborough Road & US13

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	189	1215	458	146	1551	335	478	430	119	307	374	270
Future Volume (vph)	189	1215	458	146	1551	335	478	430	119	307	374	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	3367	3539	1568	3433	3574	2760	3467	3406	1599	3400	3505	1468
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1548	3433	3574	2760	3467	3406	1599	3400	3505	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			409			364			204			255
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	3%	2%	1%	3%	1%	6%	1%	3%	3%	10%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	1321	498	159	1686	364	520	467	129	334	407	293
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	17.0	80.0	80.0	17.0	80.0	80.0	29.0	32.0	32.0	21.0	24.0	24.0
Total Split (%)	11.3%	53.3%	53.3%	11.3%	53.3%	53.3%	19.3%	21.3%	21.3%	14.0%	16.0%	16.0%
Maximum Green (s)	9.0	72.0	72.0	9.0	72.0	72.0	22.0	25.0	25.0	15.0	17.0	17.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	9.0	72.0	72.0	9.0	72.0	72.0	22.0	23.8	23.8	16.2	17.0	17.0
Actuated g/C Ratio	0.06	0.48	0.48	0.06	0.48	0.48	0.15	0.16	0.16	0.11	0.11	0.11
v/c Ratio	1.01	0.78	0.52	0.78	0.98	0.24	1.02	0.87	0.30	0.91	1.03	0.75
Control Delay	109.4	20.9	3.3	93.7	56.3	2.3	107.6	78.3	1.8	94.0	115.5	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.4	20.9	3.3	93.7	56.3	2.3	107.6	78.3	1.8	94.0	115.5	24.0
LOS	F	C	A	F	E	A	F	E	A	F	F	C
Approach Delay		25.5			50.1			83.2			82.6	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS	C				D				F			
Queue Length 50th (ft)	~109	255	5	80	840	0	~277	235	0	171	~222	34
Queue Length 95th (ft)	m#162	283	70	#138	#1022	30	#396	#313	0	#275	#335	145
Internal Link Dist (ft)	1184				3729				1638			
Turn Bay Length (ft)	500	420		500	520		352	850		400	400	
Base Capacity (vph)	202	1698	955	205	1715	1514	508	567	436	368	397	392
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.78	0.52	0.78	0.98	0.24	1.02	0.82	0.30	0.91	1.03	0.75

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 147 (98%), Referenced to phase 2:NWT and 6:SET, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.03

Intersection Signal Delay: 53.4

Intersection LOS: D

Intersection Capacity Utilization 97.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

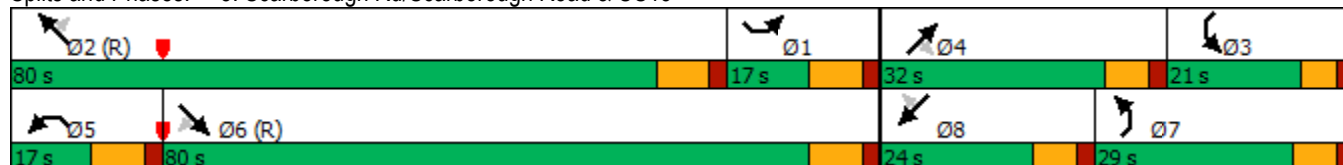
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13



Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	97	795	337	57	934	178	310	192	44	295	332	124
Future Volume (vph)	97	795	337	57	934	178	310	192	44	295	332	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1805	3505	1583	1805	3438	1583	1787	1881	1524	1770	1881	1599
Flt Permitted	0.129			0.217			0.172			0.577		
Satd. Flow (perm)	245	3505	1544	412	3438	1540	324	1881	1501	1075	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355			187			127			182
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)			5			8			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	2%	0%	5%	2%	1%	1%	6%	2%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	837	355	60	983	187	326	202	46	311	349	131
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	12.0	56.0	56.0	12.0	56.0	56.0	18.0	31.0	31.0	21.0	34.0	
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%	15.0%	25.8%	25.8%	17.5%	28.3%	
Maximum Green (s)	7.0	49.0	49.0	7.0	49.0	49.0	13.0	25.0	25.0	16.0	28.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	54.3	46.4	46.4	52.6	43.8	43.8	47.5	29.0	29.0	43.6	25.6	0.0
Actuated g/C Ratio	0.45	0.39	0.39	0.44	0.36	0.36	0.40	0.24	0.24	0.36	0.21	0.00
v/c Ratio	0.50	0.62	0.44	0.23	0.78	0.27	0.87	0.44	0.10	0.64	0.87	0.72
Control Delay	13.0	15.5	2.5	9.2	19.7	1.4	54.7	43.9	0.4	31.8	67.4	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	15.5	2.5	9.2	19.7	1.4	54.7	43.9	0.4	31.8	67.4	24.3
LOS	B	B	A	A	B	A	D	D	A	C	E	C

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		11.7			16.4			46.6			46.3	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	16	213	30	9	206	0	189	138	0	162	257	0
Queue Length 95th (ft)	m19	m220	m32	m18	263	3	#443	218	0	259	#396	#47
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		175
Base Capacity (vph)	205	1439	843	263	1403	739	376	454	459	496	438	182
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.58	0.42	0.23	0.70	0.25	0.87	0.44	0.10	0.63	0.80	0.72

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 85.0%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
12 s	56 s	21 s	31 s
			
Ø5	Ø6	Ø7	Ø8
12 s	56 s	18 s	34 s

Lanes, Volumes, Timings
20: US13 & SR8

2052 PM wo SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	231	292	200	157	90	281	1971	200	129	1913	58
Future Volume (vph)	129	231	292	200	157	90	281	1971	200	129	1913	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1665	1763	1583	1770	1845	1599	3400	5059	0	1703	5036	1524
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1665	1763	1583	1770	1845	1576	3400	5059	0	1703	5036	1478
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			189			131		13				131
Link Speed (mph)		25			35			35			35	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			23.8			17.3	
Confl. Peds. (#/hr)						1						11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	3%	2%	2%	2%	3%	1%	3%	1%	2%	6%	3%	6%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	122	257	307	211	165	95	296	2286	0	136	2014	61
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	25.0	25.0	25.0	23.0	64.0		20.0	61.0	61.0
Total Split (%)	27.3%	27.3%	27.3%	16.7%	16.7%	16.7%	15.3%	42.7%		13.3%	40.7%	40.7%
Maximum Green (s)	34.0	34.0	34.0	18.0	18.0	18.0	16.0	57.0		13.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	27.7	27.7	27.7	18.0	18.0	18.0	16.6	60.8		15.4	59.7	59.7
Actuated g/C Ratio	0.18	0.18	0.18	0.12	0.12	0.12	0.11	0.41		0.10	0.40	0.40
v/c Ratio	0.40	0.79	0.69	1.00	0.75	0.31	0.79	1.11		0.78	1.00	0.09
Control Delay	56.4	75.2	28.9	125.2	84.4	5.8	80.4	98.2		93.2	65.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.4	75.2	28.9	125.2	84.4	5.8	80.4	98.2		93.2	65.7	0.3
LOS	E	E	C	F	F	A	F	F		F	E	A
Approach Delay		51.2			86.8			96.1			65.6	

Lanes, Volumes, Timings
20: US13 & SR8

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			F			F			E		
Queue Length 50th (ft)	110	253	108	210	159	0	145	~982		129	~790	0
Queue Length 95th (ft)	172	347	209	#383	#266	23	#220	#1070		#270	#915	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			365			400		
Base Capacity (vph)	377	399	504	212	221	304	383	2059		175	2004	667
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.32	0.64	0.61	1.00	0.75	0.31	0.77	1.11		0.78	1.00	0.09

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 17 (11%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 78.8

Intersection LOS: E

Intersection Capacity Utilization 96.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: US13 & SR8

			
Ø1	Ø2	Ø3	Ø4
20 s	64 s	25 s	41 s
			
Ø5	Ø6 (R)		
23 s	61 s		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	128	225	305	1036	987	208
Future Volume (vph)	128	225	305	1036	987	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1752	1553	1719	1845	1863	1599
Flt Permitted	0.950		0.081			
Satd. Flow (perm)	1752	1492	147	1845	1863	1564
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		232				214
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		3				3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	4%	5%	3%	2%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	232	314	1068	1018	214
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	17.0	17.0	24.0	103.0	79.0	79.0
Total Split (%)	14.2%	14.2%	20.0%	85.8%	65.8%	65.8%
Maximum Green (s)	10.0	10.0	17.0	96.0	72.0	72.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	Min	Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	10.3	10.3	95.7	95.7	71.1	71.1
Actuated g/C Ratio	0.09	0.09	0.80	0.80	0.59	0.59
v/c Ratio	0.88	0.68	0.90	0.73	0.92	0.21
Control Delay	102.5	17.7	55.8	7.6	36.1	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	17.7	55.8	7.6	36.1	2.1
LOS	F	B	E	A	D	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	48.5			18.6	30.2	
Approach LOS	D			B	C	
Queue Length 50th (ft)	103	0	176	386	722	7
Queue Length 95th (ft)	#224	80	m#332	350	#607	19
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	150	340	347	1476	1117	1024
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.68	0.90	0.72	0.91	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 89 (74%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.92

Intersection Signal Delay: 27.0

Intersection LOS: C

Intersection Capacity Utilization 93.4%

ICU Level of Service F

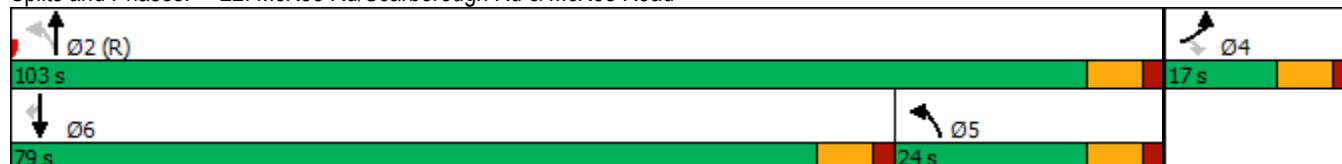
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



Lanes, Volumes, Timings

2052 PM wo SR8 Truck Restriction-Added Lanes

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	12	59	222	6	50	35	918	211	25	914	39
Future Volume (vph)	59	12	59	222	6	50	35	918	211	25	914	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1588	1663	1583	1698	1708	1583	1752	3505	1615	1805	3505	1429
Flt Permitted	0.950	0.969		0.950	0.955		0.244			0.245		
Satd. Flow (perm)	1588	1663	1583	1698	1708	1583	450	3505	1579	466	3505	1395
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			157			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Confl. Bikes (#/hr)									2			4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	0%	2%	1%	0%	2%	3%	3%	0%	0%	3%	13%
Shared Lane Traffic (%)	40%			49%								
Lane Group Flow (vph)	37	37	61	118	119	52	36	956	220	26	952	41
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	15.0	49.0	49.0	15.0	49.0	49.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	12.5%	40.8%	40.8%	12.5%	40.8%	40.8%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0	22.0	8.0	42.0	42.0	8.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	Min	Min
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				15.0	15.0	15.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	8.3	8.3	8.3	13.8	13.8	13.8	77.2	73.0	73.0	76.7	72.8	72.8
Actuated g/C Ratio	0.07	0.07	0.07	0.12	0.12	0.12	0.64	0.61	0.61	0.64	0.61	0.61
v/c Ratio	0.34	0.32	0.24	0.61	0.61	0.16	0.10	0.45	0.22	0.07	0.45	0.05
Control Delay	60.8	59.8	2.2	62.7	62.7	1.1	5.8	9.2	2.0	9.6	16.7	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	59.8	2.2	62.7	62.7	1.1	5.8	9.2	2.0	9.6	16.7	0.1
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		34.1			51.6			7.8			15.8	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			A			B		
Queue Length 50th (ft)	29	29	0	92	93	0	5	111	4	6	230	0
Queue Length 95th (ft)	65	65	0	150	151	0	m10	m285	m29	21	349	0
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	291	304	416	311	313	416	378	2133	1022	390	2126	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.12	0.15	0.38	0.38	0.13	0.10	0.45	0.22	0.07	0.45	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 17.0

Intersection LOS: B

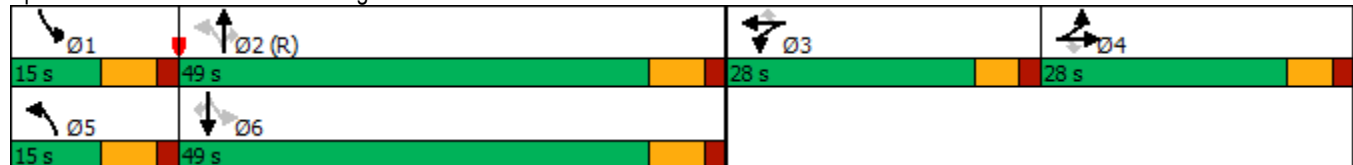
Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave



												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	174	85	171	277	216	176	833	228	188	794	111
Future Volume (vph)	81	174	85	171	277	216	176	833	228	188	794	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1770	1845	1495	1752	1792	1524	1736	3406	1568	1719	3438	1538
Flt Permitted	0.376			0.389			0.213			0.224		
Satd. Flow (perm)	700	1845	1476	718	1792	1524	389	3406	1568	405	3438	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			240			209
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	3%	8%	3%	6%	6%	4%	6%	3%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	183	89	180	292	227	185	877	240	198	836	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	27.0	27.0	12.0	28.0	28.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	20.0	28.0	28.0	20.0	28.0	28.0	25.0	57.0	57.0	15.0	47.0	47.0
Total Split (%)	16.7%	23.3%	23.3%	16.7%	23.3%	23.3%	20.8%	47.5%	47.5%	12.5%	39.2%	39.2%
Maximum Green (s)	14.0	22.0	22.0	14.0	22.0	22.0	18.0	50.0	50.0	8.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	29.2	19.5	19.5	36.9	25.7	25.7	63.3	51.5	51.5	58.9	49.2	49.2
Actuated g/C Ratio	0.24	0.16	0.16	0.31	0.21	0.21	0.53	0.43	0.43	0.49	0.41	0.41
v/c Ratio	0.33	0.61	0.21	0.54	0.76	0.46	0.54	0.60	0.30	0.65	0.59	0.16
Control Delay	31.3	55.1	1.1	35.9	58.7	9.3	30.2	20.0	2.2	33.7	23.9	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	55.1	1.1	35.9	58.7	9.3	30.2	20.0	2.2	33.7	23.9	1.0
LOS	C	E	A	D	E	A	C	B	A	C	C	A
Approach Delay		36.0			36.8			18.1			23.2	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			C		
Queue Length 50th (ft)	44	128	0	99	210	5	72	130	2	46	293	0
Queue Length 95th (ft)	83	207	0	160	#366	76	m128	176	m15	#100	395	m16
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	320	341	450	346	382	497	421	1508	828	305	1408	753
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.54	0.20	0.52	0.76	0.46	0.44	0.58	0.29	0.65	0.59	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 25.4

Intersection LOS: C

Intersection Capacity Utilization 74.2%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd

 Ø1	 Ø2	 Ø3	 Ø4
15 s	57 s	20 s	28 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25 s	47 s	20 s	28 s

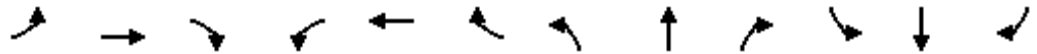
Lanes, Volumes, Timings

2052 PM wo SR8 Truck Restriction-Added Lanes

25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	570	269	163	762	217	372	843	153	201	808	146
Future Volume (vph)	135	570	269	163	762	217	372	843	153	201	808	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1752	3471	1583	1703	3539	1583	1770	3539	1553	1787	3471	1599
Flt Permitted	0.172			0.152			0.105			0.220		
Satd. Flow (perm)	317	3471	1561	272	3539	1561	196	3539	1528	414	3471	1561
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			289			227			165			227
Link Speed (mph)		40			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		70.3			31.8			21.8			11.3	
Confl. Peds. (#/hr)			1			1			2			6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	3%	4%	2%	6%	2%	2%	2%	2%	4%	1%	4%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	145	613	289	175	819	233	400	906	165	216	869	157
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	17.0	29.0	29.0	21.0	33.0	33.0	32.0	47.0	47.0	23.0	38.0	38.0
Total Split (%)	14.2%	24.2%	24.2%	17.5%	27.5%	27.5%	26.7%	39.2%	39.2%	19.2%	31.7%	31.7%
Maximum Green (s)	10.0	22.0	22.0	14.0	26.0	26.0	25.0	40.0	40.0	16.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	32.9	23.2	23.2	39.1	26.3	26.3	63.0	42.7	42.7	44.5	31.2	31.2
Actuated g/C Ratio	0.27	0.19	0.19	0.33	0.22	0.22	0.52	0.36	0.36	0.37	0.26	0.26
v/c Ratio	0.71	0.91	0.54	0.73	1.06	0.45	0.93	0.72	0.25	0.71	0.96	0.27
Control Delay	50.9	71.0	12.0	46.5	93.8	8.5	64.7	29.7	2.9	42.5	60.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	71.0	12.0	46.5	93.8	8.5	64.7	29.7	2.9	42.5	60.5	7.0
LOS	D	E	B	D	F	A	E	C	A	D	E	A
Approach Delay		51.9			70.8			36.2			50.6	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	86	254	8	96	~369	4	276	269	9	100	162	1
Queue Length 95th (ft)	#145	#371	93	#170	#496	71	m#431	357	m25	205	#468	55
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530	300		200	200		900	465		325	175	
Base Capacity (vph)	207	671	535	258	774	519	430	1258	649	346	901	573
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.91	0.54	0.68	1.06	0.45	0.93	0.72	0.25	0.62	0.96	0.27

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 51.6

Intersection LOS: D

Intersection Capacity Utilization 94.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

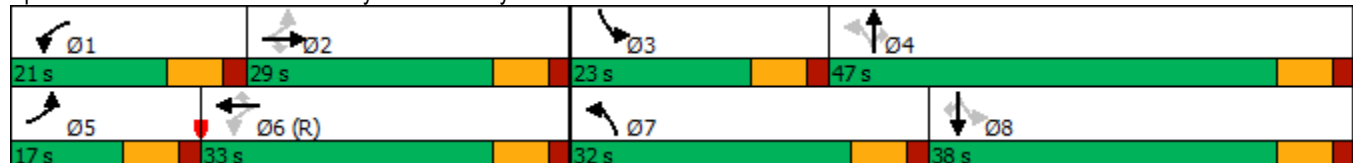
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	303	162	140	1111	1042	198
Future Volume (vph)	303	162	140	1111	1042	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1805	1583	1752	3505	3390	0
Flt Permitted	0.950		0.110			
Satd. Flow (perm)	1805	1560	203	3505	3390	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		172			27	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)		1	5			1
Confl. Bikes (#/hr)		1				4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	3%	4%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	172	149	1182	1320	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	29.0	
Total Split (s)	33.0	33.0	18.0	87.0	69.0	
Total Split (%)	27.5%	27.5%	15.0%	72.5%	57.5%	
Maximum Green (s)	27.0	27.0	11.0	80.0	62.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	25.2	25.2	81.8	81.8	65.8	
Actuated g/C Ratio	0.21	0.21	0.68	0.68	0.55	
v/c Ratio	0.85	0.37	0.58	0.49	0.71	
Control Delay	66.3	8.0	29.5	7.1	40.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	66.3	8.0	29.5	7.1	40.7	
LOS	E	A	C	A	D	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.0			9.6	40.7	
Approach LOS	D			A	D	
Queue Length 50th (ft)	237	0	43	128	540	
Queue Length 95th (ft)	#375	57	m92	166	m421	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	412	489	280	2402	1878	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.78	0.35	0.53	0.49	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 28.4

Intersection LOS: C

Intersection Capacity Utilization 76.4%

ICU Level of Service D

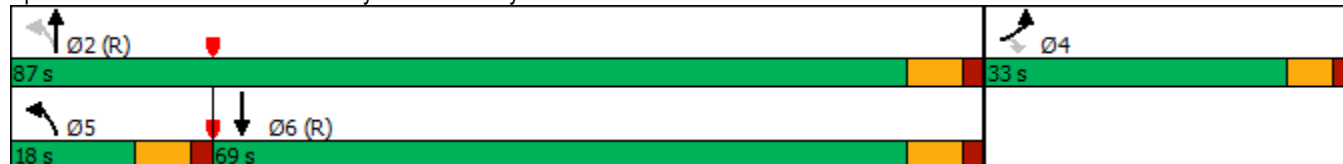
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



Lanes, Volumes, Timings

2052 PM wo SR8 Truck Restriction-Added Lanes

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	138	287	118	156	467	515	68	539	106	343	707	90
Future Volume (vph)	138	287	118	156	467	515	68	539	106	343	707	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1641	3406	1538	1752	3471	1599	1736	3471	1568	1752	3505	1404
Flt Permitted	0.350			0.565			0.372			0.181		
Satd. Flow (perm)	605	3406	1517	1042	3471	1599	680	3471	1544	334	3505	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			452			191			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		41.2			26.4			14.0			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	6%	5%	3%	4%	1%	4%	4%	3%	3%	3%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	299	123	163	486	536	71	561	110	357	736	94
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	20.0	43.0	43.0	15.0	38.0	38.0	17.0	33.0	33.0	29.0	45.0	45.0
Total Split (%)	16.7%	35.8%	35.8%	12.5%	31.7%	31.7%	14.2%	27.5%	27.5%	24.2%	37.5%	37.5%
Maximum Green (s)	14.0	37.0	37.0	9.0	32.0	32.0	11.0	27.0	27.0	23.0	39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.7	38.2	38.2	46.2	36.4	36.4	32.5	24.2	24.2	54.0	42.1	42.1
Actuated g/C Ratio	0.41	0.32	0.32	0.38	0.30	0.30	0.27	0.20	0.20	0.45	0.35	0.35
v/c Ratio	0.41	0.28	0.20	0.36	0.46	0.67	0.28	0.80	0.24	0.83	0.60	0.16
Control Delay	24.9	32.4	1.2	24.5	37.0	11.7	22.8	54.7	1.2	61.0	54.7	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	32.4	1.2	24.5	37.0	11.7	22.8	54.7	1.2	61.0	54.7	15.8
LOS	C	C	A	C	D	B	C	D	A	E	D	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		23.7			23.9			43.7			53.5	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	69	98	0	79	168	50	29	216	0	267	265	19
Queue Length 95th (ft)	114	131	5	126	224	183	58	277	0	#425	381	m39
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	383	1128	630	462	1070	805	296	780	495	436	1233	582
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.27	0.20	0.35	0.45	0.67	0.24	0.72	0.22	0.82	0.60	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 37.4

Intersection LOS: D

Intersection Capacity Utilization 82.5%

ICU Level of Service E

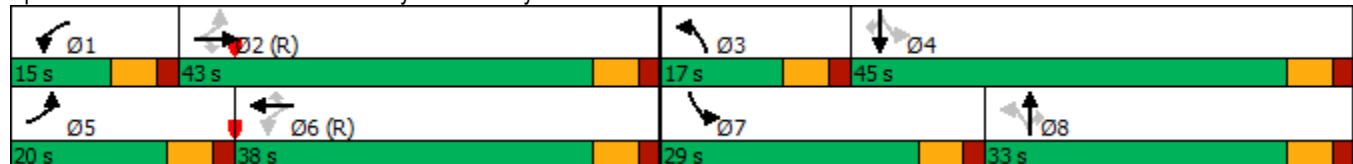
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	177	525	65	61	684	114	51	23	108	63	22	59
Future Volume (vph)	177	525	65	61	684	114	51	23	108	63	22	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	275		300	0		225	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Satd. Flow (prot)	1770	1827	1524	1703	1845	1599	0	1809	1583	0	1674	0
Flt Permitted	0.113			0.263				0.967			0.979	
Satd. Flow (perm)	210	1827	1524	471	1845	1599	0	1809	1583	0	1674	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			194			32
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		1819			3131			1258			345	
Travel Time (s)		35.4			61.0			28.6			9.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	4%	6%	6%	3%	1%	0%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	571	71	66	743	124	0	80	117	0	156	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2		2	6		6			4			
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	21.0	21.0	21.0	18.0	18.0	
Total Split (s)	11.0	40.0	40.0	11.0	40.0	40.0	21.0	21.0	21.0	18.0	18.0	
Total Split (%)	12.2%	44.4%	44.4%	12.2%	44.4%	44.4%	23.3%	23.3%	23.3%	20.0%	20.0%	
Maximum Green (s)	5.0	33.0	33.0	5.0	33.0	33.0	15.0	15.0	15.0	12.0	12.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	7.0		6.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)					5.0	5.0	8.0	8.0	8.0	5.0	5.0	
Pedestrian Calls (#/hr)					0	0	0	0	0	0	0	
Act Effct Green (s)	40.4	35.5	35.5	39.1	33.1	33.1		9.0	9.0		10.2	
Actuated g/C Ratio	0.49	0.43	0.43	0.47	0.40	0.40		0.11	0.11		0.12	
v/c Ratio	0.97	0.73	0.09	0.22	1.00	0.17		0.41	0.34		0.66	
Control Delay	78.0	28.6	0.2	12.1	61.5	1.4		40.9	3.3		42.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	78.0	28.6	0.2	12.1	61.5	1.4		40.9	3.3		42.0	
LOS	E	C	A	B	E	A		D	A		D	
Approach Delay		37.5			50.0			18.6			42.0	
Approach LOS		D			D			B			D	

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Queue Length 50th (ft)	~53	258	0	16	~399	0		40	0		61	
Queue Length 95th (ft)	#201	#461	0	38	#673	12		82	7		#130	
Internal Link Dist (ft)		1739			3051			1178			265	
Turn Bay Length (ft)	300		300	275		300			225			
Base Capacity (vph)	198	787	760	298	741	750		330	447		271	
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	
Reduced v/c Ratio	0.97	0.73	0.09	0.22	1.00	0.17		0.24	0.26		0.58	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 41.6

Intersection LOS: D

Intersection Capacity Utilization 76.6%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 55: POW MIA Pkwy & Delmarva Corrugated Packaging

 Ø1	 Ø2	 Ø3	 Ø4
11 s	40 s	18 s	21 s
 Ø5	 Ø6		
11 s	40 s		

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 PM wo SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	715	140	109	626	141	110
Future Volume (vph)	715	140	109	626	141	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1845	1599	1787	1827	1770	1615
Flt Permitted			0.121		0.950	
Satd. Flow (perm)	1845	1565	228	1827	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				124
Link Speed (mph)	35			35	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	21.4			24.3	18.2	
Confl. Peds. (#/hr)			2			
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	3%	1%	1%	4%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	803	157	122	703	158	124
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	15.0	5.0	5.0
Minimum Split (s)	21.0	21.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	26.1	26.1	37.5	37.5	8.5	8.5
Actuated g/C Ratio	0.44	0.44	0.64	0.64	0.14	0.14
v/c Ratio	0.98	0.20	0.37	0.61	0.62	0.37
Control Delay	51.3	3.3	7.8	9.3	35.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.3	3.3	7.8	9.3	35.8	8.9
LOS	D	A	A	A	D	A

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	43.4			9.1	24.0	
Approach LOS	D			A	C	
Queue Length 50th (ft)	~340	0	15	127	53	0
Queue Length 95th (ft)	#531	29	31	209	#117	38
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	816	779	356	1177	270	351
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.20	0.34	0.60	0.59	0.35

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 27.1

Intersection LOS: C

Intersection Capacity Utilization 68.1%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2052 PM wo SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	 		 	  	  	
Traffic Volume (vph)	160	630	517	1723	2311	216
Future Volume (vph)	160	630	517	1723	2311	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3367	1553	3367	4893	4940	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3367	1531	3367	4893	4940	1548
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		258				216
Link Speed (mph)	35			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	11.9			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	4%	6%	5%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	630	517	1723	2311	216
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	13.0	25.0	30.0	30.0
Total Split (s)	34.0	34.0	24.0	86.0	62.0	62.0
Total Split (%)	28.3%	28.3%	20.0%	71.7%	51.7%	51.7%
Maximum Green (s)	28.0	28.0	17.0	79.0	55.0	55.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	28.0	28.0	17.0	79.0	55.0	55.0
Actuated g/C Ratio	0.23	0.23	0.14	0.66	0.46	0.46
v/c Ratio	0.20	1.14	1.09	0.53	1.02	0.26
Control Delay	37.9	106.8	114.6	11.6	56.9	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	106.8	114.6	11.6	56.9	3.3
LOS	D	F	F	B	E	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	92.8			35.4	52.3	
Approach LOS	F			D	D	
Queue Length 50th (ft)	51	~405	~231	236	~695	0
Queue Length 95th (ft)	81	#635	#341	273	#790	42
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	785	555	476	3221	2264	826
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	1.14	1.09	0.53	1.02	0.26

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.14

Intersection Signal Delay: 51.2

Intersection LOS: D

Intersection Capacity Utilization 94.6%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



Lanes, Volumes, Timings

2052 PM with SR8 Truck Restriction-Added Lanes

8: Scarborough Rd/Scarborough Road & US13

Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	189	1215	458	150	1551	335	478	434	119	307	378	270
Future Volume (vph)	189	1215	458	150	1551	335	478	434	119	307	378	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		420	500		520	352		850	400		400
Storage Lanes	2		1	2		2	2		1	2		1
Taper Length (ft)	200			200			125			150		
Satd. Flow (prot)	3367	3539	1568	3335	3574	2760	3467	3374	1599	3400	3438	1468
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3367	3539	1548	3335	3574	2760	3467	3374	1599	3400	3438	1468
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			408			364			204			255
Link Speed (mph)		55			45			45			35	
Link Distance (ft)		1264			3809			1718			973	
Travel Time (s)		15.7			57.7			26.0			19.0	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	4%	2%	3%	5%	1%	3%	1%	7%	1%	3%	5%	10%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	1321	498	163	1686	364	520	472	129	334	411	293
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	33.0	33.0	14.0	24.0	24.0	13.0	13.0	13.0	12.0	12.0	12.0
Total Split (s)	17.0	80.0	80.0	17.0	80.0	80.0	29.0	32.0	32.0	21.0	24.0	24.0
Total Split (%)	11.3%	53.3%	53.3%	11.3%	53.3%	53.3%	19.3%	21.3%	21.3%	14.0%	16.0%	16.0%
Maximum Green (s)	9.0	72.0	72.0	9.0	72.0	72.0	22.0	25.0	25.0	15.0	17.0	17.0
Yellow Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	5.0	5.0	5.0	4.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	8.0	8.0	8.0	8.0	8.0	8.0	7.0	7.0	7.0	6.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0									
Flash Dont Walk (s)		18.0	18.0									
Pedestrian Calls (#/hr)		0	0									
Act Effct Green (s)	9.0	72.0	72.0	9.0	72.0	72.0	22.0	24.0	24.0	16.0	17.0	17.0
Actuated g/C Ratio	0.06	0.48	0.48	0.06	0.48	0.48	0.15	0.16	0.16	0.11	0.11	0.11
v/c Ratio	1.01	0.78	0.52	0.81	0.98	0.24	1.02	0.88	0.30	0.92	1.06	0.75
Control Delay	109.4	20.9	3.4	98.6	56.3	2.3	107.6	79.3	1.8	96.1	123.1	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.4	20.9	3.4	98.6	56.3	2.3	107.6	79.3	1.8	96.1	123.1	24.0
LOS	F	C	A	F	E	A	F	E	A	F	F	C
Approach Delay		25.5			50.6			83.5			86.4	

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS	C			D			F			F		
Queue Length 50th (ft)	~109	255	5	82	840	0	~277	238	0	171	~231	34
Queue Length 95th (ft)	m#162	283	70	#145	#1022	30	#396	#321	0	#275	#344	145
Internal Link Dist (ft)	1184			3729			1638			893		
Turn Bay Length (ft)	500	420		500	520		352	850		400	400	
Base Capacity (vph)	202	1698	955	200	1715	1514	508	562	436	363	389	392
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.78	0.52	0.81	0.98	0.24	1.02	0.84	0.30	0.92	1.06	0.75

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 147 (98%), Referenced to phase 2:NWT and 6:SET, Start of Green

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 54.2

Intersection LOS: D

Intersection Capacity Utilization 97.4%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

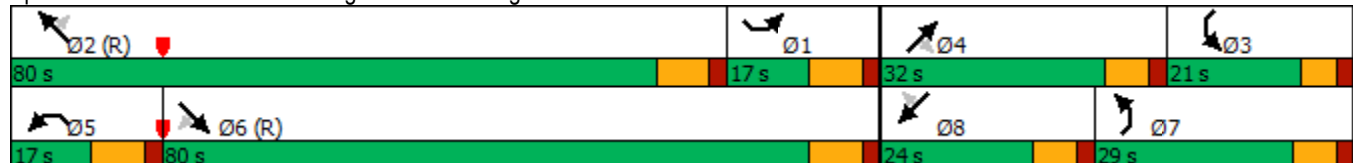
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 8: Scarborough Rd/Scarborough Road & US13



Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 PM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	97	803	337	57	938	178	310	192	44	295	332	124
Future Volume (vph)	97	803	337	57	938	178	310	192	44	295	332	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	400		270	370		260	200		75	270		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			50		
Satd. Flow (prot)	1805	3438	1583	1805	3438	1583	1787	1881	1524	1770	1881	1599
Flt Permitted	0.128			0.214			0.172			0.574		
Satd. Flow (perm)	243	3438	1544	407	3438	1540	324	1881	1501	1069	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			355			187			127			182
Link Speed (mph)		45			40			35			35	
Link Distance (ft)		1372			3322			4287			3882	
Travel Time (s)		20.8			56.6			83.5			75.6	
Confl. Peds. (#/hr)									1			
Confl. Bikes (#/hr)			5			8			1			1
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	5%	2%	0%	5%	2%	1%	1%	6%	2%	1%	1%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	102	845	355	60	987	187	326	202	46	311	349	131
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases	6		6	2		2	4		4	8		
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	
Minimum Split (s)	11.0	36.0	36.0	11.0	32.0	32.0	11.0	30.0	30.0	11.0	17.0	
Total Split (s)	12.0	56.0	56.0	12.0	56.0	56.0	18.0	31.0	31.0	21.0	34.0	
Total Split (%)	10.0%	46.7%	46.7%	10.0%	46.7%	46.7%	15.0%	25.8%	25.8%	17.5%	28.3%	
Maximum Green (s)	7.0	49.0	49.0	7.0	49.0	49.0	13.0	25.0	25.0	16.0	28.0	
Yellow Time (s)	3.0	5.0	5.0	3.0	5.0	5.0	3.0	4.0	4.0	3.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	6.0	6.0	5.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0			
Flash Dont Walk (s)		22.0	22.0		18.0	18.0		17.0	17.0			
Pedestrian Calls (#/hr)		0	0		0	0		0	0			
Act Effct Green (s)	54.4	46.5	46.5	52.7	43.9	43.9	47.3	28.9	28.9	43.7	25.6	0.0
Actuated g/C Ratio	0.45	0.39	0.39	0.44	0.37	0.37	0.39	0.24	0.24	0.36	0.21	0.00
v/c Ratio	0.50	0.63	0.44	0.23	0.78	0.27	0.87	0.45	0.10	0.64	0.87	0.72
Control Delay	12.9	15.3	2.4	9.1	19.6	1.4	55.4	44.0	0.4	31.9	67.4	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	15.3	2.4	9.1	19.6	1.4	55.4	44.0	0.4	31.9	67.4	24.3
LOS	B	B	A	A	B	A	E	D	A	C	E	C

Lanes, Volumes, Timings
13: College Rd & McKee Rd

2052 PM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		11.6			16.4			47.0			46.3	
Approach LOS		B			B			D			D	
Queue Length 50th (ft)	15	215	29	9	202	0	191	138	0	162	257	0
Queue Length 95th (ft)	m19	m221	m31	m18	266	3	#443	218	0	259	#396	#47
Internal Link Dist (ft)		1292			3242			4207			3802	
Turn Bay Length (ft)	400		270	370		260	200		75	270		175
Base Capacity (vph)	204	1412	843	261	1403	739	374	452	457	495	438	182
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.60	0.42	0.23	0.70	0.25	0.87	0.45	0.10	0.63	0.80	0.72

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 46 (38%), Referenced to phase 2:NWTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 85.1%

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 13: College Rd & McKee Rd

			
Ø1	Ø2 (R)	Ø3	Ø4
12 s	56 s	21 s	31 s
			
Ø5	Ø6	Ø7	Ø8
12 s	56 s	18 s	34 s

Lanes, Volumes, Timings
20: US13 & SR8

2052 PM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	227	287	200	153	90	272	1971	200	129	1913	54
Future Volume (vph)	125	227	287	200	153	90	272	1971	200	129	1913	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150	140		140	365		0	400		220
Storage Lanes	1		1	1		1	2		0	1		1
Taper Length (ft)	25			40			180			125		
Satd. Flow (prot)	1715	1800	1615	1770	1900	1599	3502	5059	0	1703	5036	1615
Flt Permitted	0.950	0.997		0.950			0.950			0.950		
Satd. Flow (perm)	1715	1800	1615	1770	1900	1576	3502	5059	0	1703	5036	1567
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			189			131		13				131
Link Speed (mph)		25			35			30			30	
Link Distance (ft)		737			2084			1221			888	
Travel Time (s)		20.1			40.6			27.8			20.2	
Confl. Peds. (#/hr)						1						11
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	2%	0%	1%	0%	1%	2%	6%	3%	0%
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	119	252	302	211	161	95	286	2286	0	136	2014	57
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3						6
Detector Phase	4	4	4	3	3	3	5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0		5.0	15.0	15.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	13.0	29.0		13.0	34.0	34.0
Total Split (s)	41.0	41.0	41.0	25.0	25.0	25.0	23.0	64.0		20.0	61.0	61.0
Total Split (%)	27.3%	27.3%	27.3%	16.7%	16.7%	16.7%	15.3%	42.7%		13.3%	40.7%	40.7%
Maximum Green (s)	34.0	34.0	34.0	18.0	18.0	18.0	16.0	57.0		13.0	54.0	54.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0		7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min		None	C-Min	C-Min
Walk Time (s)	7.0	7.0	7.0					7.0			7.0	7.0
Flash Dont Walk (s)	27.0	27.0	27.0					15.0			20.0	20.0
Pedestrian Calls (#/hr)	0	0	0					0			0	0
Act Effct Green (s)	27.1	27.1	27.1	18.0	18.0	18.0	16.2	61.1		15.8	60.7	60.7
Actuated g/C Ratio	0.18	0.18	0.18	0.12	0.12	0.12	0.11	0.41		0.11	0.40	0.40
v/c Ratio	0.38	0.78	0.68	1.00	0.71	0.31	0.76	1.11		0.76	0.99	0.08
Control Delay	56.3	74.1	27.9	125.2	80.8	5.8	78.3	96.2		90.9	61.3	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	56.3	74.1	27.9	125.2	80.8	5.8	78.3	96.2		90.9	61.3	0.2
LOS	E	E	C	F	F	A	E	F		F	E	A
Approach Delay		50.2			85.6			94.2			61.6	

Lanes, Volumes, Timings
20: US13 & SR8

2052 PM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			F			F			E		
Queue Length 50th (ft)	108	248	102	210	154	0	140	~982		128	~768	0
Queue Length 95th (ft)	168	340	202	#383	#250	23	#202	#1070		#270	#915	0
Internal Link Dist (ft)	657			2004			1141			808		
Turn Bay Length (ft)	150			140			365			400		
Base Capacity (vph)	388	408	512	212	228	304	390	2068		178	2037	711
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.31	0.62	0.59	1.00	0.71	0.31	0.73	1.11		0.76	0.99	0.08

Intersection Summary

Area Type: Other

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 17 (11%), Referenced to phase 6:SBT, Start of Green

Natural Cycle: 145

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 76.3

Intersection LOS: E

Intersection Capacity Utilization 96.0%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 20: US13 & SR8

			
Ø1	Ø2	Ø3	Ø4
20 s	64 s	25 s	41 s
			
Ø5	Ø6 (R)		
23 s	61 s		



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	128	225	305	1040	995	208
Future Volume (vph)	128	225	305	1040	995	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	500	250			480
Storage Lanes	1	1	1			1
Taper Length (ft)	25		25			
Satd. Flow (prot)	1752	1553	1719	1827	1845	1599
Flt Permitted	0.950		0.077			
Satd. Flow (perm)	1752	1492	139	1827	1845	1564
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		232				214
Link Speed (mph)	40			45	45	
Link Distance (ft)	1676			2256	3286	
Travel Time (s)	28.6			34.2	49.8	
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		3				3
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	4%	5%	4%	3%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	232	314	1072	1026	214
Turn Type	Prot	Perm	pm+pt	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4	2			6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	5.0	25.0	25.0	25.0
Minimum Split (s)	16.0	16.0	13.0	33.0	33.0	33.0
Total Split (s)	17.0	17.0	24.0	103.0	79.0	79.0
Total Split (%)	14.2%	14.2%	20.0%	85.8%	65.8%	65.8%
Maximum Green (s)	10.0	10.0	17.0	96.0	72.0	72.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag			Lag		Lead	Lead
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	Min	Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					9.0	9.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	10.3	10.3	95.7	95.7	71.3	71.3
Actuated g/C Ratio	0.09	0.09	0.80	0.80	0.59	0.59
v/c Ratio	0.88	0.68	0.92	0.74	0.94	0.21
Control Delay	102.5	17.7	59.5	8.0	38.3	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	17.7	59.5	8.0	38.3	2.1
LOS	F	B	E	A	D	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	48.5			19.7	32.1	
Approach LOS	D			B	C	
Queue Length 50th (ft)	103	0	180	404	737	7
Queue Length 95th (ft)	#224	80	m#342	351	#634	18
Internal Link Dist (ft)	1596			2176	3206	
Turn Bay Length (ft)		500	250			480
Base Capacity (vph)	150	340	341	1461	1107	1024
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.68	0.92	0.73	0.93	0.21

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 89 (74%), Referenced to phase 2:NBT, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 93.9%

ICU Level of Service F

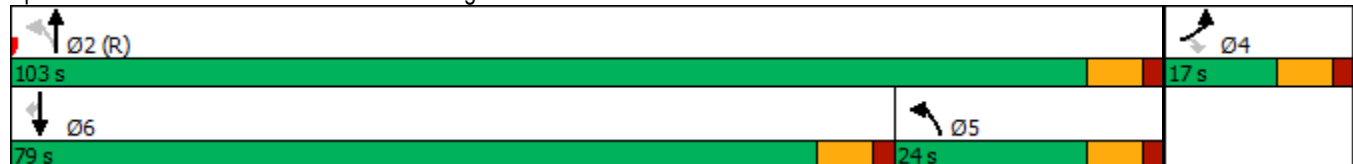
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 22: McKee Rd/Scarborough Rd & McKee Road



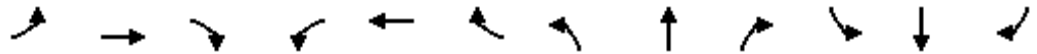
Lanes, Volumes, Timings

2052 PM with SR8 Truck Restriction-Added Lanes

23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	12	59	222	6	50	35	922	211	25	922	39
Future Volume (vph)	59	12	59	222	6	50	35	922	211	25	922	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	255		175	300		300	200		170	350		325
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	100			100			65			100		
Satd. Flow (prot)	1588	1663	1583	1698	1708	1583	1752	3471	1615	1805	3471	1429
Flt Permitted	0.950	0.969		0.950	0.955		0.241			0.244		
Satd. Flow (perm)	1588	1663	1583	1698	1708	1583	445	3471	1579	464	3471	1395
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			155			155			157			145
Link Speed (mph)		15			25			45			45	
Link Distance (ft)		697			663			463			1718	
Travel Time (s)		31.7			18.1			7.0			26.0	
Confl. Bikes (#/hr)									2			4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	8%	0%	2%	1%	0%	2%	3%	4%	0%	0%	4%	13%
Shared Lane Traffic (%)	40%			49%								
Lane Group Flow (vph)	37	37	61	118	119	52	36	960	220	26	960	41
Turn Type	Split	NA	Perm	Split	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	4	4		3	3		5	2		1	6	
Permitted Phases			4			3	2		2	6		6
Detector Phase	4	4	4	3	3	3	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	15.0	5.0	15.0	15.0
Minimum Split (s)	12.0	12.0	12.0	28.0	28.0	28.0	13.0	23.0	23.0	13.0	23.0	23.0
Total Split (s)	28.0	28.0	28.0	28.0	28.0	28.0	15.0	49.0	49.0	15.0	49.0	49.0
Total Split (%)	23.3%	23.3%	23.3%	23.3%	23.3%	23.3%	12.5%	40.8%	40.8%	12.5%	40.8%	40.8%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0	22.0	8.0	42.0	42.0	8.0	42.0	42.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	None	Min	Min
Walk Time (s)				7.0	7.0	7.0						
Flash Dont Walk (s)				15.0	15.0	15.0						
Pedestrian Calls (#/hr)				0	0	0						
Act Effct Green (s)	8.3	8.3	8.3	13.8	13.8	13.8	77.2	73.0	73.0	76.7	72.8	72.8
Actuated g/C Ratio	0.07	0.07	0.07	0.12	0.12	0.12	0.64	0.61	0.61	0.64	0.61	0.61
v/c Ratio	0.34	0.32	0.24	0.61	0.61	0.16	0.10	0.45	0.22	0.07	0.46	0.05
Control Delay	60.8	59.8	2.2	62.7	62.7	1.1	6.1	9.6	2.1	9.6	16.8	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.8	59.8	2.2	62.7	62.7	1.1	6.1	9.6	2.1	9.6	16.8	0.1
LOS	E	E	A	E	E	A	A	A	A	A	B	A
Approach Delay		34.1			51.6			8.1			16.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			A			B		
Queue Length 50th (ft)	29	29	0	92	93	0	5	110	4	6	233	0
Queue Length 95th (ft)	65	65	0	150	151	0	m10	m292	m27	21	354	0
Internal Link Dist (ft)	617			583			383			1638		
Turn Bay Length (ft)	255		175	300		300	200		170	350		325
Base Capacity (vph)	291	304	416	311	313	416	375	2112	1022	389	2105	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.12	0.15	0.38	0.38	0.13	0.10	0.45	0.22	0.07	0.46	0.05

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 76 (63%), Referenced to phase 2:NBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 17.2

Intersection LOS: B

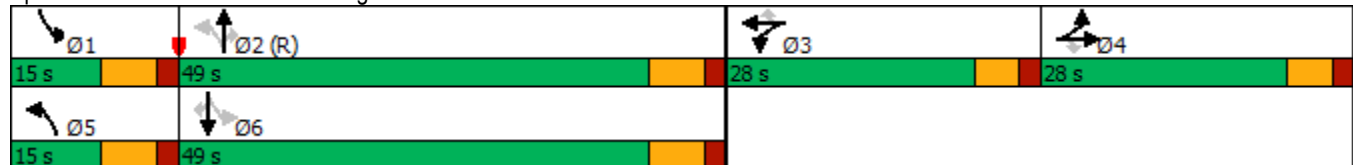
Intersection Capacity Utilization 52.9%

ICU Level of Service A

Analysis Period (min) 15

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

Splits and Phases: 23: Scarborough Rd & S Delaware Tech Dr/Crawford Carroll Ave



Lanes, Volumes, Timings

2052 PM with SR8 Truck Restriction-Added Lanes

24: Saulsbury Rd/McKee Rd & Walker Rd

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	174	85	171	277	216	176	837	232	188	802	111
Future Volume (vph)	81	174	85	171	277	216	176	837	232	188	802	111
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		170	150		85	325		200	250		300
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	30			30			100			50		
Satd. Flow (prot)	1770	1845	1495	1752	1792	1524	1736	3406	1538	1719	3406	1538
Flt Permitted	0.371			0.389			0.209			0.224		
Satd. Flow (perm)	691	1845	1476	718	1792	1524	382	3406	1538	405	3406	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218			218			243			209
Link Speed (mph)		35			35			40			40	
Link Distance (ft)		3768			4491			3301			3322	
Travel Time (s)		73.4			87.5			56.3			56.6	
Confl. Bikes (#/hr)			1									
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	3%	8%	3%	6%	6%	4%	6%	5%	5%	6%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	183	89	180	292	227	185	881	244	198	844	117
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	6
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	27.0	27.0	12.0	28.0	28.0	13.0	25.0	25.0	13.0	28.0	28.0
Total Split (s)	20.0	28.0	28.0	20.0	28.0	28.0	25.0	57.0	57.0	15.0	47.0	47.0
Total Split (%)	16.7%	23.3%	23.3%	16.7%	23.3%	23.3%	20.8%	47.5%	47.5%	12.5%	39.2%	39.2%
Maximum Green (s)	14.0	22.0	22.0	14.0	22.0	22.0	18.0	50.0	50.0	8.0	40.0	40.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	Min	Min	None	C-Min	C-Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		14.0	14.0		14.0	14.0		11.0	11.0		14.0	14.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	29.2	19.5	19.5	36.7	25.5	25.5	63.4	51.7	51.7	58.9	49.3	49.3
Actuated g/C Ratio	0.24	0.16	0.16	0.31	0.21	0.21	0.53	0.43	0.43	0.49	0.41	0.41
v/c Ratio	0.33	0.61	0.21	0.54	0.77	0.46	0.55	0.60	0.30	0.65	0.60	0.16
Control Delay	31.5	55.1	1.1	36.2	59.1	9.4	30.1	19.3	2.2	33.5	24.0	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	55.1	1.1	36.2	59.1	9.4	30.1	19.3	2.2	33.5	24.0	1.0
LOS	C	E	A	D	E	A	C	B	A	C	C	A
Approach Delay		36.0			37.1			17.7			23.3	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			D			B			C		
Queue Length 50th (ft)	44	128	0	99	210	5	72	125	2	46	297	0
Queue Length 95th (ft)	83	207	0	160	#366	76	m127	178	m16	#103	401	m16
Internal Link Dist (ft)	3688			4411			3221			3242		
Turn Bay Length (ft)	240		170	150		85	325		200	250		300
Base Capacity (vph)	319	341	450	344	381	495	419	1507	816	304	1398	754
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.54	0.20	0.52	0.77	0.46	0.44	0.58	0.30	0.65	0.60	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 118 (98%), Referenced to phase 6:SBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 74.3%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 24: Saulsbury Rd/McKee Rd & Walker Rd

 Ø1	 Ø2	 Ø3	 Ø4
15 s	57 s	20 s	28 s
 Ø5	 Ø6 (R)	 Ø7	 Ø8
25 s	47 s	20 s	28 s

Lanes, Volumes, Timings

2052 PM with SR8 Truck Restriction-Added Lanes

25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	557	274	163	745	217	381	843	153	201	808	154
Future Volume (vph)	143	557	274	163	745	217	381	843	153	201	808	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	530		300	200		200	900		465	325		175
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	50			100			50			75		
Satd. Flow (prot)	1671	3574	1553	1703	3610	1583	1736	3539	1553	1787	3471	1509
Flt Permitted	0.172			0.157			0.105			0.222		
Satd. Flow (perm)	303	3574	1531	281	3610	1561	192	3539	1528	418	3471	1473
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			295			227			165			227
Link Speed (mph)		40			35			35			40	
Link Distance (ft)		4125			1630			1117			660	
Travel Time (s)		70.3			31.8			21.8			11.3	
Confl. Peds. (#/hr)			1			1			2			6
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	8%	1%	4%	6%	0%	2%	4%	2%	4%	1%	4%	7%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	154	599	295	175	801	233	410	906	165	216	869	166
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		7	4		3	8	
Permitted Phases	2		2	6		6	4		4	8		8
Detector Phase	5	2	2	1	6	6	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0	13.0	25.0	25.0
Total Split (s)	17.0	29.0	29.0	21.0	33.0	33.0	32.0	47.0	47.0	23.0	38.0	38.0
Total Split (%)	14.2%	24.2%	24.2%	17.5%	27.5%	27.5%	26.7%	39.2%	39.2%	19.2%	31.7%	31.7%
Maximum Green (s)	10.0	22.0	22.0	14.0	26.0	26.0	25.0	40.0	40.0	16.0	31.0	31.0
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	Min	Min	None	C-Min	C-Min	None	None	None	None	None	None
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	33.1	23.2	23.2	38.9	26.1	26.1	63.0	42.7	42.7	44.3	31.0	31.0
Actuated g/C Ratio	0.28	0.19	0.19	0.32	0.22	0.22	0.52	0.36	0.36	0.37	0.26	0.26
v/c Ratio	0.79	0.87	0.55	0.72	1.02	0.45	0.97	0.72	0.25	0.71	0.97	0.30
Control Delay	59.4	65.3	12.2	45.8	84.0	8.6	72.5	29.4	2.8	42.2	62.2	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.4	65.3	12.2	45.8	84.0	8.6	72.5	29.4	2.8	42.2	62.2	7.9
LOS	E	E	B	D	F	A	E	C	A	D	E	A
Approach Delay		49.4			63.9			38.3			51.6	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	D			E			D			D		
Queue Length 50th (ft)	92	246	8	96	~347	4	287	265	9	102	173	1
Queue Length 95th (ft)	#172	#352	94	#167	#474	71	m#457	350	m24	205	#469	62
Internal Link Dist (ft)	4045			1550			1037			580		
Turn Bay Length (ft)	530		300	200		200	900		465	325		175
Base Capacity (vph)	197	691	534	259	784	517	422	1259	650	346	896	548
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.87	0.55	0.68	1.02	0.45	0.97	0.72	0.25	0.62	0.97	0.30

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 50.2

Intersection LOS: D

Intersection Capacity Utilization 95.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

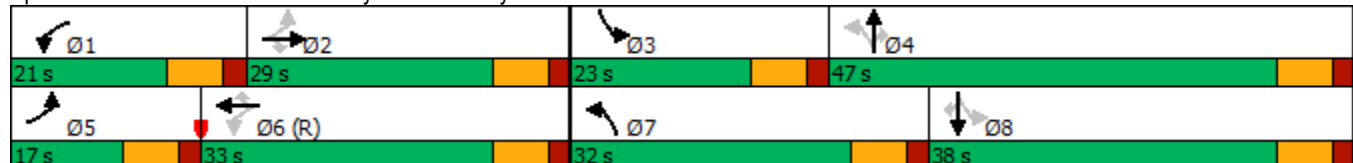
Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 25: S Saulsbury Rd/Saulsbury Rd & Forrest Ave



Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 PM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	303	162	140	1120	1047	198
Future Volume (vph)	303	162	140	1120	1047	198
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	250			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		50			
Satd. Flow (prot)	1805	1583	1752	3471	3362	0
Flt Permitted	0.950		0.110			
Satd. Flow (perm)	1805	1560	203	3471	3362	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		172			27	
Link Speed (mph)	30			35	35	
Link Distance (ft)	354			886	1117	
Travel Time (s)	8.0			17.3	21.8	
Confl. Peds. (#/hr)		1	5			1
Confl. Bikes (#/hr)		1				4
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	2%	3%	4%	5%	1%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	322	172	149	1191	1325	0
Turn Type	Prot	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	
Minimum Split (s)	28.0	28.0	13.0	17.0	29.0	
Total Split (s)	33.0	33.0	18.0	87.0	69.0	
Total Split (%)	27.5%	27.5%	15.0%	72.5%	57.5%	
Maximum Green (s)	27.0	27.0	11.0	80.0	62.0	
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	C-Min	C-Min	
Walk Time (s)	7.0	7.0			7.0	
Flash Dont Walk (s)	15.0	15.0			15.0	
Pedestrian Calls (#/hr)	0	0			0	
Act Effct Green (s)	25.0	25.0	82.0	82.0	65.9	
Actuated g/C Ratio	0.21	0.21	0.68	0.68	0.55	
v/c Ratio	0.86	0.37	0.58	0.50	0.71	
Control Delay	67.1	8.0	29.3	7.0	40.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	67.1	8.0	29.3	7.0	40.5	
LOS	E	A	C	A	D	

Lanes, Volumes, Timings
36: S Saulsbury Rd & Gateway Blvd

2052 PM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	46.5			9.5	40.5	
Approach LOS	D			A	D	
Queue Length 50th (ft)	237	0	43	128	532	
Queue Length 95th (ft)	#375	57	m89	166	m423	
Internal Link Dist (ft)	274			806	1037	
Turn Bay Length (ft)			250			
Base Capacity (vph)	410	487	280	2379	1863	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.79	0.35	0.53	0.50	0.71	

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 39 (33%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 76.5%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 36: S Saulsbury Rd & Gateway Blvd



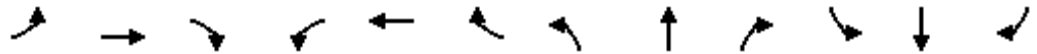
Lanes, Volumes, Timings

2052 PM with SR8 Truck Restriction-Added Lanes

41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St

Dover East-West Freight Study

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	138	287	118	156	467	515	68	548	106	343	712	90
Future Volume (vph)	138	287	118	156	467	515	68	548	106	343	712	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	175		250	100		175	205		380	240		240
Storage Lanes	1		2	1		1	1		1	1		1
Taper Length (ft)	75			50			50			100		
Satd. Flow (prot)	1641	3406	1538	1752	3471	1599	1736	3406	1568	1752	3471	1404
Flt Permitted	0.346			0.566			0.370			0.178		
Satd. Flow (perm)	598	3406	1517	1044	3471	1599	676	3406	1544	328	3471	1404
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			450			191			136
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		1814			1161			717			886	
Travel Time (s)		41.2			26.4			14.0			17.3	
Confl. Peds. (#/hr)			1									
Confl. Bikes (#/hr)									3			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	10%	6%	5%	3%	4%	1%	4%	6%	3%	3%	4%	15%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	144	299	123	163	486	536	71	571	110	357	742	94
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	5.0	15.0	15.0	5.0	15.0	15.0	5.0	10.0	10.0	5.0	10.0	10.0
Minimum Split (s)	12.0	30.0	30.0	12.0	29.0	29.0	12.0	28.0	28.0	12.0	29.0	29.0
Total Split (s)	20.0	43.0	43.0	15.0	38.0	38.0	17.0	33.0	33.0	29.0	45.0	45.0
Total Split (%)	16.7%	35.8%	35.8%	12.5%	31.7%	31.7%	14.2%	27.5%	27.5%	24.2%	37.5%	37.5%
Maximum Green (s)	14.0	37.0	37.0	9.0	32.0	32.0	11.0	27.0	27.0	23.0	39.0	39.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Min	C-Min	None	C-Min	C-Min	None	None	None	None	Min	Min
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0
Flash Dont Walk (s)		17.0	17.0		16.0	16.0		15.0	15.0		16.0	16.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	49.3	37.7	37.7	45.8	36.0	36.0	32.8	24.6	24.6	54.4	42.6	42.6
Actuated g/C Ratio	0.41	0.31	0.31	0.38	0.30	0.30	0.27	0.20	0.20	0.45	0.36	0.36
v/c Ratio	0.42	0.28	0.20	0.36	0.47	0.68	0.28	0.82	0.24	0.83	0.60	0.16
Control Delay	25.2	32.7	1.2	24.8	37.4	12.0	22.6	55.7	1.2	60.3	54.3	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.2	32.7	1.2	24.8	37.4	12.0	22.6	55.7	1.2	60.3	54.3	15.5
LOS	C	C	A	C	D	B	C	E	A	E	D	B



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		24.0			24.2			44.6			53.1	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	70	99	0	80	170	52	29	221	0	267	266	19
Queue Length 95th (ft)	114	131	5	126	224	185	58	283	0	#425	384	m38
Internal Link Dist (ft)		1734			1081			637			806	
Turn Bay Length (ft)	175		250	100		175	205		380	240		240
Base Capacity (vph)	379	1121	627	459	1059	800	297	766	495	436	1231	585
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.27	0.20	0.36	0.46	0.67	0.24	0.75	0.22	0.82	0.60	0.16

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 37.6

Intersection LOS: D

Intersection Capacity Utilization 82.8%

ICU Level of Service E

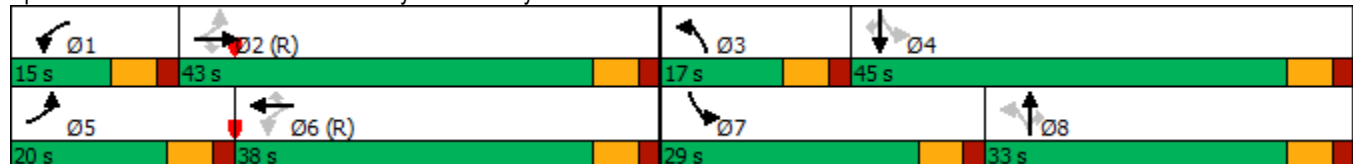
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 41: POW MIA Pkwy/S Saulsbury Rd & Hazletville Rd/W North St



												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	177	534	65	61	689	114	51	23	108	63	22	59
Future Volume (vph)	177	534	65	61	689	114	51	23	108	63	22	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		300	275		300	0		225	0		0
Storage Lanes	1		1	1		1	0		1	0		0
Taper Length (ft)	100			100			25			25		
Satd. Flow (prot)	1770	1792	1524	1703	1827	1599	0	1809	1583	0	1674	0
Flt Permitted	0.113			0.255				0.967			0.979	
Satd. Flow (perm)	210	1792	1524	457	1827	1599	0	1809	1583	0	1674	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182			182			194			32
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		1819			3131			1258			345	
Travel Time (s)		35.4			61.0			28.6			9.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	6%	6%	6%	4%	1%	0%	5%	2%	5%	5%	5%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	580	71	66	749	124	0	80	117	0	156	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Split	NA	Perm	Split	NA	
Protected Phases	5	2		1	6		4	4		3	3	
Permitted Phases	2		2	6		6			4			
Detector Phase	5	2	2	1	6	6	4	4	4	3	3	
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	11.0	20.0	20.0	11.0	20.0	20.0	21.0	21.0	21.0	18.0	18.0	
Total Split (s)	11.0	40.0	40.0	11.0	40.0	40.0	21.0	21.0	21.0	18.0	18.0	
Total Split (%)	12.2%	44.4%	44.4%	12.2%	44.4%	44.4%	23.3%	23.3%	23.3%	20.0%	20.0%	
Maximum Green (s)	5.0	33.0	33.0	5.0	33.0	33.0	15.0	15.0	15.0	12.0	12.0	
Yellow Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Lost Time (s)	6.0	7.0	7.0	6.0	7.0	7.0		6.0	6.0		6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	Min	Min	None	Min	Min	None	None	None	None	None	
Walk Time (s)					7.0	7.0	7.0	7.0	7.0	7.0	7.0	
Flash Dont Walk (s)					5.0	5.0	8.0	8.0	8.0	5.0	5.0	
Pedestrian Calls (#/hr)					0	0	0	0	0	0	0	
Act Effct Green (s)	40.4	35.5	35.5	39.1	33.1	33.1		9.0	9.0		10.2	
Actuated g/C Ratio	0.49	0.43	0.43	0.47	0.40	0.40		0.11	0.11		0.12	
v/c Ratio	0.97	0.75	0.09	0.23	1.02	0.17		0.41	0.34		0.66	
Control Delay	78.0	29.9	0.2	12.2	66.3	1.4		40.9	3.3		42.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	
Total Delay	78.0	29.9	0.2	12.2	66.3	1.4		40.9	3.3		42.0	
LOS	E	C	A	B	E	A		D	A		D	
Approach Delay		38.4			53.9			18.6			42.0	
Approach LOS		D			D			B			D	

												
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Queue Length 50th (ft)	~53	266	0	16	~430	0		40	0		61	
Queue Length 95th (ft)	#201	#480	0	38	#685	12		82	7		#130	
Internal Link Dist (ft)		1739			3051			1178			265	
Turn Bay Length (ft)	300		300	275		300			225			
Base Capacity (vph)	198	772	760	292	733	750		330	447		271	
Starvation Cap Reductn	0	0	0	0	0	0		0	0		0	
Spillback Cap Reductn	0	0	0	0	0	0		0	0		0	
Storage Cap Reductn	0	0	0	0	0	0		0	0		0	
Reduced v/c Ratio	0.97	0.75	0.09	0.23	1.02	0.17		0.24	0.26		0.58	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 82.4

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 43.6

Intersection LOS: D

Intersection Capacity Utilization 76.8%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 55: POW MIA Pkwy & Delmarva Corrugated Packaging

 Ø1	 Ø2	 Ø3	 Ø4
11 s	40 s	18 s	21 s
 Ø5	 Ø6		
11 s	40 s		

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 PM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	720	140	109	635	141	110
Future Volume (vph)	720	140	109	635	141	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		300	300		0	280
Storage Lanes		1	1		1	1
Taper Length (ft)			150		25	
Satd. Flow (prot)	1827	1599	1787	1810	1770	1615
Flt Permitted			0.121		0.950	
Satd. Flow (perm)	1827	1565	228	1810	1770	1615
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		157				124
Link Speed (mph)	35			35	25	
Link Distance (ft)	1097			1246	666	
Travel Time (s)	21.4			24.3	18.2	
Confl. Peds. (#/hr)			2			
Confl. Bikes (#/hr)		1				
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	4%	1%	1%	5%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	809	157	122	713	158	124
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	2		1	6	4	
Permitted Phases		2	6			4
Detector Phase	2	2	1	6	4	4
Switch Phase						
Minimum Initial (s)	14.0	14.0	5.0	15.0	5.0	5.0
Minimum Split (s)	21.0	21.0	13.0	22.0	12.0	12.0
Total Split (s)	30.0	30.0	15.0	45.0	15.0	15.0
Total Split (%)	50.0%	50.0%	25.0%	75.0%	25.0%	25.0%
Maximum Green (s)	23.0	23.0	8.0	38.0	9.0	9.0
Yellow Time (s)	5.0	5.0	5.0	5.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	6.0	6.0
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?	Yes	Yes	Yes			
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	Min	None	Min	None	None
Walk Time (s)	7.0	7.0				
Flash Dont Walk (s)	7.0	7.0				
Pedestrian Calls (#/hr)	0	0				
Act Effct Green (s)	26.1	26.1	37.5	37.5	8.5	8.5
Actuated g/C Ratio	0.44	0.44	0.64	0.64	0.14	0.14
v/c Ratio	1.00	0.20	0.37	0.62	0.62	0.37
Control Delay	55.7	3.3	7.8	9.6	35.8	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	3.3	7.8	9.6	35.8	8.9
LOS	E	A	A	A	D	A

Lanes, Volumes, Timings
58: Baden Powell Way & POW MIA Pkwy

2052 PM with SR8 Truck Restriction-Added Lanes
Dover East-West Freight Study

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Approach Delay	47.2			9.3	24.0	
Approach LOS	D			A	C	
Queue Length 50th (ft)	~347	0	15	130	53	0
Queue Length 95th (ft)	#539	29	31	216	#117	38
Internal Link Dist (ft)	1017			1166	586	
Turn Bay Length (ft)		300	300			280
Base Capacity (vph)	808	779	356	1166	270	351
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.00	0.20	0.34	0.61	0.59	0.35

Intersection Summary

Area Type: Other

Cycle Length: 60

Actuated Cycle Length: 59

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 28.9

Intersection LOS: C

Intersection Capacity Utilization 68.4%

ICU Level of Service C

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 58: Baden Powell Way & POW MIA Pkwy

↙ Ø1	→ Ø2	↖ Ø4
15 s	30 s	15 s
↖ Ø6		
45 s		

Lanes, Volumes, Timings
62: US13 & POW MIA Pkwy

2052 PM with SR8 Truck Restriction-Added Lanes

Dover East-West Freight Study

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↰↰	↱	↰↰	↑↑↑	↑↑↑	↱
Traffic Volume (vph)	160	635	526	1714	2311	216
Future Volume (vph)	160	635	526	1714	2311	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	250	400			850
Storage Lanes	2	1	2			1
Taper Length (ft)	25		125			
Satd. Flow (prot)	3367	1553	3303	4940	4940	1568
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	3367	1531	3303	4940	4940	1548
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		273				216
Link Speed (mph)	35			50	50	
Link Distance (ft)	609			8945	4641	
Travel Time (s)	11.9			122.0	63.3	
Confl. Peds. (#/hr)		1				
Confl. Bikes (#/hr)		1				1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	4%	4%	6%	5%	5%	3%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	635	526	1714	2311	216
Turn Type	Prot	Perm	Prot	NA	NA	Perm
Protected Phases	4		5	2	6	
Permitted Phases		4				6
Detector Phase	4	4	5	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	10.0	10.0	10.0
Minimum Split (s)	12.0	12.0	13.0	25.0	30.0	30.0
Total Split (s)	34.0	34.0	25.0	86.0	61.0	61.0
Total Split (%)	28.3%	28.3%	20.8%	71.7%	50.8%	50.8%
Maximum Green (s)	28.0	28.0	18.0	79.0	54.0	54.0
Yellow Time (s)	4.0	4.0	5.0	5.0	5.0	5.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	7.0	7.0	7.0	7.0
Lead/Lag			Lead		Lag	Lag
Lead-Lag Optimize?			Yes		Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Min	C-Min	C-Min
Walk Time (s)					7.0	7.0
Flash Dont Walk (s)					16.0	16.0
Pedestrian Calls (#/hr)					0	0
Act Effct Green (s)	28.0	28.0	18.0	79.0	54.0	54.0
Actuated g/C Ratio	0.23	0.23	0.15	0.66	0.45	0.45
v/c Ratio	0.20	1.12	1.06	0.53	1.04	0.27
Control Delay	37.9	100.9	106.7	11.4	63.1	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	100.9	106.7	11.4	63.1	3.4
LOS	D	F	F	B	E	A



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Approach Delay	88.2			33.8	58.0	
Approach LOS	F			C	E	
Queue Length 50th (ft)	51	~394	~231	234	~708	0
Queue Length 95th (ft)	81	#626	#342	270	#802	43
Internal Link Dist (ft)	529			8865	4561	
Turn Bay Length (ft)		250	400			850
Base Capacity (vph)	785	566	495	3252	2223	815
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	1.12	1.06	0.53	1.04	0.27

Intersection Summary

Area Type: Other

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 52.6

Intersection LOS: D

Intersection Capacity Utilization 94.9%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

Splits and Phases: 62: US13 & POW MIA Pkwy



East/West Freight Routes Phase 2 Study

Kent County, Delaware

Appendix C

Individual Concept Plans

E/W FREIGHT ROUTES, PHASE 2

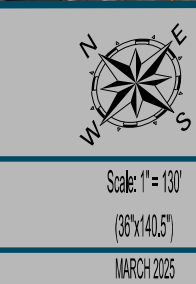
DOVER, SR 1 INTERCHANGE CONNECTION CONCEPT



E/W FREIGHT ROUTES, PHASE 2

DOVER, HAZLETTVILLE RD TO FORREST AVE

CONNECTION CONCEPT 1



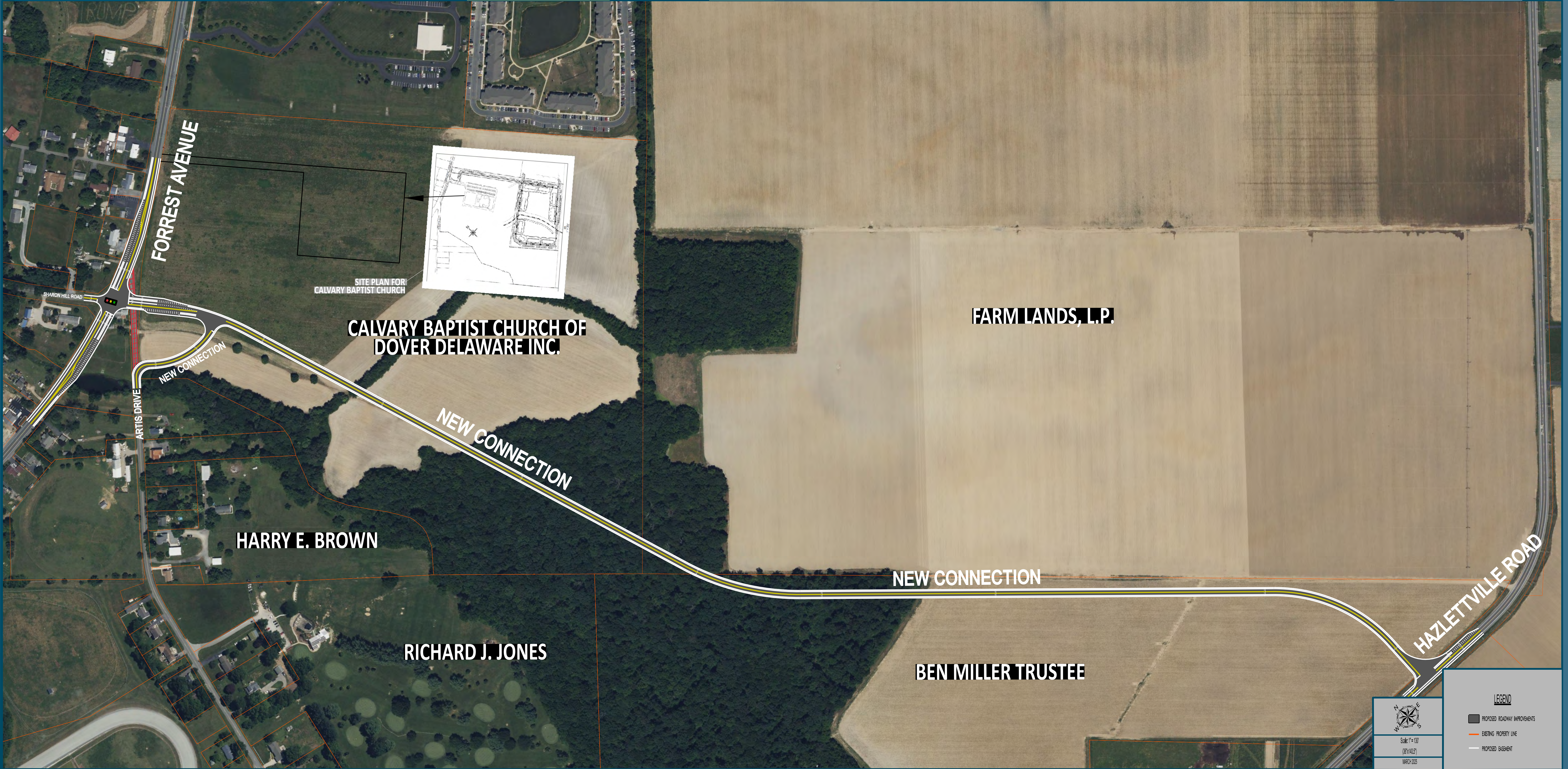
LEGEND

- PROPOSED ROADWAY IMPROVEMENTS
- EXISTING PROPERTY LINE
- PROPOSED EASEMENT

E/W FREIGHT ROUTES, PHASE 2

DOVER, HAZLETTVILLE RD TO FORREST AVE

CONNECTION CONCEPT 2



E/W FREIGHT ROUTES, PHASE 2

HARRINGTON ROUTE 13 CONCEPT



E/W FREIGHT ROUTES, PHASE 2

MILFORD, US 113 TO SR 1
CONNECTION CONCEPT



E/W FREIGHT ROUTES, PHASE 2

MILFORD, AIRPORT RD TO WARNER RD CONNECTION CONCEPT



E/W FREIGHT ROUTES, PHASE 2

CLAYTON, MAIN ST & SCHOOL LN

ROUNDAABOUT CONCEPT



East/West Freight Routes Phase 2 Study

Kent County, Delaware

Appendix D

Cost Estimates

Dover SR1 Ramp at SR8					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$75,000.00	1.00	\$75,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$35.00	8733.00	\$305,655.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	287.00	\$10,045.00
204000	TEST HOLE	CY	\$200.00	6.00	\$1,200.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	310.00	\$10,850.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	211.00	\$6,330.00
209001	BORROW, TYPE A	CY	\$30.00	4928.00	\$147,840.00
209006	BORROW, TYPE F	CY	\$15.00	113560.00	\$1,703,400.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$0.00	1.00	\$0.00
301001	GABC	CY	\$75.00	3178.00	\$238,350.00
302002	DELAWARE NO. 3 STONE	TON	\$60.00	54.00	\$3,240.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	1602.00	\$224,280.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	2437.00	\$304,625.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	4816.00	\$481,600.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	100.00	\$7,000.00
601033	REINFORCED CONCRETE PIPE, 18", CLASS IV	LF	\$80.00	300.00	\$24,000.00
601035	REINFORCED CONCRETE PIPE, 24", CLASS IV	LF	\$100.00	300.00	\$30,000.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	4.00	\$4,800.00
601142	REINFORCED CONCRETE FLARED END SECTION, 18"	EACH	\$1,500.00	4.00	\$6,000.00
601144	REINFORCED CONCRETE FLARED END SECTION, 24"	EACH	\$1,800.00	4.00	\$7,200.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	2.00	\$8,000.00
602005	DRAINAGE INLET, 48" X 48"	EACH	\$4,500.00	3.00	\$13,500.00
701018	I.PCC CURB AND GUTTER, TYPE 1-8	LF	\$40.00	790.00	\$31,600.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	715.00	\$1,430.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	13994.00	\$11,195.20
905001	SILT FENCE	LF	\$2.00	7398.00	\$14,796.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	5.00	\$750.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	22540.00	\$180,320.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	22540.00	\$22,540.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	71001.00	\$53,250.75
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	\$45.00	239.00	\$10,755.00
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	\$78.00	20.00	\$1,560.00
999999	MAINTENANCE OF TRAFFIC	LS	\$75,000.00	1.00	\$75,000.00
999999	STORMWATER MANAGEMENT	LS	\$95,000.00	1.00	\$95,000.00
999999	LIGHTING	LS	\$75,000.00	1.00	\$75,000.00
999999	GUARDRAIL SYSTEM	LS	\$45,000.00	1.00	\$45,000.00
0					
	Subtotal				\$4,231,111.95
763000	Initial Expense (5%)	L.S.	\$211,555.60	1	\$211,555.60
763501	Construction Engineering (5%)	L.S.	\$211,555.60	1	\$211,555.60
	TOTAL BASE FOR PROJECT				\$4,654,223.15
	CONSTRUCTION CONTINGENCY	15%	\$698,133.47	1	\$698,133.47
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$0.00	1	\$0.00
	UTILITY	L.S.	\$50,000.00	1	\$50,000.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$3,099.25	1	\$3,099.25
	Asphalt Cost Adj	L.S.	\$28,579.80	1	\$28,579.80
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$473,608.97	1	\$473,608.97
	TOTAL CONSTRUCTION COST				\$5,907,644.63
	PROJECT DEVELOPMENT	L.S.	\$50,000.00	1	\$50,000.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$698,130.00	1	\$698,130.00
	ROW COSTS	L.S.	\$2,300,000.00	1	\$2,300,000.00
	TOTAL BASE CONSTRUCTION COST				\$8,955,774.63

Hazlette Road to SR8 Connector					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$120,000.00	1.00	\$120,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$25.00	36378.00	\$909,450.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	3465.00	\$121,275.00
204000	TEST HOLE	CY	\$200.00	11.00	\$2,200.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	576.00	\$20,160.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	380.00	\$11,400.00
209001	BORROW, TYPE A	CY	\$30.00	5500.00	\$165,000.00
209006	BORROW, TYPE F	CY	\$25.00	550.00	\$13,750.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$25,000.00	1.00	\$25,000.00
301001	GABC	CY	\$75.00	8774.00	\$658,050.00
302002	DELAWARE NO. 3 STONE	TON	\$60.00	54.00	\$3,240.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	4482.00	\$627,480.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	6820.00	\$852,500.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	13476.00	\$1,347,600.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	167.00	\$11,690.00
601033	REINFORCED CONCRETE PIPE, 18", CLASS IV	LF	\$80.00	340.00	\$27,200.00
601035	REINFORCED CONCRETE PIPE, 24", CLASS IV	LF	\$100.00	529.00	\$52,900.00
601037	REINFORCED CONCRETE PIPE, 30", CLASS IV	LF	\$120.00	150.00	\$18,000.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	8.00	\$9,600.00
601142	REINFORCED CONCRETE FLARED END SECTION, 18"	EACH	\$1,500.00	12.00	\$18,000.00
601144	REINFORCED CONCRETE FLARED END SECTION, 24"	EACH	\$1,800.00	16.00	\$28,800.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	3.00	\$12,000.00
602005	DRAINAGE INLET, 48" X 48"	EACH	\$4,500.00	8.00	\$36,000.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	229.00	\$458.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	\$7.00	497.00	\$3,479.00
817015	PREFORMED RETROREFLECTIVE THERMOPLASTIC MARKINGS, BIKE SYMBOL	EACH	\$400.00	12.00	\$4,800.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	36652.00	\$29,321.60
905001	SILT FENCE	LF	\$2.00	20864.00	\$41,728.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	11.00	\$1,650.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	73024.00	\$584,192.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	73024.00	\$73,024.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	230026.00	\$172,519.50
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	\$45.00	239.00	\$10,755.00
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	\$78.00	20.00	\$1,560.00
999999	MAINTENANCE OF TRAFFIC	LS	\$75,000.00	1.00	\$75,000.00
999999	STORMWATER MANAGEMENT	LS	\$120,000.00	1.00	\$120,000.00
999999	SIGNAL	LS	\$350,000.00	1.00	\$350,000.00
0					\$0.00
	Subtotal				\$6,559,782.10
763000	Initial Expense (5%)	L.S.	\$327,989.11	1	\$327,989.11
763501	Construction Engineering (5%)	L.S.	\$327,989.11	1	\$327,989.11
	TOTAL BASE FOR PROJECT				\$7,215,760.31
	CONSTRUCTION CONTINGENCY	15%	\$1,082,364.05	1	\$1,082,364.05
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$100,000.00	1	\$100,000.00
	UTILITY	L.S.	\$75,000.00	1	\$75,000.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$8,672.30	1	\$8,672.30
	Asphalt Cost Adj	L.S.	\$79,971.60	1	\$79,971.60
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$682,182.02	1	\$682,182.02
	TOTAL CONSTRUCTION COST				\$9,243,950.28
	PROJECT DEVELOPMENT	L.S.	\$500,000.00	1	\$500,000.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$1,082,360.00	1	\$1,082,360.00
	ROW COSTS	L.S.	\$2,500,000.00	1	\$2,500,000.00
	TOTAL BASE CONSTRUCTION COST				\$13,326,310.28

Harrington Median Modifications					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$5,000.00	1.00	\$5,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$35.00	1711.00	\$59,885.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	163.00	\$5,705.00
204000	TEST HOLE	CY	\$200.00	2.00	\$400.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	18.00	\$630.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	14.00	\$420.00
209001	BORROW, TYPE A	CY	\$30.00	110.00	\$3,300.00
209006	BORROW, TYPE F	CY	\$25.00	110.00	\$2,750.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$0.00	1.00	\$0.00
301001	GABC	CY	\$75.00	708.00	\$53,100.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	362.00	\$50,680.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	550.00	\$68,750.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	1087.00	\$108,700.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	56.00	\$3,920.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	2.00	\$2,400.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	1.00	\$4,000.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	2240.00	\$4,480.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	\$7.00	229.00	\$1,603.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	3048.00	\$2,438.40
905001	SILT FENCE	LF	\$2.00	2310.00	\$4,620.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	1.00	\$150.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	1617.00	\$12,936.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	1617.00	\$1,617.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	5094.00	\$3,820.50
999999	MAINTENANCE OF TRAFFIC	LS	\$20,000.00	1.00	\$20,000.00
	Subtotal				\$421,304.90
763000	Initial Expense (5%)	L.S.	\$21,065.25	1	\$21,065.25
763501	Construction Engineering (5%)	L.S.	\$21,065.25	1	\$21,065.25
	TOTAL BASE FOR PROJECT				\$463,435.39
	CONSTRUCTION CONTINGENCY	15%	\$69,515.31	1	\$69,515.31
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$0.00	1	\$0.00
	UTILITY	L.S.	\$0.00	1	\$0.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$699.65	1	\$699.65
	Asphalt Cost Adj	L.S.	\$6,453.60	1	\$6,453.60
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$85,892.01	1	\$85,892.01
	TOTAL CONSTRUCTION COST				\$625,995.96
	PROJECT DEVELOPMENT	L.S.	\$0.00	1	\$0.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$92,690.00	1	\$92,690.00
	ROW COSTS	L.S.	\$0.00	1	\$0.00
	TOTAL BASE CONSTRUCTION COST				\$718,685.96

Milford US113 to SR1 Ramp					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$50,000.00	1.00	\$50,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$35.00	7527.00	\$263,445.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	717.00	\$25,095.00
204000	TEST HOLE	CY	\$200.00	6.00	\$1,200.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	465.00	\$16,275.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	333.00	\$9,990.00
209001	BORROW, TYPE A	CY	\$30.00	14300.00	\$429,000.00
209006	BORROW, TYPE F	CY	\$25.00	550.00	\$13,750.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$0.00	1.00	\$0.00
301001	GABC	CY	\$75.00	2175.00	\$163,125.00
302002	DELAWARE NO. 3 STONE	TON	\$60.00	27.00	\$1,620.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	1099.00	\$153,860.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	1672.00	\$209,000.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	3304.00	\$330,400.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	420.00	\$29,400.00
601033	REINFORCED CONCRETE PIPE, 18", CLASS IV	LF	\$80.00	620.00	\$49,600.00
601035	REINFORCED CONCRETE PIPE, 24", CLASS IV	LF	\$100.00	152.00	\$15,200.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	4.00	\$4,800.00
601142	REINFORCED CONCRETE FLARED END SECTION, 18"	EACH	\$1,500.00	4.00	\$6,000.00
601144	REINFORCED CONCRETE FLARED END SECTION, 24"	EACH	\$1,800.00	2.00	\$3,600.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	3.00	\$12,000.00
602005	DRAINAGE INLET, 48" X 48"	EACH	\$4,500.00	3.00	\$13,500.00
701018	I.PCC CURB AND GUTTER, TYPE 1-8	LF	\$40.00	441.00	\$17,640.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	4276.00	\$8,552.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	7861.00	\$6,288.80
905001	SILT FENCE	LF	\$2.00	4410.00	\$8,820.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	6.00	\$900.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	9800.00	\$78,400.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	9800.00	\$9,800.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	30870.00	\$23,152.50
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	\$45.00	120.00	\$5,400.00
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	\$78.00	10.00	\$780.00
999999	MAINTENANCE OF TRAFFIC	LS	\$80,000.00	1.00	\$80,000.00
0	STORMWATER MAGEMENT		LS	1.00	\$60,000.00
0					
	Subtotal				\$2,100,593.30
763000	Initial Expense (5%)	L.S.	\$105,029.67	1	\$105,029.67
763501	Construction Engineering (5%)	L.S.	\$105,029.67	1	\$105,029.67
	TOTAL BASE FOR PROJECT				\$2,310,652.63
	CONSTRUCTION CONTINGENCY	15%	\$346,597.89	1	\$346,597.89
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$0.00	1	\$0.00
	UTILITY	L.S.	\$50,000.00	1	\$50,000.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$2,126.25	1	\$2,126.25
	Asphalt Cost Adj	L.S.	\$19,607.40	1	\$19,607.40
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$274,405.47	1	\$274,405.47
	TOTAL CONSTRUCTION COST				\$3,003,389.65
	PROJECT DEVELOPMENT	L.S.	\$50,000.00	1	\$50,000.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$346,600.00	1	\$346,600.00
	ROW COSTS	L.S.	\$750,000.00	1	\$750,000.00
	TOTAL BASE CONSTRUCTION COST				\$4,149,989.65

Airport Road to Warner Road Connector					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$40,000.00	1.00	\$40,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$35.00	30111.00	\$1,053,885.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	2868.00	\$100,380.00
204000	TEST HOLE	CY	\$200.00	11.00	\$2,200.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	1331.00	\$46,585.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	901.00	\$27,030.00
209001	BORROW, TYPE A	CY	\$30.00	1100.00	\$33,000.00
209006	BORROW, TYPE F	CY	\$25.00	550.00	\$13,750.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$0.00	1.00	\$0.00
211001	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT, CURB AND SIDEWALK	SY		32.00	\$0.00
301001	GABC	CY	\$75.00	3879.00	\$290,925.00
302002	DELAWARE NO. 3 STONE	TON	\$60.00	27.00	\$1,620.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	1977.00	\$276,780.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	3008.00	\$376,000.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	5944.00	\$594,400.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	750.00	\$52,500.00
601033	REINFORCED CONCRETE PIPE, 18", CLASS IV	LF	\$80.00	1000.00	\$80,000.00
601035	REINFORCED CONCRETE PIPE, 24", CLASS IV	LF	\$100.00	970.00	\$97,000.00
601037	REINFORCED CONCRETE PIPE, 30", CLASS IV	LF	\$120.00	250.00	\$30,000.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	6.00	\$7,200.00
601142	REINFORCED CONCRETE FLARED END SECTION, 18"	EACH	\$1,500.00	8.00	\$12,000.00
601144	REINFORCED CONCRETE FLARED END SECTION, 24"	EACH	\$1,800.00	4.00	\$7,200.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	6.00	\$24,000.00
602005	DRAINAGE INLET, 48" X 48"	EACH	\$4,500.00	8.00	\$36,000.00
701018	I.PCC CURB AND GUTTER, TYPE 1-8	LF	\$40.00	368.00	\$14,720.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	2057.00	\$4,114.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	\$7.00	366.00	\$2,562.00
817015	PREFORMED RETROREFLECTIVE THERMOPLASTIC MARKINGS, BIKE SYMBOL	EACH	\$400.00	10.00	\$4,000.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	22336.00	\$17,868.80
905001	SILT FENCE	LF	\$2.00	11256.00	\$22,512.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	14.00	\$2,100.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	65660.00	\$525,280.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	65660.00	\$65,660.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	206829.00	\$155,121.75
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	\$45.00	120.00	\$5,400.00
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	\$78.00	10.00	\$780.00
999999	MAINTENANCE OF TRAFFIC	LS	\$75,000.00	1.00	\$75,000.00
999999	STORMWATER MANAGEMENT	LS	\$120,000.00	1.00	\$120,000.00
	Subtotal				\$4,217,573.55
763000	Initial Expense (5%)	L.S.	\$210,878.68	1	\$210,878.68
763501	Construction Engineering (5%)	L.S.	\$210,878.68	1	\$210,878.68
	TOTAL BASE FOR PROJECT				\$4,639,330.91
	CONSTRUCTION CONTINGENCY	15%	\$695,899.64	1	\$695,899.64
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$0.00	1	\$0.00
	UTILITY	L.S.	\$125,000.00	1	\$125,000.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$3,825.15	1	\$3,825.15
	Asphalt Cost Adj	L.S.	\$35,273.40	1	\$35,273.40
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$493,343.13	1	\$493,343.13
	TOTAL CONSTRUCTION COST				\$5,992,672.22
	PROJECT DEVELOPMENT	L.S.	\$50,000.00	1	\$50,000.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$695,900.00	1	\$695,900.00
	ROW COSTS	L.S.	\$1,000,000.00	1	\$1,000,000.00
	TOTAL BASE CONSTRUCTION COST				\$7,738,572.22

Main Street and School Lane Roundabout					
Conceptual Cost Estimate May 2025					
ITEM #	TITLE	UNIT	ESTIMATE COST	UNIT QUANTITY	TOTAL
201000	CLEARING AND GRUBBING	LS	\$25,000.00	1.00	\$25,000.00
202000	EXCAVATION AND EMBANKMENT	CY	\$35.00	2558.00	\$89,530.00
202003	UNDERCUT EXCAVATION	CY	\$35.00	244.00	\$8,540.00
204000	TEST HOLE	CY	\$200.00	3.00	\$600.00
207000	STRUCTURAL EXCAVATION AND BACKFILL	CY	\$35.00	650.00	\$22,750.00
207021	STRUCTURAL BACKFILL, (BORROW TYPE C)	CY	\$30.00	453.00	\$13,590.00
209001	BORROW, TYPE A	CY	\$30.00	550.00	\$16,500.00
209006	BORROW, TYPE F	CY	\$25.00	220.00	\$5,500.00
211000	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	LS	\$10,000.00	1.00	\$10,000.00
211001	REMOVAL OF PORTLAND CEMENT CONCRETE PAVEMENT, CURB AND SIDEWALK	SY	\$10.00	541.00	\$5,410.00
301001	GABC	CY	\$75.00	1278.00	\$95,850.00
302002	DELAWARE NO. 3 STONE	TON	\$60.00	27.00	\$1,620.00
401006	SUPERPAVE TYPE C, PG 70-22 (CARBONATE STONE)	TON	\$140.00	485.00	\$67,900.00
401014	SUPERPAVE TYPE B, PG 64-22	TON	\$125.00	737.00	\$92,125.00
401021	SUPERPAVE TYPE BCBC, PG 64-22	TON	\$100.00	1457.00	\$145,700.00
601032	REINFORCED CONCRETE PIPE, 15", CLASS IV	LF	\$70.00	750.00	\$52,500.00
601033	REINFORCED CONCRETE PIPE, 18", CLASS IV	LF	\$80.00	400.00	\$32,000.00
601035	REINFORCED CONCRETE PIPE, 24", CLASS IV	LF	\$100.00	480.00	\$48,000.00
601141	REINFORCED CONCRETE FLARED END SECTION, 15"	EACH	\$1,200.00	1.00	\$1,200.00
601142	REINFORCED CONCRETE FLARED END SECTION, 18"	EACH	\$1,500.00	1.00	\$1,500.00
601144	REINFORCED CONCRETE FLARED END SECTION, 24"	EACH	\$1,800.00	1.00	\$1,800.00
602003	DRAINAGE INLET, 34" X 24"	EACH	\$4,000.00	3.00	\$12,000.00
602005	DRAINAGE INLET, 48" X 48"	EACH	\$4,500.00	5.00	\$22,500.00
701013	PCC CURB, TYPE 1-8	LF	\$40.00	479.00	\$19,160.00
701014	PCC CURB, TYPE 2	LF	\$45.00	578.00	\$26,010.00
701018	I.PCC CURB AND GUTTER, TYPE 1-8	LF	\$50.00	1403.00	\$70,150.00
705001	PCC SIDEWALK, 4"	SF	\$12.00	4311.00	\$51,732.00
705002	PCC SIDEWALK, 6"	SF	\$15.00	1252.00	\$18,780.00
705005	PCC SIDEWALK, 8"	SF	\$20.00	6466.00	\$129,320.00
705007	DETECTABLE WARNING SURFACE	SF	\$40.00	152.00	\$6,080.00
762000	SAW CUTTING, BITUMINOUS CONCRETE	LF	\$2.00	220.00	\$440.00
817002	PERMANENT PAVEMENT STRIPING, SYMBOL/LEGEND, ALKYD-THERMOPLASTIC	SF	\$7.00	110.00	\$770.00
817015	PREFORMED RETROREFLECTIVE THERMOPLASTIC MARKINGS, BIKE SYMBOL	EACH	\$400.00	4.00	\$1,600.00
817042	PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 6"	LF	\$0.80	3736.00	\$2,988.80
905001	SILT FENCE	LF	\$2.00	1260.00	\$2,520.00
905004	INLET SEDIMENT CONTROL, DRAINAGE INLET	EACH	\$150.00	8.00	\$1,200.00
908004	TOPSOIL, 6" DEPTH	SY	\$8.00	1680.00	\$13,440.00
908014	PERMANENT GRASS SEEDING, DRY GROUND	SY	\$1.00	1680.00	\$1,680.00
908017	TEMPORARY GRASS SEEDING	SY	\$0.75	5292.00	\$3,969.00
908023	STABILIZED CONSTRUCTION ENTRANCE	SY	\$45.00	120.00	\$5,400.00
908024	STABILIZED CONSTRUCTION ENTRANCE, TOPDRESSING	TON	\$78.00	10.00	\$780.00
999999	MAINTENANCE OF TRAFFIC	LS	\$80,000.00	1.00	\$80,000.00
999999	ROUNDBOUT LIGHTING	LS	\$95,000.00	1.00	\$95,000.00
0	STORMWATER MANAGEMENT	LS	\$45,000.00	1.00	\$45,000.00
	Subtotal				\$1,348,134.80
763000	Initial Expense (5%)	L.S.	\$67,406.74	1	\$67,406.74
763501	Construction Engineering (2.5%)	L.S.	\$33,703.37	1	\$33,703.37
	TOTAL BASE FOR PROJECT				\$1,449,244.91
	CONSTRUCTION CONTINGENCY	15%	\$217,386.74	1	\$217,386.74
	TRAFFIC (FROM TRAFFIC STATEMENT)	L.S.	\$15,000.00	1	\$15,000.00
	UTILITY	L.S.	\$75,000.00	1	\$75,000.00
	PLANTING	L.S.	\$0.00	1	\$0.00
	QA/QC for HMA	L.S.	\$937.65	1	\$937.65
	Asphalt Cost Adj	L.S.	\$8,647.20	1	\$8,647.20
	CONSTRUCTION ENGINEERING - (INSPECTION, CE, ETC)	L.S.	\$164,954.69	1	\$164,954.69
	TOTAL CONSTRUCTION COST				\$1,931,171.19
	PROJECT DEVELOPMENT	L.S.	\$50,000.00	1	\$50,000.00
	PRELIMINARY ENGINEERING (DESIGN)	L.S.	\$434,770.00	1	\$434,770.00
	ROW COSTS	L.S.	\$200,000.00	1	\$200,000.00
	TOTAL BASE CONSTRUCTION COST				\$2,615,941.19