

Delaware County Engineer's Office (DCEO) Scope of Services

C-R-S: DEL CR 7 1.99

1. General Information

County: Delaware
PID#: 2404 (DCEO)

	No.	Scope of Services Meeting Date	Approved Final Scope of Services
Prime Agreement	1	TBD	TBD

Refer to exhibits and scope narrative for design designation and project limits.

2. PDP Phases Included in this Agreement: Phase PE through Phase FE Agreement between Consultant and: Delaware County Board of Commissioners

This scope approval includes development through Phase FE final tracings submittal.

3. Funding:

100% county funds will be used for all phases of this project.

4. Project Location:

Intersection of Troy Road (CR 7) and Hills-Miller Road (TR 192)

5. Project Description:

New single-lane roundabout with minimal approach work.

6. Communication/Contacts:

The respective project managers (DCEO and Consultant) will be the primary points of communication. Rules for communication between project staff listed below will be discussed at the Scope of Services Meeting and further described herein. Technical issues may be discussed directly (between project staff) below the project manager level, but the respective project managers must be informed of such discussions and any decisions resulting there from. Contractual issues should always be communicated at the project manager level.

	Name	Phone	Email
DCEO Project Manager	Ryan Mraz	740-833-2400	rmraz@co.delaware.oh.us
Consultant	TBD		
Consultant Project Manager	TBD		
Consultant Staff	TBD		

7. Schedule

Completion Time for Phases	Completion of FE Final Tracings: 17 months
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The following commitment dates are to be used by the Consultant in developing the project schedule. 30 day DCEO review period for stage submittals is anticipated.

Milestone	Date
Consultant NTP	1/1/2025
Stage 1 Submittal	8/1/2025
Preliminary R/W Submittal	12/1/2025
Stage 2 Submittal	12/1/2025
Final R/W Submittal	3/1/2026
Stage 3 Submittal	4/1/2026
Final Tracings Submittal	6/1/2026
R/W Acquired	6/1/2027
Sale Date	2/1/2028
Award	3/1/2028
Estimated Begin Construction	6/1/2028
Estimated End Construction	8/1/2028

The Consultant will prepare a detailed Master Schedule Gantt Chart (from initial authorization of the agreement thru completion (final plan package) utilizing Microsoft Project. This schedule is to be included with the price proposal. The Schedule will include beginning and ending dates as well as key milestones on the critical path for the project. Based on the type of Consultant Agreement, the Schedule shall also accommodate appropriate time frames for scoping, negotiation and authorization for the additional Phases. The overall schedule past those phases contracted for may be general in nature meeting the dates as established within this scope. The Consultant will be responsible for timelines of Phases as authorized within this agreement. The Consultant is responsible for updating the schedule as needed throughout the PDP (or as requested by DCEO) and providing these schedules monthly or as mutually agreed at the time of scope meeting (typically with Consultant Invoices). Monthly project updates are required to be submitted to the DCEOs Project Manager at a minimum indicating or identifying work completed this month, expected work next month and identifying any critical items needing action from both the Consultant and DCEO's personnel. These updates are typically provided with monthly invoicing and should be coordinated with the DCEO's Project Manager for an approved format and schedule.

8. Electronic Distribution of Design Information

The development of this project shall be performed in accordance with the ODOT and DCEO design manuals and documents. The consultant shall perform all work required by the design manuals unless a specific exception is included herein. Absence of a specific reference to required elements of the work either in this Scope of Services or the consultant's price proposal shall not relieve the consultant of responsibility to perform the work or justify additional compensation. The consultant's price proposal shall be based on the most current revision of each manual at the date of the Scope of Services Meeting.

The consultant shall also be responsible to revise the plans to conform to the most recent revision of the design manuals and documents. The Department maintains current documents and a summary of the latest revisions through the Design

Reference Resource Center (DRRC) (<http://www.dot.state.oh.us/drrc/>) (the DRRC page of the Department's Website). This site will release all new and revised design information quarterly, on four specific dates. The most significant recent changes made to this page are reflected under the heading "Latest Revision/Revision History."

Minor changes should be routinely incorporated in the work. The consultant shall notify the DCEO in writing of any subsequent changes in design manuals or other documents that would substantially impact work already performed or change the overall impacts of the project including construction costs, right of way impacts or environmental impacts. The DCEO will respond in writing concerning the disposition of any such changes. The DCEO agrees that a substantial change in design policy or plan preparation requirements may constitute a valid request for additional compensation.

The correspondence transmitting final deliverables shall note the last revision date of the Design Reference Resource Center upon which the plans were based.

9. Variations from the Scope of Service

This Scope of Services document is based on the DCEO's knowledge of project requirements at the time when the document was prepared, and serves as the basis for the price proposal and agreed fee. However, changes in the work may be required as the project develops and more complete information becomes available. Such changes also may be dictated by written procedures included in manuals or decisions made by the Department or DCEO. As the project develops, it is the Consultant's responsibility to advise the DCEO of significant changes in the work that may require modification of the agreement, and to maintain separate cost accounting for each specific issue. The DCEO's written comments and other technical decisions concerning development of the project shall not be construed as authorization for extra work for which additional compensation may be claimed. Modification of the agreement or written authorization to proceed is required prior to the performance of additional work. In short, at all times the Consultant remains responsible to advise the DCEO of work that exceeds the scope of services.

Requests for modification will be evaluated from the standpoint of the scope of services in its entirety and not in terms of a single issue. Additions to the scope of services may be offset by reductions in other areas of the work.

10. PDP Process

The Ohio Department of Transportation (ODOT) has developed and implemented a Project Development Process (PDP) that includes regular communication among technical disciplines, results in quality plans and minimizes cost overruns during right-of-way acquisition and project construction. Depending on their size, complexity, and/or potential impact to the environment, ODOT transportation projects are categorized as one of five paths (Path 1– 5). The PDP consists of five phases that projects must advance through prior to construction. These phases include Planning, Preliminary Engineering, Environmental Engineering, Final Engineering and Construction. While all projects advance through these phases, project managers have the flexibility to adjust scope activities within the phases to better support decision-making.

The PDP is a project management and transportation decision-making procedure that outlines project development from concept through completion. Each PDP activity is timed to facilitate informed decision making based on an appropriate level of project development and risk management. The PDP encourages communication among disciplines, requires documentation of the reasoning behind project related decisions, eliminates duplicated effort among disciplines and provides for early identification of potential issues. Involvement of all disciplines during the early stages of project development ensures that issues affecting project type, scope, development schedule and costs can be correctly evaluated and anticipated.

The manual and associated tools provide guidelines to identify activities required during each phase of project development. The project scope determines the amount of work performed within the phases. Although the manual and web-based tool identifies work tasks, deliverables and potential stakeholders for each phase in the process, the process requires coordination of people and tasks between phases to ensure continued review and study of the best possible options.

DCEO utilizes the framework of the ODOT PDP as the basis for developing projects; however, DCEO is not required to complete every step and may omit certain tasks when not required.

Communication and transition among disciplines are critical to a project's success. By establishing communication opportunities and responsibilities throughout the PDP, the project manager ensures that those involved in the project fulfill their project commitments. The project manager for each step is responsible for ensuring appropriate coordination and involvement of other disciplines throughout the process.

11. On-Going Consultant Involvement during the Construction Phase

The Consultant shall provide construction phase services as requested by the DCEO, for the purpose of advising the DCEO concerning interpretations of the plans and specifications prepared by the consultant, advising the DCEO of any changed or unanticipated field conditions that will impact the work, and participating in a formal Partnering process if applicable. The consultant will not have any formal ongoing duties in administration of the construction contract or inspection and testing of the project. The Consultant's personnel assigned to this phase of the work shall be the same personnel that designed the project and prepared the plans (generally the personnel whose initials appear on the drawings).

The Consultant shall provide the following construction phase services as requested by the DCEO:

1. Attend meetings including the preconstruction meeting, job progress meetings, partnering meetings if applicable, and other meetings as requested.
2. In conjunction with job progress meetings or as requested, visit the job site at appropriate intervals to monitor critical areas of the work and advise the DCEO of any conditions that would affect the work.
3. If authorized, provide on-site geotechnical support for construction of geotechnical complex systems.
4. Respond to questions and visit the job site on an as needed basis.
5. Assist the DCEO in evaluation of change orders or claims.
6. If directed by the DCEO, replace right of way monumentation destroyed by the Contractor's construction operations. Monuments shall be $\frac{3}{4}$ inch diameter steel rod, 30 inches long, with an aluminum cap having a minimum diameter of 1 $\frac{1}{2}$ inch, stamped ODOT R/W and bearing the surveyor's Ohio Registration Number and name, and/or company name. In order to support the DCEO's efforts in recovering costs from the Contractor, maintain separate cost accounting records for this work.

Centerline Adjustable Monument Assemblies shown on the Recorded Centerline Plat shall be set by the consultant at an appropriate stage of construction, as directed by the DCEO. After construction of the Centerline Adjustable Monument Assemblies by the contractor, the Consultant shall set the iron pin and cap in the Centerline Adjustable Monument Assembly Box. All centerline monuments, reference monuments and right of way monuments shall conform to Standard Construction Drawing RM-1.1 (pages 1 and 2)

7. Attend the post construction meeting and prepare minutes of the meeting including a discussion of preventable change orders.

Compliance with Health and Safety Requirements

For Consultant personnel visiting the site, the Consultant shall be responsible for compliance with applicable health and safety requirements including OSHA requirements (CFR 29-1926), and medical testing required by OSHA and DCEO rules and regulations.

The Consultant shall provide, as a minimum, the same level of safety equipment as required for DCEO inspectors. Consultant personnel shall be subject to compliance inspections by DCEO personnel.

Responsibilities of the DCEO:

1. The DCEO Project Manager for the design agreement will remain as the point of contact for the consultant during the construction phase
2. DCEO construction personnel may contact the consultant directly regarding any plan questions or interpretations, but the DCEO Project Manager for the design agreement will be notified of all such communications.
3. The DCEO will advise the consultant in writing of any potential errors or omissions which must be corrected without undue delay and without additional costs to the County.
4. The DCEO will direct the consultant to set the iron pin and cap in the Adjustable Monument Assembly Boxes at an appropriate stage of construction.

12. Exceptions/Clarification from Manuals

Delaware County Supplement to the ODOT Location and Design Manual, Bridge Design Manual, CADD Standards Manual, and Traffic Engineering Manual incorporated by reference URL: <https://engineer.co.delaware.oh.us/drp/>

13. Existing Documents (Provided to Selected Consultant After Selection Only)

Addison Farms Traffic Impact Study (April 2023)

14. Attachments (Attached to the Scope of Services)

Scope Narrative

15. Task List

To be developed by Consultant as part of fee proposal

C-R-S: DEL CR 7 1.99

Scope Narrative

General Information:

County: Delaware County

PID#: 2404

Description: The Consultant's services include preparation of final construction and right of way plans for a new single-lane modern roundabout with minimal approach work.

Traffic Analysis:

No traffic analysis is required for this project. Design designation shall be as follows. No roundabout operational analysis will be required.

Design Designation:

	Troy Road	Hills-Miller Road
Current ADT (2024)	2210	2750
Design Year ADT (2048)	3890	5280
DHV (2048)	400	540
Directional Distribution	60%	60%
Trucks (24 Hour B&C)	5%	4%
Design Speed:	45 mph	55 mph
Legal Speed	45 mph	55 mph
Current Functional Classification	N/A	Rural Local
Design Functional Classification	Urban Minor Collector	Rural Minor Collector

Design Exceptions:

None

Survey Parameters:

Based on NGS monuments located near the project location, estimated difference in grid to ground measurements is less than 20 parts per million resulting in an absolute difference of less than 0.02 feet from extreme ends of project limits. At the surveyor’s option, project may be base mapped and designed on state plane coordinates. Ohio North Zone should be used. If the Ohio/Delaware County Low Distortion Projection (LDP) has been implemented and available for use by the time of field survey, the LDP coordinate system may be used.

Plan Sheets:

The following plan sheets are anticipated.

Title Sheet (1) Schematic Plan (1) Roundabout Geometry (1) Typical Sections (2) General Notes (2) Maintenance of Traffic Notes (2) Detour Plan (1) General Summary (2) Estimated Quantities (2) Drainage Subsummary (1) Plan and Profile at 20 scale (4)	Roundabout Plan (1) Cross Sections at 50’ Plus Driveway Profiles (8) Intersection Detail (4) Splitter Island Details (4) Reference Line Profiles (4) Driveway Subsummary (1) Right of Way Legend Sheet (1) Summary of Additional ROW (1) ROW Topo Sheets at 20 scale (5) ROW Boundary Sheets at 20 scale (5)
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Total Estimated Plan Sheets: 53±

Cross Section:

Lane Width	12’
Treated Shoulder Width	2’ paved (full depth)
Total Shoulder Width	8’ (2’ paved, 6’ graded turf)
Curb Type:	Type 2 at roundabout approaches
Guardrail Type	Do not use guardrail
Maximum Foreslope	4:1
Maximum Backslope	4:1

Pavement:

Consultant should consider widening and overlay of approaches in lieu of full depth reconstruction where no profile adjustment is needed, in order to reduce cost and simplify access to work zone residences. Planing/milling of existing asphalt is not desired due to lack of thickness of existing asphalt.

Pavement buildup for full depth sections:

- 1 1/4" Item 441, Asphalt Concrete Surface Course, Type 1 (448), PG64-22
- Item 407 Tack Coat @ 0.04 gal/sy
- 1 3/4" Item 441, Asphalt Concrete Surface Course, Type 2 (448), PG64-22
- Item 407 Tack Coat @ 0.075 gal/sy
- 7" Item 302, Asphalt Concrete Base
- Item 408 Prime Coat @ 0.4 gal/sy
- 6" Item 304, Aggregate Base

Roadside:

Consultant shall consider use of enclosed ditches (storm sewer and catch basins) in the NE and NW quadrants of the intersection to minimize the ROW limits and lessen the depth of roadside ditches. Do not exceed an open ditch depth of 3 feet measured vertically from the edge of pavement.

Existing leach fields are expected within the areas of proposed roadside work. Consultant shall research Delaware General Health District records and delineate leach fields.

Roundabout:

Proposed roundabout shall be a single lane. Geometric design of roundabout should generally conform to sample plans provided by DCEO with preferred 130 to 140' inscribed circle diameter.

Lighting:

Provide lighting design in general conformance with sample plans provided by DCEO. Photometric analysis not required if the spacing of poles is less than 175 feet and poles are located in the typical configuration of the sample plans provided. Lighting shall be designed in accordance with DCEO's Design Resource Page.

Traffic Control:

Provide notes per the DCEO Design Resource Page and from sample plans provided by DCEO for sign sheet and sign support material types. Specify 5-inch pavement markings for centerlines and edge lines.

Maintenance of Traffic:

A full closure with detour plan is anticipated to be the preferred MOT method for roundabout construction.

Hydraulics:

Standards: Hydrologic and hydraulic analysis should be performed in accordance with ODOT L&D Volume 2.

Conduit Material Type: Culvert and storm sewer material preference should be as per the DCEO Supplement to the ODOT L&D Manual.

Geotechnical:

Soil Borings and Geotechnical Investigation: Not required

Pavement Design: The Consultant shall use the pavement design specified above.

Environmental:

No jurisdictional wetland or stream impacts are anticipated. DCEO may direct the consultant to provide an encumbrance of funds in the fee proposal for if-authorized environmental studies.

Utilities:

Consultant shall ensure that overhead utilities (electric and telecom) have feasible locations within new or existing public right of way to relocate poles and that overhead utilities do not conflict with proposed light poles. A preliminary layout of relocated utilities should be done during geometric layout of the roundabout. Detailed design of utilities is not required, but conceptual location of new and existing poles and above ground structures should be noted in the preliminary roundabout plan to ensure feasibility of the design.

Public Involvement:

Consultant shall prepare electronic versions of project maps showing proposed work limits and shaded right of way limits in PDF or image format. DCEO anticipates direct mailing to affected property owners and a project information web page hosted on the DCEO website.

Right of Way Design:

Consultant shall specify WD right of way for parcels to be acquired in the name of the Delaware County Board of Commissioners where appropriate. TMP parcels for a duration of 24 months shall be used to minimize the extent of permanent ROW where tie-in grading is required and no significant change to the grading of such areas results from the project.

Addison Farms Traffic Impact Study Appendices A-G

Prepared For:

Addison Properties

Prepared By:



1900 Crown Park Court, Suite E
Columbus, OH 43235
(614) 914-5543
www.SmartServices-Inc.com

INITIAL: 4/2023

SSI Project #: 823201

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APPENDIX A
MOU (No attachments)
TIS Review Comments

Todd Stanhope

From: Jon Roseler <jroseler@delawareohio.net>
Sent: Monday, November 28, 2022 10:56 AM
To: Todd Stanhope
Cc: Carrie Fortman; 'Jeff Shafer'; Burkhart, Brian
Subject: RE: Addison Farms TIS - Final MOU

Todd,

This MOU looks good, the City has no further comments.

Thanks,

Jon Roseler, P.E.

Project Engineer
City of Delaware
740-203-1713

From: Todd Stanhope <TStanhope@smartservices-inc.com>
Sent: Wednesday, November 23, 2022 3:52 PM
To: Jon Roseler <jroseler@delawareohio.net>
Cc: Carrie Fortman <cfortman@delawareohio.net>; 'Jeff Shafer' <jeff@addisonprops.com>; Burkhart, Brian <bburkhart@cecinc.com>
Subject: RE: Addison Farms TIS - Final MOU

Caution! This message was sent from outside your organization.

Jon

Per our conversation this afternoon, we have incorporated #1 and #3 into the MOU and it is attached. Our understanding is once the City approves/accepts the MOU, we will send it out to ODOT and the DCEO for final approval.

Have a good Holiday weekend.

TODD STANHOPE, PE, PTOE
SMART SERVICES
DIRECTOR OF TRAFFIC ENGINEERING

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From: Jon Roseler <jroseler@delawareohio.net>
Sent: Wednesday, November 23, 2022 1:44 PM
To: Todd Stanhope <TStanhope@smartservices-inc.com>
Cc: Carrie Fortman <cfortman@delawareohio.net>
Subject: RE: Addison Farms TIS - Final MOU

Hey Todd,

Tried to call you. It sounds like Bill and Jason spoke yesterday to discuss the Addison project including these comments. Just wanted to touch base to make sure we were on the same page regarding the MOU. In brief summary:

1. Intersection 155 to subarea F may be modeled as a RIRO to begin with. The asterisk should remain.
2. Intersection 180 to subarea G may be modeled as a Ri to begin with. The asterisk should remain.
3. Revise growth rates to match NWACA.
4. Revise MOU and resubmit for hopefully the final iteration.

Thanks,

Jon Roseler, P.E.
Project Engineer
City of Delaware
740-203-1713



November 23, 2022

Ms. Carrie F. Fortman, PE
City of Delaware
Department of Engineering Services
440 E. William Street
Delaware, OH 43015

Mr. Michael Love, PE, PTOE
Delaware County Engineer's Office
50 Channing Street
Delaware, OH 43015

Mr. Andrew Hurst, PE
Ohio Department of Transportation District 6
400 E. William Street
Delaware, OH 43015

Re: Addison Farms TIS MOU
City of Delaware, Delaware County, Ohio

Dear Carrie / Mike / Andrew:

Please consider this letter as a Memo of Understanding (MOU) for the traffic impact study (TIS) required for the subject site. Addison Properties is proposing to develop an approximately 273-acre site on the north side of Delaware. The subject site is proposed to be developed with single family homes, multifamily units, and commercial lots. The site is generally bounded by Troy Road on the west, Hills-Miller Road on the north, US 23 on the east, and Pennsylvania Avenue. The permitting agency for all accesses is the City of Delaware.

The starting point for the TIS is Overall Preliminary Development Plan dated 11/1/2022 which is attached. As typical with development projects, the site plan has refinements through the development process. It is understood that the final TIS will have to reflect any access refinements or significant land use changes that occur during the development process. For efficient coordination, the developer prefers to receive comments directly from each permitting agency so this version of the MOU is being sent to all permitting agencies.

The overall site plan considers pedestrian connectivity. Attached is an exhibit produced by WatcCon showing the current plan for pedestrian connectivity/accommodations on the site.

Background traffic for the City and DCEO intersections within the TIS will be referenced from the traffic produced in the *Northwest Area Corridor Analysis*

APPROVED

By Jessica Ormeroid at 12:10 pm, Nov 28, 2022

APPROVED

By mlove at 3:00 pm, Nov 28, 2022

(NWACA) prepared by Carpenter Marty Transportation (CMT). The one exception to that is what was assumed for Addison Farms in NWACA will need to be deducted since more refined site traffic will be developed as part of the subject TIS. It is our understanding that the City has CMT under contract for review. Given this and that Merrick Parkway is on the City thoroughfare plan, it is assumed that CMT could provide any supplemental exhibits from the NWACA data. The purpose of this would be to make production of the TIS and review of the TIS as efficient as possible.

Based upon past work in the City of Delaware and a scoping meeting held on 4/27/2022 at the City of Delaware, initial review of the TIS, and subsequent conversations; the following is the scope of the TIS:

- Table A shows the speed limit and classification for the roadways in the study area.

STREET	SPEED LIMIT	DESIGN SPEED	CLASSIFICATION
Merrick Parkway	Not to exceed 35 MPH	40 MPH	*Minor Arterial **Minor Arterial
Heritage Boulevard	Not to exceed 25 MPH	30 MPH	*Collector
Hills Miller Road	35 MPH (within City limits)	40 MPH (within City limits)	**Major Collector ***Major Collector
	Unposted (outside City limits)	55 MPH (outside City limits)	**Major Collector ***Major Collector
Panhandle Road	35 MPH	35 MPH	**Major Collector ***Local
Troy Road	35 MPH (within City limits)	40 MPH (within City limits)	**Minor Arterial ***Minor Collector
	Unposted (outside City limits)	55 MPH (outside City limits)	**Minor Arterial ***Minor Collector
US 23	45 MPH	50 MPH	**Major Arterial ***Principal Arterial

*=City Classification

**= Delaware County Thoroughfare Plan Classification

***=ODOT Functional Classification

TABLE A - Summary of Roadway Designations

The time of analysis will be the weekday AM Peak hour (one hour between 7 and 9 AM) and the PM Peak hour (one hour between 4 and 6 PM).

- The study area includes the intersections listed in Tables B1 and B2.
- Data Collection: The basis of counted traffic in each peak hour will be as noted in Table B1. ODOT requires a Design hour Factor (DHF) for intersections on US 23. The DHF is listed in Table D2 in a later section.

INTERSECTION (Jurisdiction, Traffic Control)	SOURCE	AM PEAK HOUR	PM PEAK HOUR
6749 - Troy Road & Pennsylvania Avenue (City, Traffic Signal)	Carpenter Marty Transportation	9/15/2020 7:00-8:00 AM	9/15/2020 5:00-6:00 PM
4757 - Troy Road & Hills-Miller Road (DCEO, "Stop" signs on Hills-Miller Rd)	Carpenter Marty Transportation	3/16/2021 7:00-8:00 AM	3/16/2021 4:00-5:00 PM
310-Hills-Miller Road at Fut. Heritage Boulevard (DCEO, NA)	NA Carry from Adj. Intersections	NA	NA
5405 - Hills-Miller Road & Oakhurst Drive (City, "Stop" Sign on Oakhurst Dr)	Smart Services, Inc.	5/19/2022 7:15-8:15 AM	5/19/2022 4:30-5:30 PM
320 - Hills-Miller Road & Bruce Drive (City, "Stop" Sign on Bruce Dr)	Smart Services, Inc.	5/19/2022 7:15-8:15 AM	5/19/2022 4:45-5:45 PM
1341 - US 23 & Hills-Miller Road (City, Traffic Signal)	Carpenter Marty Transportation	Thur, 3/11/2021 #7:45-8:45 AM	Thur, 3/11/2021 #4:30-5:30 PM
7876 - US 23 & McDonald's AKA Sheetz Drive (City, Traffic Signal)	Carpenter Marty Transportation	Tue, 11/30/2021 #7:45-8:45 AM	Tue, 11/30/2021 #4:30-5:30 PM
1375 - US 23 & Merrick Parkway/Panhandle Road (City, Traffic Signal)	Carpenter Marty Transportation	Tue, 11/30/2021 #7:45-8:45 AM	Tue, 11/30/2021 #4:30-5:30 PM
4840 - US 23 & Pinecrest Drive Turns Only (ODOT, "Stop" Sign on Pinecrest Dr.)	Smart Services, Inc.	3/23/2022 #7:45-8:45 AM	3/23/2022 #4:30-5:30 PM
4775 - Pennsylvania Avenue & Heritage Boulevard (City, "Stop" Signs on Heritage Blvd.)	Smart Services, Inc.	3/23/2022 6:45-7:45 AM	3/23/2022 3:45-4:45 PM
4832 - Pennsylvania Avenue & Executive Parkway (City, "Stop" Signs on Executive)	Smart Services, Inc.	3/23/2022 6:45-7:45 AM	3/23/2022 3:45-4:45 PM
9000 - Troy Road & Merrick Parkway (Fut. Single Lane Roundabout)	Smart Services, Inc.	Background plus Site Assignment	Background plus Site Assignment
9010 - Heritage Boulevard & Rutherford Avenue (City, "Stop" Signs on Heritage Blvd.)	Smart Services, Inc.	10/04/2022 6:45-7:45 AM	10/04/2022 *3:45-4:45 PM
9020 - Executive Parkway & Rutherford Avenue (City, "Stop" Signs on Executive Pkwy.)	Smart Services, Inc.	3/23/2022 7:00-8:00 AM	3/23/2022 5:00-6:00 PM

#=Directed by ODOT in a 10/21/2022 email. The referenced email is attached for reference.

*=Used 3:45-4:45 PM because only six vehicles less than peak.

TABLE B1 - Jurisdiction, Traffic control, and Counted Traffic Basis for Off-site intersections.

INTERSECTION	SOURCE	AM PEAK HOUR (One Hour between 7 and 9 AM)	PM PEAK HOUR (One Hour between 4 and 6 PM)
100 - Merrick Parkway & Sub Area B Access	Background plus Site Assignment	NA	NA
110 - Merrick Parkway & Heritage Boulevard	Background plus Site Assignment	NA	NA
130 - Merrick Parkway & Sub Area C Street B	Background plus Site Assignment	NA	NA
140 - Merrick Parkway & Sub Area E (E)	Background plus Site Assignment	NA	NA
150 - Merrick Parkway & Bruce Road/Woodhaul Drive	Background plus Site Assignment	NA	NA
*155 - Merrick Parkway & Subarea F Access (Right-In/Right-out)	Background plus Site Assignment	NA	NA
160 - Merrick Parkway & Commercial Access Road	Background plus Site Assignment	NA	NA
*180 - US 23 & Sub Area G (Right-In)	Background plus Site Assignment	NA	NA
210 - Bruce Road & Subarea E (NE)	Background plus Site Assignment	NA	NA
#900 - Heritage Boulevard & Subarea C Street G	Background plus Site Assignment	NA	NA
#910 - Heritage Boulevard & Subarea C Street B	Background plus Site Assignment	NA	NA
920 - Heritage Boulevard & Subarea C Street A/ Subarea D Street D	Background plus Site Assignment	NA	NA
930- Heritage Boulevard & Subarea E Access (NW)/ Subarea A Street E	Background plus Site Assignment	NA	NA
#940 - Heritage Boulevard & Kennington Drive/ Subarea H Street A	Background plus Site Assignment	NA	NA
#950 - Heritage Boulevard & Sylvan Drive	Background plus Site Assignment	NA	NA
#960 - Heritage Boulevard & Subarea A - H Node	Background plus Site Assignment	NA	NA

*=The developer prefers to have further discussion of these access points when the site plan is submitted for review. The developer understands that approval/acceptance of the MOU is not an approval of these access points.

#=Analysis not required at these intersections but listed since it is a network loading point.

TABLE B2 - Ex. Traffic Basis for internal intersections.

- Trip Generation - Site traffic is computed using *Trip Generation Manual, 11th Edition* published by ITE. Table C1 attached shows the overall trip generation calculations. Table C2 attached shows the trip generation by subarea. The developer reserves the right to revise the trip generation if the site plan is refined during the development process. Below are some notes about the process:
 - Note that the trip generation calculations for “Single-Family Detached Housing (ITE Code #210) and “Multifamily Housing (Low Rise)” (ITE Code #220) were calculated for the Addison Farms total for all subareas. From this an Addison Farms trip rate was established and utilized in Table C2, so that the summation of trips from each subarea would match the total trips in Table C1.
 - For subarea G-1, a shopping center was assumed. With *Trip Generation Manual, 11th Edition*, the previous “Shopping Center” land use was segmented into three separate land uses (ITE Codes 820, 821, & 822) based on the size of the shopping center. The “Strip Retail Plaza (<40K)” (ITE Code #822) did not exist prior to the *Trip Generation Manual, 11th Edition*. Average pass-by percentages are typically obtained from the *Trip Generation Handbook*. The current edition of the *Trip Generation Handbook* is the 3rd Edition and was published prior to the *Trip Generation Manual, 11th Edition*. Therefore, the average pass-by rate of 34% was obtained from “Shopping Center”, land use 820 since the “Shopping Plaza” land use did not exist.
- Trip Distribution (Primary Traffic) - Smart Services collected traffic counts at the three accesses to the residential area to the south of the site. 7-9 AM and 4-6 PM volumes for entering and existing vehicles were assessed for orientation of traffic to the gateways. (Gateways for the TIS are outside the area bounded by Hills-Miller Road on the north, US 23 on the east, Pennsylvania Avenue on the south, and Troy Road on the west.) Distributions at off-site intersections will be affected by the specific location of the subarea and with each horizon year condition and the ultimate background scenario used in the assignment
- Internal capture for the site will not be considered because traffic assignment is needed on streets through the development such as Merrick Parkway and Heritage Boulevard. Instead, residential traffic oriented to and from the commercial area was estimated. The resulting distributions in each peak hour are as follows:

Residential AM & PM

- 5% - To/From the Addison Farms Commercial Area
- 8% - To/From west of Troy Road on Hills Miller Road
- 10% - To/From north of Hills Miller Road on US 23
- 50% - To/From south of Pennsylvania Avenue on US 23
- 22% - To/From south of Pennsylvania Avenue on Troy Road
- 5% - To/From east on Panhandle Road

Commercial AM & PM

- 8% - To/From west of Troy Road on Hills Miller Road
- 10% - To/From north of Hills Miller Road on US 23
- 55% - To/From south of Pennsylvania Avenue on US 23
- 22% - To/From south of Pennsylvania Avenue on Troy Road
- 5% - To/From east on Panhandle Road

The pass-by percentage was assigned to the access points with the same distribution as the existing US 23 traffic north of Merrick Parkway. The resulting distribution is as follows (the calculations are in parenthesis):

Commercial Pass-By - AM Peak

- 57% north to south (SB) on US 23 $[1217/(917+1217)]$
- 43% south to north (NB) on US 23 $[917/(917+1217)]$

Commercial Pass-By - PM Peak

- 45% north to south (SB) on US 23 $[1155/(1401+1155)]$
- 55% south to north (NB) on US 23 $[1401/(1401+1155)]$

- Design Year Traffic Development -Based on the preliminary trip generation calculations, the DCEO and City standards require a 20-year design horizon. Opening Day will be assumed to be 2024, therefore, the design year is 2044. Regardless of the year the improvement is needed, the City will expect construction of improvements associated with an access when the access is constructed. The following scenarios will be analyzed:
 - Opening Day with Subarea C and D. (Only Heritage Boulevard extended so Hills-Miller & Heritage Boulevard and Pennsylvania Avenue & Heritage Boulevard.)
 - 2034 Full Development with Merrick Pkwy. not extended to Troy Rd.
 - 2044 Full Development with Merrick Pkwy. extended to Troy Rd.
- Proposed growth rates from various sources were compiled. Also for the US 23 intersections, the DHF for each road based on the 2018 peak hour to design hour Factors which are attached. Tables D1, D2, and D3 show the growth rates and corresponding factors applied to the 2020, 2021 and 2022 counts respectively. Table D2 also shows the DHF.

INTERSECTION	APPROACH	LINEAR ANNUAL GROWTH RATE	2021 TO 2024 FACTOR	2021 TO 2034 FACTOR	2021 TO 2044 FACTOR
*6749-Troy Road & Pennsylvania Avenue	*Troy Road	2.5%	NA	1.350	1.600
	*Pennsylvania Avenue	2.5%	NA	1.350	1.600
	Troy Road SB to EB Pennsylvania Avenue	3.00%	NA	1.420	1.720
	Pennsylvania Avenue WB to Troy Road NB	3.00%	NA	1.420	1.720
9000-Troy Road & Merrick Parkway	Troy Road	2.5%	NA	1.350	1.600

*=Except for movements below.

TABLE D1 – 2020 Count Growth Factor Summary

INTERSECTION	APPROACH	DHF	LINEAR ANNUAL GROWTH RATE	2021 TO 2034 FACTOR	2021 TO 2044 FACTOR
1341-US 23 & Hills-Miller Road	US 23	1.13	0.90%	1.117	1.207
	Hills-Miller Road	1.23	2.50%	1.325	1.575
7876-US 23 & McDonald's/Wendy's	US 23	1.12	0.90%	1.117	1.207
	McDonald's /Wendy's	NA	NA	NA	NA
1375-US 23 & Panhandle Road	US 23	1.12	0.90%	1.117	1.207
	Panhandle Road	NA	2.50%	1.325	1.575
1341-Troy Road & Hills-Miller Road	Troy Road	NA	2.50%	1.325	1.575
	Hills-Miller Road	NA	2.50%	1.325	1.575

TABLE D2 – 2021 Count Growth Factor Summary

INTERSECTION	APPROACH	LINEAR ANNUAL GROWTH RATE	2021 TO 2024 FACTOR	2021 TO 2034 FACTOR	2021 TO 2044 FACTOR
310-Hills-Miller Road & Fut. Heritage Boulevard	Hills-Miller Road	2.50%	1.050	1.300	1.550
320-Hills-Miller Road & Bruce Road	Hills-Miller Road	2.50%	1.050	1.300	1.550
4775 – Pennsylvania Ave & Heritage Boulevard	Pennsylvania Avenue	2.50%	1.050	1.300	1.550
4832 – Pennsylvania Ave & Executive Boulevard	Pennsylvania Avenue	2.50%	1.050	1.300	1.550
4840 – US 23 & Pinecrest Drive (Turns Only)	Pinecrest Drive	NA	NA	NA	NA
5405-Hills-Miller Road & Oakhurst Drive	Hills-Miller Road	2.50%	1.050	1.300	1.550

TABLE D3 – 2022 Count Growth Factor Summary

- Background traffic for Committed Conditions was included in the Background Conditions in 2034 and 2044 as shown in the *Northwest Arterial Corridor Analysis*. The City has directed to use NWACA Scenario E for background traffic adjustments. Tables E1 and E2 show the additional development considered in 2034 and 2044 respectively and the percentage of developments considered. Relevant exhibits from *NWACA* will be in the TIS Appendix for reference.

FIG REF	DESCRIPTION	REFERENCE	YEAR 2034 PROJECTION
B	Adjustments to Existing By-Pass Traffic for Committed Conditions	NWACA AM Peak: C1+W1 PM Peak: C2+W2	100%
C	Adjustments to Existing Residential Traffic for Committed Conditions	NWACA AM Peak: D1+X1 PM Peak: D2+X2	100%
D	Committed Conditions Background Development Traffic	NWACA AM Peak: E1+Y1 PM Peak: E2+Y2	100%
E	Removal of Addison Farms Background Traffic	NWACA AM Peak: -(E1 Blue) PM Peak: -(E2 Blue)	100%

TABLE 5A – 2034 Committed Condition Assumptions

FIG REF	DESCRIPTION	REFERENCE	YEAR 2044 PROJECTION
B	Adjustments to Existing By-Pass Traffic for Committed Conditions & Scenario E Adjustments	NWACA AM Peak: C1+W1 PM Peak: C2+W2	100%
C	Adjustments to Existing Residential Traffic for Committed Conditions & Scenario E Adjustments	NWACA AM Peak: D1+X1 PM Peak: D2+X2	100%
D	Committed Conditions Background Development Traffic & Scenario E Adjustments	NWACA AM Peak: E1+Y1 PM Peak: E2+Y2	100%
E	Removal of Addison Farms Background Traffic	NWACA AM Peak: - (E1 Blue) PM Peak: - (E2 Blue)	100%
F	Removal of Addison Farms Scenario E Adjustments	NWACA Supplemental Info Provided by CMT	100%

TABLE 5B – Committed Condition Assumptions

- Diverted Traffic will be considered at the following locations.
 - US 23 & Pinecrest Drive will convert to RO or RIRO. TIS will assume RI/RO.
 - Existing traffic at Hills Miller Road & Bruce Road will have potential to divert with new street connections.
 - Existing traffic at Hills Miller Road & Oakhurst Drive will have potential to divert with new street connections.

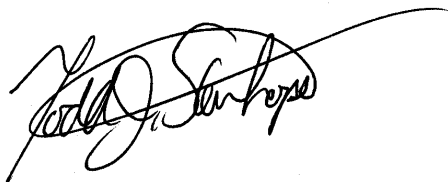
- Some existing traffic on Heritage Boulevard and Executive Drive oriented to US 23 north would divert with a north orientation on Heritage Boulevard.
- Analyses
 - Turn lane warrant analyses per *ODOT L&D Manual* will be performed at unsignalized site accesses within City and ODOT jurisdiction except as noted in Table B2. Turn lane warrant analyses in the jurisdiction of the Delaware County Engineer's Office will be performed per the *DCEO TIS Standards*. These will only be assessed for 2044 and would be constructed Opening Day unless the developer and City agree to phasing them.
 - The length of any warranted or required turn lanes will be calculated per Section 400 of the *ODOT L&D Manual* with the design speed.
 - Capacity analyses for the 2034 and 2044 'No Build' and 'Build' will be performed at the study area intersections in Table B1 (except as noted) using *Synchro* for the City of Delaware and DCEO. Intersections in ODOT's jurisdiction will require analysis with *HCS 2023*.
 - Two-way stop, all-way Stop, and signalized capacity analyses for the 2044 'No Build' (if applicable) and 'Build' will be performed at the study area intersections in Table B2 (unless roundabout proposed or otherwise noted) using *Synchro* for the City of Delaware and DCEO intersections.
 - Roundabout capacity analyses will be performed at the study area intersections that roundabouts are existing or proposed in Table B2 using *HCS2023* for the City of Delaware and DCEO intersections.
 - All-way Stop Warrants will be performed at the intersections of Heritage Boulevard & Rutherford Avenue and Executive Parkway & Rutherford Avenue.
 - Intersection sight distance exhibits will be provided for proposed access points.

A report will be produced that includes the detail regarding how traffic was developed for 2024, 2034, and 2044. The required analyses will be referenced and prepared for 'No Build' (when applicable) and 'Build' conditions to show the impact of the additional site traffic. A summary of the conclusions and list of any improvements associated with the development will be provided.

If this MOU is acceptable to you, please indicate your approval in the space provided below. If not, please let us know what items need to be changed. If you have any questions, please contact me. Thank you!

Sincerely,

SMART SERVICES, INC.



Todd J. Stanhope, PE, PTOE
Director of Traffic Engineering

Submitted: One electronic copy (PDF format) via e-mail

Cc: J. Shafer - Addison Properties

City of Delaware

Approved: _____ Date: _____

Delaware County Engineer's Office

Approved: _____ Date: _____

Ohio Department of Transportation

Approved: _____ Date: _____

APPENDIX B

Traffic Counts

From: Andrew.Hurst@dot.ohio.gov
To: [Todd Stanhope](#); [Carrie Fortman](#)
Cc: [Jon Roseler](#); Jessica.Ormeroid@dot.ohio.gov; [Jeff Shafer](#); [Gina Balsamo](#); [Brian Burkhart](#); [Drew Laurent](#); [Michael A. Love \(mlove@co.delaware.oh.us\)](mailto:Michael A. Love (mlove@co.delaware.oh.us))
Subject: RE: Addison Farms - ODOT MOU Coordination
Date: Friday, October 21, 2022 10:03:07 AM
Attachments: [image001.png](#)

Use 7:45-8:45 for the AM peak and 4:30-5:30 for the PM peak. This corresponds to the global peak hour for US 23.

The growth rates and DHV factors are acceptable.

From: Todd Stanhope <TStanhope@smartservices-inc.com>
Sent: Wednesday, October 19, 2022 8:15 AM
To: Carrie Fortman <cfortman@delawareohio.net>
Cc: Jon Roseler <jroseler@delawareohio.net>; Ormeroid, Jessica <Jessica.Ormeroid@dot.ohio.gov>; Hurst, Andrew <Andrew.Hurst@dot.ohio.gov>; Jeff Shafer <jeff@addisonprops.com>; Gina Balsamo <gbalsamo@cmtran.com>; Brian Burkhart <bburkhart@cecinc.com>; Drew Laurent <dlaurent@cmtran.com>; Michael A. Love (mlove@co.delaware.oh.us) <mlove@co.delaware.oh.us>
Subject: Addison Farms - ODOT MOU Coordination

Carrie

To follow up the meeting yesterday with ODOT, attached is a Pre Rev MOU Worksheet that contains supporting information and questions for ODOT regarding the US 23 intersections. Once we receive ODOT's directions on these items, they will be incorporated into a revised TIS MOU.

Thank you.

TODD STANHOPE, PE, PTOE
SMART SERVICES
DIRECTOR OF TRAFFIC ENGINEERING

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📍 1900 Crown Park Ct, Columbus, OH 43235
☎ OFFICE 614.914.5543 FAX 740.522.4706
🌐 SmartServices-Inc.com



CAUTION: This is an external email and may not be safe. If the email looks suspicious, please do not click links or open attachments and forward the email to csc@ohio.gov or click the Phish Alert Button if available.

US-23 and Hills-Miller Road - TMC

Thu Mar 11, 2021

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819785, Location: 40.332071, -83.073641

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2021-03-11 12:00AM	1	2	0	3	13	48	0	61	36	1	0	37	101
12:15AM	6	1	0	7	3	44	0	47	25	1	0	26	80
12:30AM	3	1	0	4	8	45	0	53	20	1	0	21	78
12:45AM	0	1	0	1	4	33	0	37	15	0	0	15	53
Hourly Total	10	5	0	15	28	170	0	198	96	3	0	99	312
1:00AM	1	1	0	2	3	31	0	34	31	1	0	32	68
1:15AM	3	0	0	3	3	42	0	45	32	1	0	33	81
1:30AM	1	2	0	3	3	38	0	41	23	2	0	25	69
1:45AM	3	0	0	3	2	26	0	28	22	0	0	22	53
Hourly Total	8	3	0	11	11	137	0	148	108	4	0	112	271
2:00AM	0	0	0	0	3	17	0	20	16	0	0	16	36
2:15AM	2	0	0	2	3	25	0	28	17	3	0	20	50
2:30AM	0	4	0	4	3	22	0	25	15	0	0	15	44
2:45AM	0	3	0	3	2	19	0	21	12	0	0	12	36
Hourly Total	2	7	0	9	11	83	0	94	60	3	0	63	166
3:00AM	1	0	0	1	3	15	0	18	30	0	0	30	49
3:15AM	0	0	0	0	2	19	0	21	20	0	0	20	41
3:30AM	3	4	0	7	1	20	0	21	25	0	0	25	53
3:45AM	2	3	0	5	1	19	0	20	15	1	0	16	41
Hourly Total	6	7	0	13	7	73	0	80	90	1	0	91	184
4:00AM	4	1	0	5	3	24	0	27	18	1	0	19	51
4:15AM	3	1	0	4	3	20	0	23	25	0	0	25	52
4:30AM	3	2	0	5	1	22	0	23	23	1	0	24	52
4:45AM	3	3	0	6	2	35	0	37	43	0	0	43	86
Hourly Total	13	7	0	20	9	101	0	110	109	2	0	111	241
5:00AM	0	4	0	4	1	29	0	30	37	1	0	38	72
5:15AM	1	4	0	5	1	24	0	25	47	1	0	48	78
5:30AM	2	6	0	8	4	36	0	40	71	1	0	72	120
5:45AM	2	4	0	6	6	48	0	54	83	1	0	84	144
Hourly Total	5	18	0	23	12	137	0	149	238	4	0	242	414
6:00AM	6	10	0	16	2	45	0	47	74	2	0	76	139
6:15AM	1	16	0	17	5	54	0	59	114	2	0	116	192
6:30AM	9	19	0	28	9	51	0	60	118	0	0	118	206
6:45AM	0	17	0	17	4	75	0	79	128	3	0	131	227
Hourly Total	16	62	0	78	20	225	0	245	434	7	0	441	764
7:00AM	6	24	0	30	12	86	0	98	160	1	0	161	289
7:15AM	8	22	0	30	6	87	0	93	204	6	0	210	333
7:30AM	11	32	0	43	11	152	0	163	246	6	0	252	458
7:45AM	15	40	0	55	23	141	0	164	209	5	0	214	433
Hourly Total	40	118	0	158	52	466	0	518	819	18	0	837	1513
8:00AM	17	40	0	57	14	221	0	235	222	6	0	228	520
8:15AM	20	52	0	72	28	229	0	257	244	7	0	251	580
8:30AM	26	69	0	95	25	221	0	246	247	7	0	254	595
8:45AM	9	47	0	56	29	170	0	199	198	9	0	207	462
Hourly Total	72	208	0	280	96	841	0	937	911	29	0	940	2157
9:00AM	13	47	0	60	25	151	0	176	190	9	0	199	435
9:15AM	10	46	0	56	21	197	0	218	210	7	0	217	491
9:30AM	9	30	0	39	22	187	0	209	193	11	0	204	452
9:45AM	14	32	0	46	22	176	0	198	176	6	0	182	426
Hourly Total	46	155	0	201	90	711	0	801	769	33	0	802	1804
10:00AM	11	28	0	39	16	158	0	174	202	2	0	204	417
10:15AM	17	19	0	36	20	176	0	196	198	3	0	201	433
10:30AM	9	30	0	39	22	179	0	201	205	12	0	217	457
10:45AM	10	31	0	41	26	145	0	171	167	3	0	170	382

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				
Time	L	R	U	App	L	T	U	App	T	R	U	App	Int
Hourly Total	47	108	0	155	84	658	0	742	772	20	0	792	1689
11:00AM	11	32	0	43	8	153	0	161	188	4	0	192	396
11:15AM	5	27	0	32	21	189	0	210	182	4	0	186	428
11:30AM	15	30	0	45	20	185	0	205	208	2	0	210	460
11:45AM	12	30	0	42	22	165	0	187	161	7	0	168	397
Hourly Total	43	119	0	162	71	692	0	763	739	17	0	756	1681
12:00PM	9	31	0	40	27	196	0	223	180	6	0	186	449
12:15PM	22	39	0	61	26	178	0	204	182	5	0	187	452
12:30PM	7	34	0	41	22	195	0	217	190	4	0	194	452
12:45PM	9	34	0	43	30	181	0	211	196	3	0	199	453
Hourly Total	47	138	0	185	105	750	0	855	748	18	0	766	1806
1:00PM	14	33	0	47	34	206	0	240	191	6	0	197	484
1:15PM	11	35	0	46	33	204	0	237	218	3	0	221	504
1:30PM	12	25	0	37	22	189	0	211	232	12	0	244	492
1:45PM	11	25	0	36	27	202	0	229	191	1	0	192	457
Hourly Total	48	118	0	166	116	801	0	917	832	22	0	854	1937
2:00PM	11	32	0	43	24	238	0	262	199	4	0	203	508
2:15PM	13	30	0	43	31	198	0	229	194	8	0	202	474
2:30PM	11	29	0	40	42	207	0	249	186	6	0	192	481
2:45PM	9	29	0	38	24	210	0	234	189	3	0	192	464
Hourly Total	44	120	0	164	121	853	0	974	768	21	0	789	1927
3:00PM	10	27	0	37	37	253	0	290	207	3	0	210	537
3:15PM	17	35	0	52	31	219	0	250	200	3	0	203	505
3:30PM	8	35	0	43	34	222	0	256	265	6	0	271	570
3:45PM	12	28	0	40	45	246	0	291	237	11	0	248	579
Hourly Total	47	125	0	172	147	940	0	1087	909	23	0	932	2191
4:00PM	10	30	0	40	46	259	0	305	213	12	0	225	570
4:15PM	25	37	0	62	26	235	0	261	212	11	0	223	546
4:30PM	13	35	0	48	38	303	0	341	218	10	0	228	617
4:45PM	14	32	0	46	48	308	0	356	265	10	0	275	677
Hourly Total	62	134	0	196	158	1105	0	1263	908	43	0	951	2410
5:00PM	25	25	0	50	53	300	0	353	224	11	0	235	638
5:15PM	23	35	0	58	47	300	0	347	244	12	0	256	661
5:30PM	19	28	0	47	56	290	0	346	263	19	0	282	675
5:45PM	36	36	0	72	46	258	0	304	230	9	0	239	615
Hourly Total	103	124	0	227	202	1148	0	1350	961	51	0	1012	2589
6:00PM	18	28	0	46	52	249	0	301	236	9	0	245	592
6:15PM	16	37	0	53	38	296	0	334	235	12	0	247	634
6:30PM	12	25	0	37	43	280	0	323	230	8	0	238	598
6:45PM	10	37	0	47	32	201	0	233	226	7	0	233	513
Hourly Total	56	127	0	183	165	1026	0	1191	927	36	0	963	2337
7:00PM	11	31	0	42	31	210	0	241	180	8	0	188	471
7:15PM	5	26	0	31	33	186	0	219	171	7	0	178	428
7:30PM	6	25	0	31	37	165	0	202	146	5	0	151	384
7:45PM	19	23	0	42	17	154	0	171	133	5	0	138	351
Hourly Total	41	105	0	146	118	715	0	833	630	25	0	655	1634
8:00PM	7	17	0	24	30	150	0	180	119	6	0	125	329
8:15PM	10	15	0	25	22	135	0	157	121	7	0	128	310
8:30PM	11	8	0	19	24	137	0	161	116	3	0	119	299
8:45PM	8	9	0	17	13	140	0	153	116	1	0	117	287
Hourly Total	36	49	0	85	89	562	0	651	472	17	0	489	1225
9:00PM	5	9	0	14	25	108	0	133	87	1	0	88	235
9:15PM	8	8	0	16	21	98	0	119	86	5	0	91	226
9:30PM	6	6	0	12	24	104	0	128	103	1	0	104	244
9:45PM	3	12	0	15	17	84	0	101	89	2	0	91	207
Hourly Total	22	35	0	57	87	394	0	481	365	9	0	374	912
10:00PM	1	14	0	15	15	111	0	126	82	1	0	83	224
10:15PM	6	12	0	18	14	84	0	98	79	3	0	82	198
10:30PM	5	9	0	14	15	61	0	76	72	1	0	73	163
10:45PM	5	7	0	12	12	64	0	76	71	0	0	71	159

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				
Time	L	R	U	App	L	T	U	App	T	R	U	App	Int
Hourly Total	17	42	0	59	56	320	0	376	304	5	0	309	744
11:00PM	4	6	0	10	10	73	0	83	67	2	0	69	162
11:15PM	5	6	0	11	9	61	0	70	57	2	0	59	140
11:30PM	5	4	0	9	11	55	0	66	53	1	0	54	129
11:45PM	4	3	0	7	11	42	0	53	44	1	0	45	105
Hourly Total	18	19	0	37	41	231	0	272	221	6	0	227	536
Total	849	1953	0	2802	1896	13139	0	15035	13190	417	0	13607	31444
% Approach	30.3%	69.7%	0%	-	12.6%	87.4%	0%	-	96.9%	3.1%	0%	-	-
% Total	2.7%	6.2%	0%	8.9%	6.0%	41.8%	0%	47.8%	41.9%	1.3%	0%	43.3%	-
Lights	746	1853	0	2599	1764	10610	0	12374	10735	399	0	11134	26107
% Lights	87.9%	94.9%	0%	92.8%	93.0%	80.8%	0%	82.3%	81.4%	95.7%	0%	81.8%	83.0%
Articulated Trucks	51	45	0	96	63	2182	0	2245	2083	6	0	2089	4430
% Articulated Trucks	6.0%	2.3%	0%	3.4%	3.3%	16.6%	0%	14.9%	15.8%	1.4%	0%	15.4%	14.1%
Buses and Single-Unit Trucks	52	55	0	107	69	347	0	416	372	12	0	384	907
% Buses and Single-Unit Trucks	6.1%	2.8%	0%	3.8%	3.6%	2.6%	0%	2.8%	2.8%	2.9%	0%	2.8%	2.9%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 and Hills-Miller Road - TMC

Thu Mar 11, 2021

AM Peak (8 AM - 9 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819785, Location: 40.332071, -83.073641

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2021-03-11 8:00AM	17	40	0	57	14	221	0	235	222	6	0	228	520
8:15AM	20	52	0	72	28	229	0	257	244	7	0	251	580
8:30AM	26	69	0	95	25	221	0	246	247	7	0	254	595
8:45AM	9	47	0	56	29	170	0	199	198	9	0	207	462
Total	72	208	0	280	96	841	0	937	911	29	0	940	2157
% Approach	25.7%	74.3%	0%	-	10.2%	89.8%	0%	-	96.9%	3.1%	0%	-	-
% Total	3.3%	9.6%	0%	13.0%	4.5%	39.0%	0%	43.4%	42.2%	1.3%	0%	43.6%	-
PHF	0.692	0.754	-	0.737	0.828	0.918	-	0.911	0.922	0.806	-	0.925	0.906
Lights	63	203	0	266	89	715	0	804	769	28	0	797	1867
% Lights	87.5%	97.6%	0%	95.0%	92.7%	85.0%	0%	85.8%	84.4%	96.6%	0%	84.8%	86.6%
Articulated Trucks	2	1	0	3	2	87	0	89	113	1	0	114	206
% Articulated Trucks	2.8%	0.5%	0%	1.1%	2.1%	10.3%	0%	9.5%	12.4%	3.4%	0%	12.1%	9.6%
Buses and Single-Unit Trucks	7	4	0	11	5	39	0	44	29	0	0	29	84
% Buses and Single-Unit Trucks	9.7%	1.9%	0%	3.9%	5.2%	4.6%	0%	4.7%	3.2%	0%	0%	3.1%	3.9%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 and Hills-Miller Road - TMC

Thu Mar 11, 2021

Midday Peak (12 PM - 1 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819785, Location: 40.332071, -83.073641

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2021-03-11 12:00PM	9	31	0	40	27	196	0	223	180	6	0	186	449
12:15PM	22	39	0	61	26	178	0	204	182	5	0	187	452
12:30PM	7	34	0	41	22	195	0	217	190	4	0	194	452
12:45PM	9	34	0	43	30	181	0	211	196	3	0	199	453
Total	47	138	0	185	105	750	0	855	748	18	0	766	1806
% Approach	25.4%	74.6%	0%	-	12.3%	87.7%	0%	-	97.7%	2.3%	0%	-	-
% Total	2.6%	7.6%	0%	10.2%	5.8%	41.5%	0%	47.3%	41.4%	1.0%	0%	42.4%	-
PHF	0.534	0.885	-	0.758	0.875	0.957	-	0.959	0.954	0.750	-	0.962	0.997
Lights	40	126	0	166	94	575	0	669	589	16	0	605	1440
% Lights	85.1%	91.3%	0%	89.7%	89.5%	76.7%	0%	78.2%	78.7%	88.9%	0%	79.0%	79.7%
Articulated Trucks	4	7	0	11	5	145	0	150	141	0	0	141	302
% Articulated Trucks	8.5%	5.1%	0%	5.9%	4.8%	19.3%	0%	17.5%	18.9%	0%	0%	18.4%	16.7%
Buses and Single-Unit Trucks	3	5	0	8	6	30	0	36	18	2	0	20	64
% Buses and Single-Unit Trucks	6.4%	3.6%	0%	4.3%	5.7%	4.0%	0%	4.2%	2.4%	11.1%	0%	2.6%	3.5%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 and Hills-Miller Road - TMC

Thu Mar 11, 2021

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819785, Location: 40.332071, -83.073641

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hills-Miller Road Eastbound				US-23 Northbound				US-23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2021-03-11 4:45PM	14	32	0	46	48	308	0	356	265	10	0	275	677
5:00PM	25	25	0	50	53	300	0	353	224	11	0	235	638
5:15PM	23	35	0	58	47	300	0	347	244	12	0	256	661
5:30PM	19	28	0	47	56	290	0	346	263	19	0	282	675
Total	81	120	0	201	204	1198	0	1402	996	52	0	1048	2651
% Approach	40.3%	59.7%	0%	-	14.6%	85.4%	0%	-	95.0%	5.0%	0%	-	-
% Total	3.1%	4.5%	0%	7.6%	7.7%	45.2%	0%	52.9%	37.6%	2.0%	0%	39.5%	-
PHF	0.810	0.857	-	0.866	0.911	0.972	-	0.985	0.940	0.684	-	0.929	0.979
Lights	79	118	0	197	199	1070	0	1269	872	51	0	923	2389
% Lights	97.5%	98.3%	0%	98.0%	97.5%	89.3%	0%	90.5%	87.6%	98.1%	0%	88.1%	90.1%
Articulated Trucks	1	1	0	2	3	103	0	106	113	0	0	113	221
% Articulated Trucks	1.2%	0.8%	0%	1.0%	1.5%	8.6%	0%	7.6%	11.3%	0%	0%	10.8%	8.3%
Buses and Single-Unit Trucks	1	1	0	2	2	25	0	27	11	1	0	12	41
% Buses and Single-Unit Trucks	1.2%	0.8%	0%	1.0%	1.0%	2.1%	0%	1.9%	1.1%	1.9%	0%	1.1%	1.5%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Sheetz Drive - TMC

Tue Nov 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905446, Location: 40.329619, -83.072759

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Sheetz Drive Eastbound				US-23 Northbound				US-23 Southbound				Int
	R	L	U	App	T	L	U	App	R	T	U	App	
2021-11-30 7:00AM	12	4	0	16	204	11	0	215	5	262	0	267	498
7:15AM	15	14	0	29	264	15	0	279	3	280	0	283	591
7:30AM	18	12	0	30	202	14	0	216	4	294	0	298	544
7:45AM	22	10	0	32	193	28	0	221	12	277	0	289	542
Hourly Total	67	40	0	107	863	68	0	931	24	1113	0	1137	2175
8:00AM	14	12	0	26	169	20	0	189	9	246	0	255	470
8:15AM	20	21	0	41	174	20	0	194	4	240	0	244	479
8:30AM	25	10	0	35	192	25	0	217	7	224	0	231	483
8:45AM	21	18	0	39	172	25	0	197	7	217	0	224	460
Hourly Total	80	61	0	141	707	90	0	797	27	927	0	954	1892
4:00PM	30	27	0	57	332	17	0	349	7	228	0	235	641
4:15PM	12	9	0	21	329	13	0	342	5	257	0	262	625
4:30PM	37	14	0	51	343	10	0	353	7	271	0	278	682
4:45PM	15	16	0	31	297	14	0	311	3	260	0	263	605
Hourly Total	94	66	0	160	1301	54	0	1355	22	1016	0	1038	2553
5:00PM	17	13	0	30	287	12	0	299	4	258	0	262	591
5:15PM	18	12	0	30	292	16	0	308	9	247	0	256	594
5:30PM	9	12	0	21	283	9	0	292	6	233	0	239	552
5:45PM	8	16	0	24	273	13	0	286	4	233	0	237	547
Hourly Total	52	53	0	105	1135	50	0	1185	23	971	0	994	2284
Total	293	220	0	513	4006	262	0	4268	96	4027	0	4123	8904
% Approach	57.1%	42.9%	0%	-	93.9%	6.1%	0%	-	2.3%	97.7%	0%	-	-
% Total	3.3%	2.5%	0%	5.8%	45.0%	2.9%	0%	47.9%	1.1%	45.2%	0%	46.3%	-
Lights	286	219	0	505	3488	258	0	3746	94	3490	0	3584	7835
% Lights	97.6%	99.5%	0%	98.4%	87.1%	98.5%	0%	87.8%	97.9%	86.7%	0%	86.9%	88.0%
Articulated Trucks	2	0	0	2	388	0	0	388	2	423	0	425	815
% Articulated Trucks	0.7%	0%	0%	0.4%	9.7%	0%	0%	9.1%	2.1%	10.5%	0%	10.3%	9.2%
Buses and Single-Unit Trucks	5	1	0	6	130	4	0	134	0	114	0	114	254
% Buses and Single-Unit Trucks	1.7%	0.5%	0%	1.2%	3.2%	1.5%	0%	3.1%	0%	2.8%	0%	2.8%	2.9%

*L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Sheetz Drive - TMC

Tue Nov 30, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905446, Location: 40.329619, -83.072759

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Sheetz Drive Eastbound				US-23 Northbound				US-23 Southbound				Int
	R	L	U	App	T	L	U	App	R	T	U	App	
Time													
2021-11-30 7:00AM	12	4	0	16	204	11	0	215	5	262	0	267	498
7:15AM	15	14	0	29	264	15	0	279	3	280	0	283	591
7:30AM	18	12	0	30	202	14	0	216	4	294	0	298	544
7:45AM	22	10	0	32	193	28	0	221	12	277	0	289	542
Total	67	40	0	107	863	68	0	931	24	1113	0	1137	2175
% Approach	62.6%	37.4%	0%	-	92.7%	7.3%	0%	-	2.1%	97.9%	0%	-	-
% Total	3.1%	1.8%	0%	4.9%	39.7%	3.1%	0%	42.8%	1.1%	51.2%	0%	52.3%	-
PHF	0.761	0.714	-	0.836	0.817	0.607	-	0.834	0.500	0.946	-	0.954	0.920
Lights	66	40	0	106	733	67	0	800	24	976	0	1000	1906
% Lights	98.5%	100%	0%	99.1%	84.9%	98.5%	0%	85.9%	100%	87.7%	0%	88.0%	87.6%
Articulated Trucks	0	0	0	0	87	0	0	87	0	103	0	103	190
% Articulated Trucks	0%	0%	0%	0%	10.1%	0%	0%	9.3%	0%	9.3%	0%	9.1%	8.7%
Buses and Single-Unit Trucks	1	0	0	1	43	1	0	44	0	34	0	34	79
% Buses and Single-Unit Trucks	1.5%	0%	0%	0.9%	5.0%	1.5%	0%	4.7%	0%	3.1%	0%	3.0%	3.6%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Sheetz Drive - TMC

Tue Nov 30, 2021

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

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905446, Location: 40.329619, -83.072759

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Sheetz Drive Eastbound				US-23 Northbound				US-23 Southbound				Int
	R	L	U	App	T	L	U	App	R	T	U	App	
2021-11-30 4:00PM	30	27	0	57	332	17	0	349	7	228	0	235	641
4:15PM	12	9	0	21	329	13	0	342	5	257	0	262	625
4:30PM	37	14	0	51	343	10	0	353	7	271	0	278	682
4:45PM	15	16	0	31	297	14	0	311	3	260	0	263	605
Total	94	66	0	160	1301	54	0	1355	22	1016	0	1038	2553
% Approach	58.8%	41.3%	0%	-	96.0%	4.0%	0%	-	2.1%	97.9%	0%	-	-
% Total	3.7%	2.6%	0%	6.3%	51.0%	2.1%	0%	53.1%	0.9%	39.8%	0%	40.7%	-
PHF	0.635	0.611	-	0.702	0.948	0.794	-	0.960	0.786	0.937	-	0.933	0.936
Lights	93	66	0	159	1163	53	0	1216	22	868	0	890	2265
% Lights	98.9%	100%	0%	99.4%	89.4%	98.1%	0%	89.7%	100%	85.4%	0%	85.7%	88.7%
Articulated Trucks	0	0	0	0	109	0	0	109	0	125	0	125	234
% Articulated Trucks	0%	0%	0%	0%	8.4%	0%	0%	8.0%	0%	12.3%	0%	12.0%	9.2%
Buses and Single-Unit Trucks	1	0	0	1	29	1	0	30	0	23	0	23	54
% Buses and Single-Unit Trucks	1.1%	0%	0%	0.6%	2.2%	1.9%	0%	2.2%	0%	2.3%	0%	2.2%	2.1%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Hudson Road - TMC

Tue Nov 30, 2021

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905445, Location: 40.32491, -83.071484

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hudson Road Westbound				US-23 Northbound				US-23 Southbound				Int
	R	L	U	App	R	T	U	App	T	L	U	App	
2021-11-30 7:00AM	25	32	0	57	4	192	0	196	261	4	0	265	518
7:15AM	24	29	0	53	8	250	0	258	309	7	0	316	627
7:30AM	6	29	0	35	8	207	0	215	315	8	0	323	573
7:45AM	7	25	0	32	11	206	0	217	302	11	0	313	562
Hourly Total	62	115	0	177	31	855	0	886	1187	30	0	1217	2280
8:00AM	7	33	0	40	12	184	0	196	260	6	0	266	502
8:15AM	8	29	0	37	9	195	0	204	246	3	0	249	490
8:30AM	7	22	0	29	7	219	0	226	266	6	0	272	527
8:45AM	12	14	0	26	14	182	0	196	234	9	0	243	465
Hourly Total	34	98	0	132	42	780	0	822	1006	24	0	1030	1984
4:00PM	3	16	0	19	36	351	0	387	272	9	0	281	687
4:15PM	10	17	0	27	32	344	0	376	265	9	0	274	677
4:30PM	10	25	0	35	25	358	0	383	300	14	0	314	732
4:45PM	13	21	0	34	26	312	0	338	273	13	0	286	658
Hourly Total	36	79	0	115	119	1365	0	1484	1110	45	0	1155	2754
5:00PM	12	21	0	33	30	298	0	328	269	11	0	280	641
5:15PM	11	18	0	29	38	300	0	338	280	4	0	284	651
5:30PM	7	11	0	18	25	314	0	339	246	10	0	256	613
5:45PM	5	20	0	25	20	267	0	287	254	7	0	261	573
Hourly Total	35	70	0	105	113	1179	0	1292	1049	32	0	1081	2478
Total	167	362	0	529	305	4179	0	4484	4352	131	0	4483	9496
% Approach	31.6%	68.4%	0%	-	6.8%	93.2%	0%	-	97.1%	2.9%	0%	-	-
% Total	1.8%	3.8%	0%	5.6%	3.2%	44.0%	0%	47.2%	45.8%	1.4%	0%	47.2%	-
Lights	159	355	0	514	299	3661	0	3960	3817	123	0	3940	8414
% Lights	95.2%	98.1%	0%	97.2%	98.0%	87.6%	0%	88.3%	87.7%	93.9%	0%	87.9%	88.6%
Articulated Trucks	0	0	0	0	1	390	0	391	422	2	0	424	815
% Articulated Trucks	0%	0%	0%	0%	0.3%	9.3%	0%	8.7%	9.7%	1.5%	0%	9.5%	8.6%
Buses and Single-Unit Trucks	8	7	0	15	5	128	0	133	113	6	0	119	267
% Buses and Single-Unit Trucks	4.8%	1.9%	0%	2.8%	1.6%	3.1%	0%	3.0%	2.6%	4.6%	0%	2.7%	2.8%

*L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Hudson Road - TMC

Tue Nov 30, 2021

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905445, Location: 40.32491, -83.071484

Provided by: Carpenter Marty (CM) Transportation Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hudson Road Westbound				US-23 Northbound				US-23 Southbound				
Time	R	L	U	App	R	T	U	App	T	L	U	App	Int
2021-11-30 7:00AM	25	32	0	57	4	192	0	196	261	4	0	265	518
7:15AM	24	29	0	53	8	250	0	258	309	7	0	316	627
7:30AM	6	29	0	35	8	207	0	215	315	8	0	323	573
7:45AM	7	25	0	32	11	206	0	217	302	11	0	313	562
Total	62	115	0	177	31	855	0	886	1187	30	0	1217	2280
% Approach	35.0%	65.0%	0%	-	3.5%	96.5%	0%	-	97.5%	2.5%	0%	-	-
% Total	2.7%	5.0%	0%	7.8%	1.4%	37.5%	0%	38.9%	52.1%	1.3%	0%	53.4%	-
PHF	0.620	0.898	-	0.776	0.705	0.855	-	0.859	0.942	0.682	-	0.942	0.909
Lights	58	113	0	171	28	733	0	761	1047	28	0	1075	2007
% Lights	93.5%	98.3%	0%	96.6%	90.3%	85.7%	0%	85.9%	88.2%	93.3%	0%	88.3%	88.0%
Articulated Trucks	0	0	0	0	0	89	0	89	108	1	0	109	198
% Articulated Trucks	0%	0%	0%	0%	0%	10.4%	0%	10.0%	9.1%	3.3%	0%	9.0%	8.7%
Buses and Single-Unit Trucks	4	2	0	6	3	33	0	36	32	1	0	33	75
% Buses and Single-Unit Trucks	6.5%	1.7%	0%	3.4%	9.7%	3.9%	0%	4.1%	2.7%	3.3%	0%	2.7%	3.3%

* L: Left, R: Right, T: Thru, U: U-Turn

US-23 & Hudson Road - TMC

Tue Nov 30, 2021

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

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 905445, Location: 40.32491, -83.071484

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Hudson Road Westbound				US-23 Northbound				US-23 Southbound				Int
	R	L	U	App	R	T	U	App	T	L	U	App	
2021-11-30 4:00PM	3	16	0	19	36	351	0	387	272	9	0	281	687
4:15PM	10	17	0	27	32	344	0	376	265	9	0	274	677
4:30PM	10	25	0	35	25	358	0	383	300	14	0	314	732
4:45PM	13	21	0	34	26	312	0	338	273	13	0	286	658
Total	36	79	0	115	119	1365	0	1484	1110	45	0	1155	2754
% Approach	31.3%	68.7%	0%	-	8.0%	92.0%	0%	-	96.1%	3.9%	0%	-	-
% Total	1.3%	2.9%	0%	4.2%	4.3%	49.6%	0%	53.9%	40.3%	1.6%	0%	41.9%	-
PHF	0.692	0.790	-	0.821	0.826	0.953	-	0.959	0.925	0.804	-	0.920	0.941
Lights	35	77	0	112	119	1223	0	1342	967	44	0	1011	2465
% Lights	97.2%	97.5%	0%	97.4%	100%	89.6%	0%	90.4%	87.1%	97.8%	0%	87.5%	89.5%
Articulated Trucks	0	0	0	0	0	109	0	109	119	0	0	119	228
% Articulated Trucks	0%	0%	0%	0%	0%	8.0%	0%	7.3%	10.7%	0%	0%	10.3%	8.3%
Buses and Single-Unit Trucks	1	2	0	3	0	33	0	33	24	1	0	25	61
% Buses and Single-Unit Trucks	2.8%	2.5%	0%	2.6%	0%	2.4%	0%	2.2%	2.2%	2.2%	0%	2.2%	2.2%

* L: Left, R: Right, T: Thru, U: U-Turn

US 23 & Pinecrest Drive - TMC

Wed Mar 23, 2022

Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932439, Location: 40.323277, -83.071197



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pinecrest Drive Eastbound				US 23 Northbound				US 23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2022-03-23 6:00AM	2	10	0	12	0	96	0	96	198	0	0	198	306
6:15AM	2	3	0	5	0	114	0	114	217	2	0	219	338
6:30AM	1	22	0	23	1	130	0	131	274	1	0	275	429
6:45AM	1	19	0	20	1	180	0	181	298	3	0	301	502
Hourly Total	6	54	0	60	2	520	0	522	987	6	0	993	1575
7:00AM	0	27	0	27	2	196	0	198	286	4	0	290	515
7:15AM	2	23	0	25	2	239	0	241	297	3	0	300	566
7:30AM	3	16	0	19	3	237	0	240	283	1	0	284	543
7:45AM	3	18	0	21	4	183	1	188	366	1	0	367	576
Hourly Total	8	84	0	92	11	855	1	867	1232	9	0	1241	2200
8:00AM	1	19	0	20	7	165	0	172	282	1	0	283	475
8:15AM	4	16	0	20	8	190	0	198	302	2	0	304	522
8:30AM	1	18	0	19	2	209	0	211	270	1	0	271	501
8:45AM	1	11	0	12	3	181	0	184	240	2	0	242	438
Hourly Total	7	64	0	71	20	745	0	765	1094	6	0	1100	1936
3:00PM	2	6	0	8	10	349	0	359	284	3	0	287	654
3:15PM	0	13	0	13	11	361	0	372	299	2	0	301	686
3:30PM	1	17	0	18	11	362	0	373	272	9	0	281	672
3:45PM	3	5	0	8	15	395	0	410	274	7	0	281	699
Hourly Total	6	41	0	47	47	1467	0	1514	1129	21	0	1150	2711
4:00PM	2	10	0	12	9	356	0	365	260	2	0	262	639
4:15PM	1	7	0	8	11	337	1	349	292	7	0	299	656
4:30PM	3	13	0	16	11	386	0	397	300	8	0	308	721
4:45PM	0	12	0	12	17	314	0	331	269	3	0	272	615
Hourly Total	6	42	0	48	48	1393	1	1442	1121	20	0	1141	2631
5:00PM	1	8	0	9	12	349	0	361	274	6	0	280	650
5:15PM	0	8	0	8	11	332	0	343	248	5	0	253	604
5:30PM	0	8	0	8	13	319	0	332	229	5	0	234	574
5:45PM	1	9	0	10	14	235	0	249	229	6	0	235	494
Hourly Total	2	33	0	35	50	1235	0	1285	980	22	0	1002	2322
Total	35	318	0	353	178	6215	2	6395	6543	84	0	6627	13375
% Approach	9.9%	90.1%	0%	-	2.8%	97.2%	0%	-	98.7%	1.3%	0%	-	-
% Total	0.3%	2.4%	0%	2.6%	1.3%	46.5%	0%	47.8%	48.9%	0.6%	0%	49.5%	-
Lights and Motorcycles	34	315	0	349	177	5439	2	5618	5725	81	0	5806	11773
% Lights and Motorcycles	97.1%	99.1%	0%	98.9%	99.4%	87.5%	100%	87.8%	87.5%	96.4%	0%	87.6%	88.0%
Heavy	1	3	0	4	1	776	0	777	818	3	0	821	1602
% Heavy	2.9%	0.9%	0%	1.1%	0.6%	12.5%	0%	12.2%	12.5%	3.6%	0%	12.4%	12.0%

*L: Left, R: Right, T: Thru, U: U-Turn

US 23 & Pinecrest Drive - TMC

Wed Mar 23, 2022

AM Peak (7 AM - 8 AM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932439, Location: 40.323277, -83.071197



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pinecrest Drive Eastbound				US 23 Northbound				US 23 Southbound				
Time	L	R	U	App	L	T	U	App	T	R	U	App	Int
2022-03-23 7:00AM	0	27	0	27	2	196	0	198	286	4	0	290	515
7:15AM	2	23	0	25	2	239	0	241	297	3	0	300	566
7:30AM	3	16	0	19	3	237	0	240	283	1	0	284	543
7:45AM	3	18	0	21	4	183	1	188	366	1	0	367	576
Total	8	84	0	92	11	855	1	867	1232	9	0	1241	2200
% Approach	8.7%	91.3%	0%	-	1.3%	98.6%	0.1%	-	99.3%	0.7%	0%	-	-
% Total	0.4%	3.8%	0%	4.2%	0.5%	38.9%	0%	39.4%	56.0%	0.4%	0%	56.4%	-
PHF	0.667	0.778	-	0.852	0.688	0.894	0.250	0.899	0.842	0.563	-	0.845	0.955
Lights and Motorcycles	8	84	0	92	11	722	1	734	1095	9	0	1104	1930
% Lights and Motorcycles	100%	100%	0%	100%	100%	84.4%	100%	84.7%	88.9%	100%	0%	89.0%	87.7%
Heavy	0	0	0	0	0	133	0	133	137	0	0	137	270
% Heavy	0%	0%	0%	0%	0%	15.6%	0%	15.3%	11.1%	0%	0%	11.0%	12.3%

*L: Left, R: Right, T: Thru, U: U-Turn

US 23 & Pinecrest Drive - TMC

Wed Mar 23, 2022

PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932439, Location: 40.323277, -83.071197



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pinecrest Drive Eastbound				US 23 Northbound				US 23 Southbound				Int
	L	R	U	App	L	T	U	App	T	R	U	App	
2022-03-23 3:45PM	3	5	0	8	15	395	0	410	274	7	0	281	699
4:00PM	2	10	0	12	9	356	0	365	260	2	0	262	639
4:15PM	1	7	0	8	11	337	1	349	292	7	0	299	656
4:30PM	3	13	0	16	11	386	0	397	300	8	0	308	721
Total	9	35	0	44	46	1474	1	1521	1126	24	0	1150	2715
% Approach	20.5%	79.5%	0%	-	3.0%	96.9%	0.1%	-	97.9%	2.1%	0%	-	-
% Total	0.3%	1.3%	0%	1.6%	1.7%	54.3%	0%	56.0%	41.5%	0.9%	0%	42.4%	-
PHF	0.750	0.673	-	0.688	0.767	0.933	0.250	0.927	0.938	0.750	-	0.933	0.941
Lights and Motorcycles	9	35	0	44	45	1366	1	1412	995	23	0	1018	2474
% Lights and Motorcycles	100%	100%	0%	100%	97.8%	92.7%	100%	92.8%	88.4%	95.8%	0%	88.5%	91.1%
Heavy	0	0	0	0	1	108	0	109	131	1	0	132	241
% Heavy	0%	0%	0%	0%	2.2%	7.3%	0%	7.2%	11.6%	4.2%	0%	11.5%	8.9%

*L: Left, R: Right, T: Thru, U: U-Turn

Pennsylvania Avenue & Executive Boulevard - TMC

Wed Mar 23, 2022

Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932436, Location: 40.313547, -83.083772



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					South Northbound					Executive Blvd Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2022-03-23 6:00AM	1	14	0	0	15	0	7	0	0	7	0	0	0	0	0	4	0	2	0	6	28
6:15AM	0	23	0	0	23	0	8	1	0	9	0	0	0	0	0	3	0	3	0	6	38
6:30AM	1	42	0	0	43	0	16	1	0	17	0	0	0	0	0	6	0	10	0	16	76
6:45AM	3	74	0	0	77	0	30	3	0	33	0	0	0	0	0	13	0	6	0	19	129
Hourly Total	5	153	0	0	158	0	61	5	0	66	0	0	0	0	0	26	0	21	0	47	271
7:00AM	1	160	0	0	161	0	34	6	0	40	0	0	0	0	0	25	0	7	0	32	233
7:15AM	12	112	1	0	125	1	93	3	0	97	1	0	0	0	1	12	0	22	0	34	257
7:30AM	11	123	3	0	137	0	51	3	0	54	0	0	0	0	0	8	0	16	0	24	215
7:45AM	3	42	0	0	45	0	18	6	0	24	0	0	0	0	0	11	0	6	0	17	86
Hourly Total	27	437	4	0	468	1	196	18	0	215	1	0	0	0	1	56	0	51	0	107	791
8:00AM	7	44	0	0	51	0	20	7	0	27	0	0	0	0	0	13	0	13	0	26	104
8:15AM	9	42	0	0	51	0	30	5	0	35	0	0	0	0	0	12	0	6	0	18	104
8:30AM	1	29	0	0	30	0	20	4	0	24	0	0	0	0	0	7	0	3	0	10	64
8:45AM	4	31	0	0	35	0	19	0	0	19	0	0	0	0	0	8	0	2	0	10	64
Hourly Total	21	146	0	0	167	0	89	16	0	105	0	0	0	0	0	40	0	24	0	64	336
3:00PM	6	57	0	0	63	0	42	10	0	52	0	0	1	0	1	8	0	2	0	10	126
3:15PM	13	44	0	0	57	0	52	17	0	69	0	0	1	0	1	4	0	9	0	13	140
3:30PM	15	42	0	0	57	0	45	14	0	59	0	0	0	0	0	4	0	9	0	13	129
3:45PM	8	44	0	0	52	0	63	2	0	65	1	0	0	0	1	8	0	6	0	14	132
Hourly Total	42	187	0	0	229	0	202	43	0	245	1	0	2	0	3	24	0	26	0	50	527
4:00PM	7	48	0	0	55	0	53	11	0	64	0	0	0	0	0	5	0	5	0	10	129
4:15PM	14	47	0	0	61	0	53	10	0	63	0	0	0	0	0	3	0	3	0	6	130
4:30PM	8	38	0	0	46	0	65	13	0	78	1	0	0	0	1	7	0	12	0	19	144
4:45PM	9	35	2	0	46	0	66	14	0	80	0	0	0	0	0	4	0	6	0	10	136
Hourly Total	38	168	2	0	208	0	237	48	0	285	1	0	0	0	1	19	0	26	0	45	539
5:00PM	14	44	2	0	60	0	53	14	0	67	0	0	0	0	0	4	0	7	0	11	138
5:15PM	8	43	1	0	52	0	51	9	0	60	0	0	0	0	0	6	0	16	0	22	134
5:30PM	14	42	0	0	56	0	53	14	0	67	0	0	0	0	0	8	0	13	0	21	144
5:45PM	15	29	0	0	44	0	39	10	0	49	0	0	1	0	1	5	0	9	0	14	108
Hourly Total	51	158	3	0	212	0	196	47	0	243	0	0	1	0	1	23	0	45	0	68	524
Total	184	1249	9	0	1442	1	981	177	0	1159	3	0	3	0	6	188	0	193	0	381	2988
% Approach	12.8%	86.6%	0.6%	0%	-	0.1%	84.6%	15.3%	0%	-	50.0%	0%	50.0%	0%	-	49.3%	0%	50.7%	0%	-	-
% Total	6.2%	41.8%	0.3%	0%	48.3%	0%	32.8%	5.9%	0%	38.8%	0.1%	0%	0.1%	0%	0.2%	6.3%	0%	6.5%	0%	12.8%	-
Lights and Motorcycles	180	1221	6	0	1407	1	963	169	0	1133	2	0	3	0	5	178	0	189	0	367	2912
% Lights and Motorcycles	97.8%	97.8%	66.7%	0%	97.6%	100%	98.2%	95.5%	0%	97.8%	66.7%	0%	100%	0%	83.3%	94.7%	0%	97.9%	0%	96.3%	97.5%
Heavy	4	28	3	0	35	0	18	8	0	26	1	0	0	0	1	10	0	4	0	14	76
% Heavy	2.2%	2.2%	33.3%	0%	2.4%	0%	1.8%	4.5%	0%	2.2%	33.3%	0%	0%	0%	16.7%	5.3%	0%	2.1%	0%	3.7%	2.5%

* L: Left, R: Right, T: Thru, U: U-Turn

Pennsylvania Avenue & Executive Boulevard - TMC

Wed Mar 23, 2022

AM Peak (6:45 AM - 7:45 AM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932436, Location: 40.313547, -83.083772



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					South Northbound					Executive Blvd Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-23 6:45AM	3	74	0	0	77	0	30	3	0	33	0	0	0	0	0	13	0	6	0	19	129
7:00AM	1	160	0	0	161	0	34	6	0	40	0	0	0	0	0	25	0	7	0	32	233
7:15AM	12	112	1	0	125	1	93	3	0	97	1	0	0	0	1	12	0	22	0	34	257
7:30AM	11	123	3	0	137	0	51	3	0	54	0	0	0	0	0	8	0	16	0	24	215
Total	27	469	4	0	500	1	208	15	0	224	1	0	0	0	1	58	0	51	0	109	834
% Approach	5.4%	93.8%	0.8%	0%	-	0.4%	92.9%	6.7%	0%	-	100%	0%	0%	0%	-	53.2%	0%	46.8%	0%	-	-
% Total	3.2%	56.2%	0.5%	0%	60.0%	0.1%	24.9%	1.8%	0%	26.9%	0.1%	0%	0%	0%	0.1%	7.0%	0%	6.1%	0%	13.1%	-
PHF	0.563	0.733	0.333	-	0.776	0.250	0.559	0.625	-	0.577	0.250	-	-	-	0.250	0.580	-	0.580	-	0.801	0.811
Lights and Motorcycles	26	460	2	0	488	1	204	14	0	219	0	0	0	0	0	54	0	51	0	105	812
% Lights and Motorcycles	96.3%	98.1%	50.0%	0%	97.6%	100%	98.1%	93.3%	0%	97.8%	0%	0%	0%	0%	0%	93.1%	0%	100%	0%	96.3%	97.4%
Heavy	1	9	2	0	12	0	4	1	0	5	1	0	0	0	1	4	0	0	0	4	22
% Heavy	3.7%	1.9%	50.0%	0%	2.4%	0%	1.9%	6.7%	0%	2.2%	100%	0%	0%	0%	100%	6.9%	0%	0%	0%	3.7%	2.6%

*L: Left, R: Right, T: Thru, U: U-Turn

Pennsylvania Avenue & Executive Boulevard - TMC

Wed Mar 23, 2022

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

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932436, Location: 40.313547, -83.083772



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					South Northbound					Executive Blvd Southbound					Int
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-23 4:30PM	8	38	0	0	46	0	65	13	0	78	1	0	0	0	1	7	0	12	0	19	144
4:45PM	9	35	2	0	46	0	66	14	0	80	0	0	0	0	0	4	0	6	0	10	136
5:00PM	14	44	2	0	60	0	53	14	0	67	0	0	0	0	0	4	0	7	0	11	138
5:15PM	8	43	1	0	52	0	51	9	0	60	0	0	0	0	0	6	0	16	0	22	134
Total	39	160	5	0	204	0	235	50	0	285	1	0	0	0	1	21	0	41	0	62	552
% Approach	19.1%	78.4%	2.5%	0%	-	0%	82.5%	17.5%	0%	-	100%	0%	0%	0%	-	33.9%	0%	66.1%	0%	-	-
% Total	7.1%	29.0%	0.9%	0%	37.0%	0%	42.6%	9.1%	0%	51.6%	0.2%	0%	0%	0%	0.2%	3.8%	0%	7.4%	0%	11.2%	-
PHF	0.696	0.909	0.625	-	0.850	-	0.890	0.893	-	0.891	0.250	-	-	-	0.250	0.750	-	0.641	-	0.705	0.958
Lights and Motorcycles	39	158	4	0	201	0	233	49	0	282	1	0	0	0	1	20	0	41	0	61	545
% Lights and Motorcycles	100%	98.8%	80.0%	0%	98.5%	0%	99.1%	98.0%	0%	98.9%	100%	0%	0%	0%	100%	95.2%	0%	100%	0%	98.4%	98.7%
Heavy	0	2	1	0	3	0	2	1	0	3	0	0	0	0	0	1	0	0	0	1	7
% Heavy	0%	1.3%	20.0%	0%	1.5%	0%	0.9%	2.0%	0%	1.1%	0%	0%	0%	0%	0%	4.8%	0%	0%	0%	1.6%	1.3%

*L: Left, R: Right, T: Thru, U: U-Turn

Executive Boulevard & Rutherford Avenue - TMC

Wed Mar 23, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932193, Location: 40.320036, -83.081491



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound					Rutherford Avenue Westbound					Executive Parkway Northbound					Executive Parkway Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2022-03-23 7:00AM	9	1	1	0	11	4	1	0	0	5	0	6	2	0	8	0	16	3	0	19	43
7:15AM	5	1	0	0	6	4	0	2	0	6	0	11	5	0	16	1	18	0	0	19	47
7:30AM	4	0	1	0	5	6	0	1	0	7	1	11	2	0	14	1	6	0	0	7	33
7:45AM	2	0	0	0	2	3	0	2	0	5	0	4	3	0	7	0	10	1	0	11	25
Hourly Total	20	2	2	0	24	17	1	5	0	23	1	32	12	0	45	2	50	4	0	56	148
8:00AM	2	0	1	0	3	3	0	0	0	3	0	11	2	0	13	0	10	3	0	13	32
8:15AM	5	0	2	0	7	3	0	1	0	4	2	7	1	0	10	1	8	2	0	11	32
8:30AM	3	0	1	0	4	2	0	1	0	3	3	2	0	0	5	0	1	1	0	2	14
8:45AM	2	0	1	0	3	2	0	2	0	4	0	2	0	0	2	0	3	2	0	5	14
Hourly Total	12	0	5	0	17	10	0	4	0	14	5	22	3	0	30	1	22	8	0	31	92
4:00PM	0	0	0	0	0	1	0	2	0	3	0	9	2	0	11	3	9	2	0	14	28
4:15PM	1	0	1	0	2	2	0	0	0	2	0	12	2	0	14	0	5	2	0	7	25
4:30PM	1	0	3	0	4	0	1	1	0	2	1	13	3	0	17	2	10	2	0	14	37
4:45PM	3	0	1	0	4	0	0	0	0	0	0	6	7	0	13	2	6	3	0	11	28
Hourly Total	5	0	5	0	10	3	1	3	0	7	1	40	14	0	55	7	30	9	0	46	118
5:00PM	4	0	1	0	5	3	1	0	0	4	1	18	4	0	23	2	7	4	0	13	45
5:15PM	0	1	2	0	3	1	0	0	0	1	1	7	1	0	9	2	11	3	0	16	29
5:30PM	0	0	1	0	1	1	1	0	0	2	1	14	4	0	19	2	13	1	0	16	38
5:45PM	0	0	0	0	0	3	0	2	0	5	1	11	3	0	15	0	9	3	0	12	32
Hourly Total	4	1	4	0	9	8	2	2	0	12	4	50	12	0	66	6	40	11	0	57	144
Total	41	3	16	0	60	38	4	14	0	56	11	144	41	0	196	16	142	32	0	190	502
% Approach	68.3%	5.0%	26.7%	0%	-	67.9%	7.1%	25.0%	0%	-	5.6%	73.5%	20.9%	0%	-	8.4%	74.7%	16.8%	0%	-	-
% Total	8.2%	0.6%	3.2%	0%	12.0%	7.6%	0.8%	2.8%	0%	11.2%	2.2%	28.7%	8.2%	0%	39.0%	3.2%	28.3%	6.4%	0%	37.8%	-
Lights and Motorcycles	40	3	16	0	59	36	4	14	0	54	10	140	39	0	189	16	136	31	0	183	485
% Lights and Motorcycles	97.6%	100%	100%	0%	98.3%	94.7%	100%	100%	0%	96.4%	90.9%	97.2%	95.1%	0%	96.4%	100%	95.8%	96.9%	0%	96.3%	96.6%
Heavy	1	0	0	0	1	2	0	0	0	2	1	4	2	0	7	0	6	1	0	7	17
% Heavy	2.4%	0%	0%	0%	1.7%	5.3%	0%	0%	0%	3.6%	9.1%	2.8%	4.9%	0%	3.6%	0%	4.2%	3.1%	0%	3.7%	3.4%

* L: Left, R: Right, T: Thru, U: U-Turn

Executive Boulevard & Rutherford Avenue - TMC

Wed Mar 23, 2022

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932193, Location: 40.320036, -83.081491



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound					Rutherford Avenue Westbound					Executive Parkway Northbound					Executive Parkway Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2022-03-23 7:00AM	9	1	1	0	11	4	1	0	0	5	0	6	2	0	8	0	16	3	0	19	43
7:15AM	5	1	0	0	6	4	0	2	0	6	0	11	5	0	16	1	18	0	0	19	47
7:30AM	4	0	1	0	5	6	0	1	0	7	1	11	2	0	14	1	6	0	0	7	33
7:45AM	2	0	0	0	2	3	0	2	0	5	0	4	3	0	7	0	10	1	0	11	25
Total	20	2	2	0	24	17	1	5	0	23	1	32	12	0	45	2	50	4	0	56	148
% Approach	83.3%	8.3%	8.3%	0%	-	73.9%	4.3%	21.7%	0%	-	2.2%	71.1%	26.7%	0%	-	3.6%	89.3%	7.1%	0%	-	-
% Total	13.5%	1.4%	1.4%	0%	16.2%	11.5%	0.7%	3.4%	0%	15.5%	0.7%	21.6%	8.1%	0%	30.4%	1.4%	33.8%	2.7%	0%	37.8%	-
PHF	0.556	0.500	0.500	-	0.545	0.708	0.250	0.625	-	0.821	0.250	0.727	0.600	-	0.703	0.500	0.694	0.333	-	0.737	0.787
Lights and Motorcycles	19	2	2	0	23	16	1	5	0	22	1	30	10	0	41	2	46	4	0	52	138
% Lights and Motorcycles	95.0%	100%	100%	0%	95.8%	94.1%	100%	100%	0%	95.7%	100%	93.8%	83.3%	0%	91.1%	100%	92.0%	100%	0%	92.9%	93.2%
Heavy	1	0	0	0	1	1	0	0	0	1	0	2	2	0	4	0	4	0	0	4	10
% Heavy	5.0%	0%	0%	0%	4.2%	5.9%	0%	0%	0%	4.3%	0%	6.3%	16.7%	0%	8.9%	0%	8.0%	0%	0%	7.1%	6.8%

*L: Left, R: Right, T: Thru, U: U-Turn

Executive Boulevard & Rutherford Avenue - TMC

Wed Mar 23, 2022

PM Peak (5 PM - 6 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932193, Location: 40.320036, -83.081491



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound					Rutherford Avenue Westbound					Executive Parkway Northbound					Executive Parkway Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2022-03-23 5:00PM	4	0	1	0	5	3	1	0	0	4	1	18	4	0	23	2	7	4	0	13	45
5:15PM	0	1	2	0	3	1	0	0	0	1	1	7	1	0	9	2	11	3	0	16	29
5:30PM	0	0	1	0	1	1	1	0	0	2	1	14	4	0	19	2	13	1	0	16	38
5:45PM	0	0	0	0	0	3	0	2	0	5	1	11	3	0	15	0	9	3	0	12	32
Total	4	1	4	0	9	8	2	2	0	12	4	50	12	0	66	6	40	11	0	57	144
% Approach	44.4%	11.1%	44.4%	0%	-	66.7%	16.7%	16.7%	0%	-	6.1%	75.8%	18.2%	0%	-	10.5%	70.2%	19.3%	0%	-	-
% Total	2.8%	0.7%	2.8%	0%	6.3%	5.6%	1.4%	1.4%	0%	8.3%	2.8%	34.7%	8.3%	0%	45.8%	4.2%	27.8%	7.6%	0%	39.6%	-
PHF	0.250	0.250	0.500	-	0.450	0.667	0.500	0.250	-	0.600	1.000	0.694	0.750	-	0.717	0.750	0.769	0.688	-	0.891	0.800
Lights and Motorcycles	4	1	4	0	9	8	2	2	0	12	4	49	12	0	65	6	39	11	0	56	142
% Lights and Motorcycles	100%	100%	100%	0%	100%	100%	100%	100%	0%	100%	100%	98.0%	100%	0%	98.5%	100%	97.5%	100%	0%	98.2%	98.6%
Heavy	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
% Heavy	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.0%	0%	0%	1.5%	0%	2.5%	0%	0%	1.8%	1.4%

*L: Left, R: Right, T: Thru, U: U-Turn

Heritage Boulevard & Rutherford Avenue - TMC
 Tue Oct 4, 2022
 Full Length (6 AM-9 AM, 3 PM-6 PM)
 All Classes (Lights and Motorcycles, Heavy, Pedestrians)
 All Movements
 ID: 997956, Location: 40.320166, -83.08464



Provided by: Smart Services, Inc.
 88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound						Rutherford Avenue Westbound						Heritage Blvd Northbound						Heritage Blvd Southbound						Int						
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*							
2022-10-04																															
6:00AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:30AM	0	2	0	0	2	0	1	0	0	0	1	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:45AM	0	1	4	0	5	0	4	0	0	0	4	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Hourly Total	0	3	5	0	8	0	5	0	0	0	5	0	1	0	4	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	18
7:00AM	0	5	3	0	8	0	6	1	0	0	7	3	0	0	2	0	2	4	0	0	0	0	0	0	0	0	0	0	0	0	17
7:15AM	0	5	2	0	7	0	1	0	0	0	1	0	0	0	2	0	2	0	1	0	0	0	0	0	1	0	0	0	1	0	11
7:30AM	0	1	0	0	1	0	1	0	0	0	1	0	1	0	3	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6
7:45AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	12	5	0	17	0	8	1	0	0	9	3	1	0	8	0	9	4	1	0	0	0	0	0	1	0	0	0	1	0	36
8:00AM	0	2	2	0	4	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:15AM	0	1	3	0	4	0	1	0	0	1	2	1	1	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	8
8:30AM	0	1	2	0	3	0	1	1	0	0	2	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:45AM	0	1	1	0	2	0	2	0	0	0	2	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Hourly Total	0	5	8	0	13	0	4	1	0	1	6	1	4	0	3	0	7	1	0	0	0	0	0	0	0	0	0	0	0	0	26
3:00PM	0	1	1	0	2	0	2	1	1	0	4	0	1	0	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	8
3:15PM	0	1	0	0	1	0	1	0	0	0	1	0	1	1	2	0	4	0	0	1	0	0	0	0	1	0	0	0	1	0	7
3:30PM	0	1	3	0	4	0	1	0	0	0	1	1	3	0	0	0	3	2	1	0	0	0	0	0	1	0	0	0	1	0	9
3:45PM	0	1	1	0	2	0	3	3	0	0	6	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	9
Hourly Total	0	4	5	0	9	0	7	4	1	0	12	1	5	1	3	1	10	4	1	1	0	0	2	0	1	0	0	0	2	0	33
4:00PM	0	1	1	0	2	0	3	1	0	1	5	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4:15PM	0	0	1	0	1	0	1	1	0	0	2	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	4
4:30PM	0	0	3	0	3	0	1	0	0	0	1	0	1	0	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	7
4:45PM	0	0	3	0	3	0	0	0	0	0	0	0	1	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5
Hourly Total	0	1	8	0	9	0	5	2	0	1	8	0	3	0	3	1	7	3	0	0	0	0	0	0	0	0	0	0	0	0	24
5:00PM	0	0	0	0	0	0	1	0	0	0	1	0	3	1	2	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	8
5:15PM	0	0	2	0	2	0	0	0	0	0	0	1	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:30PM	0	2	3	0	5	0	3	2	0	0	5	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	12
5:45PM	0	0	0	0	0	0	4	0	0	0	4	0	5	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	9
Hourly Total	0	2	5	0	7	0	8	2	0	0	10	1	12	1	3	1	17	2	0	0	0	0	0	0	0	0	0	0	0	0	34
Total	0	27	36	0	63	0	37	10	1	2	50	6	26	2	24	3	55	14	2	1	0	0	3	0	171						
% Approach	0%	42.9%	57.1%	0%	-	-	74.0%	20.0%	2.0%	4.0%	-	-	47.3%	3.6%	43.6%	5.5%	-	-	66.7%	33.3%	0%	0%	-	-	-						
% Total	0%	15.8%	21.1%	0%	36.8%	-	21.6%	5.8%	0.6%	1.2%	29.2%	-	15.2%	1.2%	14.0%	1.8%	32.2%	-	1.2%	0.6%	0%	0%	1.8%	-	-						
Lights and Motorcycles	0	26	32	0	58	-	32	9	0	1	42	-	26	2	19	3	50	-	1	1	0	0	2	-	152						
% Lights and Motorcycles	0%	96.3%	88.9%	0%	92.1%	-	86.5%	90.0%	0%	50.0%	84.0%	-	100%	100%	79.2%	100%	90.9%	-	50.0%	100%	0%	0%	66.7%	-	88.9%						
Heavy	0	1	4	0	5	-	5	1	1	1	8	-	0	0	5	0	5	-	1	0	0	0	1	-	19						
% Heavy	0%	3.7%	11.1%	0%	7.9%	-	13.5%	10.0%	100%	50.0%	16.0%	-	0%	0%	20.8%	0%	9.1%	-	50.0%	0%	0%	0%	33.3%	-	11.1%						
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	6	-	-	-	-	-	14	-	-	-	-	-	0	-						
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-						

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

Heritage Boulevard & Rutherford Avenue - TMC

Tue Oct 4, 2022

AM Peak (6:45 AM - 7:45 AM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 997956, Location: 40.320166, -83.08464



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound						Rutherford Avenue Westbound						Heritage Blvd Northbound						Heritage Blvd Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2022-10-04 6:45AM	0	1	4	0	5	0	4	0	0	0	4	0	0	0	2	0	2	0	0	0	0	0	0	0	11
7:00AM	0	5	3	0	8	0	6	1	0	0	7	3	0	0	2	0	2	4	0	0	0	0	0	0	17
7:15AM	0	5	2	0	7	0	1	0	0	0	1	0	0	0	2	0	2	0	1	0	0	0	1	0	11
7:30AM	0	1	0	0	1	0	1	0	0	0	1	0	1	0	3	0	4	0	0	0	0	0	0	0	6
Total	0	12	9	0	21	0	12	1	0	0	13	3	1	0	9	0	10	4	1	0	0	0	1	0	45
% Approach	0%	57.1%	42.9%	0%	-	-	92.3%	7.7%	0%	0%	-	-	10.0%	0%	90.0%	0%	-	-	100%	0%	0%	0%	-	-	-
% Total	0%	26.7%	20.0%	0%	46.7%	-	26.7%	2.2%	0%	0%	28.9%	-	2.2%	0%	20.0%	0%	22.2%	-	2.2%	0%	0%	0%	2.2%	-	-
PHF	-	0.600	0.563	-	0.656	-	0.500	0.250	-	-	0.464	-	0.250	-	0.750	-	0.625	-	0.250	-	-	-	0.250	-	0.662
Lights and Motorcycles	0	12	9	0	21	-	11	1	0	0	12	-	1	0	7	0	8	-	1	0	0	0	1	-	42
% Lights and Motorcycles	0%	100%	100%	0%	100%	-	91.7%	100%	0%	0%	92.3%	-	100%	0%	77.8%	0%	80.0%	-	100%	0%	0%	0%	100%	-	93.3%
Heavy	0	0	0	0	0	-	1	0	0	0	1	-	0	0	2	0	2	-	0	0	0	0	0	-	3
% Heavy	0%	0%	0%	0%	0%	-	8.3%	0%	0%	0%	7.7%	-	0%	0%	22.2%	0%	20.0%	-	0%	0%	0%	0%	0%	-	6.7%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	4	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-

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

Heritage Boulevard & Rutherford Avenue - TMC

Tue Oct 4, 2022

PM Peak (5 PM - 6 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 997956, Location: 40.320166, -83.08464



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Rutherford Avenue Eastbound						Rutherford Avenue Westbound						Heritage Blvd Northbound						Heritage Blvd Southbound						
Time	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	Int
2022-10-04 5:00PM	0	0	0	0	0	0	1	0	0	0	1	0	3	1	2	1	7	0	0	0	0	0	0	0	8
5:15PM	0	0	2	0	2	0	0	0	0	0	0	1	2	0	1	0	3	0	0	0	0	0	0	0	5
5:30PM	0	2	3	0	5	0	3	2	0	0	5	0	2	0	0	0	2	0	0	0	0	0	0	0	12
5:45PM	0	0	0	0	0	0	4	0	0	0	4	0	5	0	0	0	5	2	0	0	0	0	0	0	9
Total	0	2	5	0	7	0	8	2	0	0	10	1	12	1	3	1	17	2	0	0	0	0	0	0	34
% Approach	0%	28.6%	71.4%	0%	-	-	80.0%	20.0%	0%	0%	-	-	70.6%	5.9%	17.6%	5.9%	-	-	0%	0%	0%	0%	-	-	-
% Total	0%	5.9%	14.7%	0%	20.6%	-	23.5%	5.9%	0%	0%	29.4%	-	35.3%	2.9%	8.8%	2.9%	50.0%	-	0%	0%	0%	0%	0%	-	-
PHF	-	0.250	0.417	-	0.350	-	0.500	0.250	-	-	0.500	-	0.600	0.250	0.375	0.250	0.607	-	-	-	-	-	-	-	0.708
Lights and Motorcycles	0	2	4	0	6	-	8	2	0	0	10	-	12	1	3	1	17	-	0	0	0	0	0	-	33
% Lights and Motorcycles	0%	100%	80.0%	0%	85.7%	-	100%	100%	0%	0%	100%	-	100%	100%	100%	100%	100%	-	0%	0%	0%	0%	-	-	97.1%
Heavy	0	0	1	0	1	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	1
% Heavy	0%	0%	20.0%	0%	14.3%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	-	-	2.9%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	2	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	-	-

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

Pennsylvania Avenue & Heritage Boulevard - TMC

Wed Mar 23, 2022

Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932428, Location: 40.313582, -83.084556



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					Oakwood Dr Northbound					Heritage Blvd Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-23 6:00AM	0	4	0	0	4	0	8	1	0	9	0	0	0	0	0	10	0	3	0	13	26
6:15AM	5	11	0	0	16	0	9	2	0	11	0	0	2	0	2	11	0	3	0	14	43
6:30AM	4	30	1	0	35	0	24	2	0	26	0	1	0	0	1	13	0	9	0	22	84
6:45AM	2	56	0	0	58	0	36	1	0	37	0	0	0	0	0	23	0	4	0	27	122
Hourly Total	11	101	1	0	113	0	77	6	0	83	0	1	2	0	3	57	0	19	0	76	275
7:00AM	4	144	0	0	148	1	36	4	0	41	0	0	1	0	1	17	0	12	0	29	219
7:15AM	3	116	0	0	119	0	109	7	0	116	1	0	0	0	1	16	0	17	0	33	269
7:30AM	8	116	0	0	124	1	60	4	0	65	0	0	0	0	0	10	0	12	0	22	211
7:45AM	3	33	0	0	36	0	21	3	0	24	0	0	2	0	2	14	0	9	0	23	85
Hourly Total	18	409	0	0	427	2	226	18	0	246	1	0	3	0	4	57	0	50	0	107	784
8:00AM	3	25	0	0	28	0	26	6	0	32	1	0	1	0	2	24	0	4	0	28	90
8:15AM	5	32	0	0	37	0	28	8	0	36	0	0	2	0	2	18	0	8	0	26	101
8:30AM	4	21	0	0	25	0	19	4	0	23	1	0	2	0	3	7	0	9	0	16	67
8:45AM	4	18	0	0	22	0	18	4	0	22	0	0	3	0	3	12	0	4	0	16	63
Hourly Total	16	96	0	0	112	0	91	22	0	113	2	0	8	0	10	61	0	25	0	86	321
3:00PM	4	51	1	0	56	0	31	14	0	45	1	0	2	0	3	8	1	10	0	19	123
3:15PM	12	50	2	0	64	2	40	18	0	60	3	0	2	0	5	5	0	8	0	13	142
3:30PM	9	51	3	0	63	1	36	18	0	55	1	0	2	0	3	5	0	7	0	12	133
3:45PM	13	39	2	0	54	1	44	24	0	69	2	1	3	0	6	10	2	12	0	24	153
Hourly Total	38	191	8	0	237	4	151	74	0	229	7	1	9	0	17	28	3	37	0	68	551
4:00PM	10	40	4	0	54	1	41	16	0	58	0	0	0	0	0	13	0	12	0	25	137
4:15PM	15	46	0	0	61	0	41	14	0	55	0	0	2	0	2	12	1	11	0	24	142
4:30PM	19	38	1	0	58	2	53	22	0	77	0	0	0	0	0	9	0	7	0	16	151
4:45PM	10	33	0	0	43	2	51	19	0	72	0	0	3	0	3	9	0	6	0	15	133
Hourly Total	54	157	5	0	216	5	186	71	0	262	0	0	5	0	5	43	1	36	0	80	563
5:00PM	15	47	1	0	63	0	45	13	0	58	1	0	0	0	1	14	0	6	0	20	142
5:15PM	10	43	1	0	54	2	50	15	0	67	0	0	1	0	1	9	0	11	0	20	142
5:30PM	12	41	0	0	53	0	50	16	0	66	0	0	2	0	2	12	0	11	0	23	144
5:45PM	12	33	0	0	45	0	38	13	0	51	0	0	0	0	0	9	0	6	0	15	111
Hourly Total	49	164	2	0	215	2	183	57	0	242	1	0	3	0	4	44	0	34	0	78	539
Total	186	1118	16	0	1320	13	914	248	0	1175	11	2	30	0	43	290	4	201	0	495	3033
% Approach	14.1%	84.7%	1.2%	0%	-	1.1%	77.8%	21.1%	0%	-	25.6%	4.7%	69.8%	0%	-	58.6%	0.8%	40.6%	0%	-	-
% Total	6.1%	36.9%	0.5%	0%	43.5%	0.4%	30.1%	8.2%	0%	38.7%	0.4%	0.1%	1.0%	0%	1.4%	9.6%	0.1%	6.6%	0%	16.3%	-
Lights and Motorcycles	182	1092	15	0	1289	13	898	241	0	1152	11	2	29	0	42	281	4	200	0	485	2968
% Lights and Motorcycles	97.8%	97.7%	93.8%	0%	97.7%	100%	98.2%	97.2%	0%	98.0%	100%	100%	96.7%	0%	97.7%	96.9%	100%	99.5%	0%	98.0%	97.9%
Heavy	4	26	1	0	31	0	16	7	0	23	0	0	1	0	1	9	0	1	0	10	65
% Heavy	2.2%	2.3%	6.3%	0%	2.3%	0%	1.8%	2.8%	0%	2.0%	0%	0%	3.3%	0%	2.3%	3.1%	0%	0.5%	0%	2.0%	2.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Pennsylvania Avenue & Heritage Boulevard - TMC

Wed Mar 23, 2022

AM Peak (6:45 AM - 7:45 AM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932428, Location: 40.313582, -83.084556



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					Oakwood Dr Northbound					Heritage Blvd Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-23 6:45AM	2	56	0	0	58	0	36	1	0	37	0	0	0	0	0	23	0	4	0	27	122
7:00AM	4	144	0	0	148	1	36	4	0	41	0	0	1	0	1	17	0	12	0	29	219
7:15AM	3	116	0	0	119	0	109	7	0	116	1	0	0	0	1	16	0	17	0	33	269
7:30AM	8	116	0	0	124	1	60	4	0	65	0	0	0	0	0	10	0	12	0	22	211
Total	17	432	0	0	449	2	241	16	0	259	1	0	1	0	2	66	0	45	0	111	821
% Approach	3.8%	96.2%	0%	0%	-	0.8%	93.1%	6.2%	0%	-	50.0%	0%	50.0%	0%	-	59.5%	0%	40.5%	0%	-	-
% Total	2.1%	52.6%	0%	0%	54.7%	0.2%	29.4%	1.9%	0%	31.5%	0.1%	0%	0.1%	0%	0.2%	8.0%	0%	5.5%	0%	13.5%	-
PHF	0.531	0.750	-	-	0.758	0.500	0.553	0.571	-	0.558	0.250	-	0.250	-	0.500	0.717	-	0.662	-	0.841	0.763
Lights and Motorcycles	15	423	0	0	438	2	239	14	0	255	1	0	1	0	2	64	0	45	0	109	804
% Lights and Motorcycles	88.2%	97.9%	0%	0%	97.6%	100%	99.2%	87.5%	0%	98.5%	100%	0%	100%	0%	100%	97.0%	0%	100%	0%	98.2%	97.9%
Heavy	2	9	0	0	11	0	2	2	0	4	0	0	0	0	0	2	0	0	0	2	17
% Heavy	11.8%	2.1%	0%	0%	2.4%	0%	0.8%	12.5%	0%	1.5%	0%	0%	0%	0%	0%	3.0%	0%	0%	0%	1.8%	2.1%

*L: Left, R: Right, T: Thru, U: U-Turn

Pennsylvania Avenue & Heritage Boulevard - TMC

Wed Mar 23, 2022

PM Peak (3:45 PM - 4:45 PM)

All Classes (Lights and Motorcycles, Heavy)

All Movements

ID: 932428, Location: 40.313582, -83.084556



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Pennsylvania Ave Eastbound					Pennsylvania Ave Westbound					Oakwood Dr Northbound					Heritage Blvd Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2022-03-23 3:45PM	13	39	2	0	54	1	44	24	0	69	2	1	3	0	6	10	2	12	0	24	153
4:00PM	10	40	4	0	54	1	41	16	0	58	0	0	0	0	0	13	0	12	0	25	137
4:15PM	15	46	0	0	61	0	41	14	0	55	0	0	2	0	2	12	1	11	0	24	142
4:30PM	19	38	1	0	58	2	53	22	0	77	0	0	0	0	0	9	0	7	0	16	151
Total	57	163	7	0	227	4	179	76	0	259	2	1	5	0	8	44	3	42	0	89	583
% Approach	25.1%	71.8%	3.1%	0%	-	1.5%	69.1%	29.3%	0%	-	25.0%	12.5%	62.5%	0%	-	49.4%	3.4%	47.2%	0%	-	-
% Total	9.8%	28.0%	1.2%	0%	38.9%	0.7%	30.7%	13.0%	0%	44.4%	0.3%	0.2%	0.9%	0%	1.4%	7.5%	0.5%	7.2%	0%	15.3%	-
PHF	0.750	0.886	0.438	-	0.930	0.500	0.844	0.792	-	0.841	0.250	0.250	0.417	-	0.333	0.846	0.375	0.875	-	0.890	0.953
Lights and Motorcycles	57	160	7	0	224	4	176	76	0	256	2	1	5	0	8	42	3	42	0	87	575
% Lights and Motorcycles	100%	98.2%	100%	0%	98.7%	100%	98.3%	100%	0%	98.8%	100%	100%	100%	0%	100%	95.5%	100%	100%	0%	97.8%	98.6%
Heavy	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	2	0	0	0	2	8
% Heavy	0%	1.8%	0%	0%	1.3%	0%	1.7%	0%	0%	1.2%	0%	0%	0%	0%	0%	4.5%	0%	0%	0%	2.2%	1.4%

*L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Pennsylvania Avenue - TMC

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Tue Sep 15, 2020

Full Length (12 AM-12 AM(+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 781297, Location: 40.313849, -83.089809

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2020-09-15																					
12:00AM	1	1	0	0	2	2	0	2	0	4	0	3	5	0	8	0	1	0	0	1	15
12:15AM	0	0	0	0	0	2	0	1	0	3	0	1	2	0	3	0	1	0	0	1	7
12:30AM	0	1	0	0	1	5	2	0	0	7	0	3	2	0	5	1	0	0	0	1	14
12:45AM	0	0	0	0	0	2	0	0	0	2	0	1	2	0	3	0	1	0	0	1	6
Hourly Total	1	2	0	0	3	11	2	3	0	16	0	8	11	0	19	1	3	0	0	4	42
1:00AM	0	0	0	0	0	3	1	0	0	4	0	0	4	0	4	0	2	0	0	2	10
1:15AM	0	0	0	0	0	1	0	0	0	1	0	1	3	0	4	0	1	0	0	1	6
1:30AM	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	3
1:45AM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	1	0	0	1	6	1	0	0	7	0	1	9	0	10	0	3	0	0	3	21
2:00AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
2:15AM	0	0	0	0	0	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	3
2:30AM	0	1	0	0	1	0	0	0	0	0	0	1	3	0	4	0	0	0	0	0	5
2:45AM	0	1	0	0	1	1	0	0	0	1	0	0	2	0	2	0	0	0	0	0	4
Hourly Total	0	2	0	0	2	2	0	0	0	2	0	2	8	0	10	0	0	0	0	0	14
3:00AM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	2
3:15AM	0	0	0	0	0	4	0	0	0	4	0	1	2	0	3	0	0	0	0	0	7
3:30AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	4
3:45AM	0	0	0	0	0	2	0	0	0	2	0	3	0	0	3	0	1	0	0	1	6
Hourly Total	0	1	0	0	1	7	0	0	0	7	0	5	2	0	7	1	3	0	0	4	19
4:00AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	1	2	0	0	3	6
4:15AM	0	1	0	0	1	1	0	0	0	1	0	0	1	0	1	0	1	0	0	1	4
4:30AM	0	0	0	0	0	10	0	0	0	10	0	1	1	0	2	0	0	0	0	0	12
4:45AM	0	0	0	0	0	7	0	0	0	7	0	1	3	0	4	0	4	0	0	4	15
Hourly Total	0	1	0	0	1	18	0	0	0	18	0	2	8	0	10	1	7	0	0	8	37
5:00AM	0	0	0	0	0	6	0	0	0	6	0	0	3	0	3	0	1	0	0	1	10
5:15AM	0	0	0	0	0	9	1	0	0	10	0	1	1	0	2	0	4	0	0	4	16
5:30AM	0	0	0	0	0	12	2	1	0	15	0	0	4	0	4	0	9	0	0	9	28
5:45AM	0	1	1	0	2	9	2	0	0	11	0	4	3	0	7	1	6	0	0	7	27
Hourly Total	0	1	1	0	2	36	5	1	0	42	0	5	11	0	16	1	20	0	0	21	81
6:00AM	0	0	0	0	0	9	0	1	0	10	0	4	7	0	11	1	3	0	0	4	25
6:15AM	0	1	1	0	2	13	0	3	0	16	0	11	8	0	19	2	8	1	0	11	48
6:30AM	0	0	0	0	0	15	3	3	0	21	0	14	17	0	31	1	15	1	0	17	69
6:45AM	0	6	0	0	6	20	0	2	0	22	0	11	42	0	53	11	10	0	0	21	102
Hourly Total	0	7	1	0	8	57	3	9	0	69	0	40	74	0	114	15	36	2	0	53	244
7:00AM	1	13	0	0	14	25	2	3	0	30	0	17	46	1	64	11	14	0	0	25	133
7:15AM	2	11	0	0	13	22	4	5	0	31	1	15	57	0	73	5	17	2	0	24	141
7:30AM	1	6	0	0	7	31	8	5	0	44	0	16	37	0	53	7	24	1	0	32	136
7:45AM	0	5	0	0	5	29	3	4	0	36	0	12	26	0	38	6	30	0	0	36	115
Hourly Total	4	35	0	0	39	107	17	17	0	141	1	60	166	1	228	29	85	3	0	117	525
8:00AM	2	5	1	0	8	31	4	2	0	37	0	18	27	0	45	5	19	4	0	28	118
8:15AM	2	9	0	0	11	37	3	6	0	46	1	13	28	0	42	6	15	2	0	23	122
8:30AM	1	3	0	0	4	22	2	6	0	30	0	20	21	0	41	3	17	0	0	20	95
8:45AM	0	1	1	0	2	24	4	2	0	30	0	7	23	0	30	6	19	0	0	25	87
Hourly Total	5	18	2	0	25	114	13	16	0	143	1	58	99	0	158	20	70	6	0	96	422
9:00AM	0	2	0	0	2	36	4	3	0	43	0	17	22	0	39	9	7	0	0	16	100
9:15AM	1	1	0	0	2	22	2	6	0	30	0	15	19	0	34	3	12	0	0	15	81
9:30AM	0	5	1	0	6	29	1	2	0	32	0	15	29	0	44	1	13	0	0	14	96

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound					Int
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
9:45AM	0	6	0	0	6	14	1	6	0	21	1	14	22	0	37	4	13	0	0	17	81
Hourly Total	1	14	1	0	16	101	8	17	0	126	1	61	92	0	154	17	45	0	0	62	358
10:00AM	0	3	1	0	4	27	4	4	1	36	0	10	21	0	31	5	17	0	0	22	93
10:15AM	1	7	0	0	8	26	1	3	0	30	0	20	16	0	36	5	10	1	0	16	90
10:30AM	0	5	0	0	5	24	4	10	0	38	0	9	18	0	27	1	13	1	0	15	85
10:45AM	1	4	0	0	5	20	2	3	0	25	0	14	18	0	32	4	22	0	0	26	88
Hourly Total	2	19	1	0	22	97	11	20	1	129	0	53	73	0	126	15	62	2	0	79	356
11:00AM	1	5	0	0	6	24	3	12	0	39	0	9	30	0	39	5	15	0	0	20	104
11:15AM	0	5	0	0	5	29	6	5	0	40	0	14	25	0	39	8	22	0	0	30	114
11:30AM	0	2	0	0	2	36	1	2	0	39	0	16	40	0	56	5	20	0	0	25	122
11:45AM	1	3	0	0	4	25	4	6	0	35	0	18	23	0	41	7	22	0	0	29	109
Hourly Total	2	15	0	0	17	114	14	25	0	153	0	57	118	0	175	25	79	0	0	104	449
12:00PM	0	1	1	0	2	28	5	9	0	42	1	15	32	0	48	2	15	0	0	17	109
12:15PM	0	4	0	0	4	34	1	3	0	38	0	17	33	0	50	6	22	1	0	29	121
12:30PM	2	3	0	0	5	24	4	3	0	31	1	15	24	0	40	3	17	1	0	21	97
12:45PM	0	4	1	0	5	29	7	6	0	42	0	22	25	0	47	7	15	1	0	23	117
Hourly Total	2	12	2	0	16	115	17	21	0	153	2	69	114	0	185	18	69	3	0	90	444
1:00PM	0	1	1	0	2	26	2	14	0	42	0	10	29	0	39	9	16	1	0	26	109
1:15PM	0	6	0	0	6	18	7	4	0	29	0	15	24	0	39	1	19	0	0	20	94
1:30PM	1	3	0	0	4	25	3	10	0	38	0	20	26	0	46	3	14	1	0	18	106
1:45PM	0	9	1	0	10	34	10	8	0	52	1	13	45	0	59	7	17	0	0	24	145
Hourly Total	1	19	2	0	22	103	22	36	0	161	1	58	124	0	183	20	66	2	0	88	454
2:00PM	0	9	1	0	10	36	12	5	0	53	1	26	36	0	63	3	16	0	0	19	145
2:15PM	1	8	1	0	10	42	10	9	0	61	0	19	41	0	60	5	16	2	0	23	154
2:30PM	1	5	0	0	6	35	8	5	0	48	3	26	25	0	54	4	17	0	0	21	129
2:45PM	1	4	2	0	7	38	4	7	1	50	1	20	23	0	44	7	22	0	0	29	130
Hourly Total	3	26	4	0	33	151	34	26	1	212	5	91	125	0	221	19	71	2	0	92	558
3:00PM	2	11	0	0	13	36	4	15	0	55	0	26	43	0	69	3	22	0	0	25	162
3:15PM	0	7	0	0	7	37	4	8	0	49	0	29	46	0	75	5	14	1	0	20	151
3:30PM	0	11	0	0	11	41	4	9	0	54	1	34	53	0	88	6	18	2	0	26	179
3:45PM	2	11	1	0	14	45	7	9	0	61	0	24	58	0	82	7	21	0	0	28	185
Hourly Total	4	40	1	0	45	159	19	41	0	219	1	113	200	0	314	21	75	3	0	99	677
4:00PM	4	6	1	0	11	40	4	13	0	57	0	27	41	0	68	6	25	0	0	31	167
4:15PM	0	10	0	0	10	33	4	8	0	45	0	33	52	0	85	10	30	2	0	42	182
4:30PM	1	11	0	0	12	30	1	6	0	37	0	39	44	0	83	5	20	1	0	26	158
4:45PM	2	3	0	0	5	31	11	11	0	53	1	21	59	0	81	6	30	0	0	36	175
Hourly Total	7	30	1	0	38	134	20	38	0	192	1	120	196	0	317	27	105	3	0	135	682
5:00PM	1	11	0	0	12	46	10	11	0	67	0	29	48	0	77	4	17	0	0	21	177
5:15PM	3	11	1	0	15	35	8	14	0	57	0	33	54	0	87	17	24	0	0	41	200
5:30PM	0	8	0	0	8	43	7	14	1	65	2	33	42	0	77	5	35	1	0	41	191
5:45PM	1	5	0	0	6	34	5	13	0	52	0	40	40	0	80	11	24	3	0	38	176
Hourly Total	5	35	1	0	41	158	30	52	1	241	2	135	184	0	321	37	100	4	0	141	744
6:00PM	0	3	1	0	4	37	2	6	0	45	1	28	34	0	63	7	19	0	0	26	138
6:15PM	0	5	0	0	5	29	8	11	0	48	1	19	35	0	55	6	19	0	0	25	133
6:30PM	0	3	0	0	3	38	1	11	0	50	1	14	29	0	44	7	23	2	0	32	129
6:45PM	1	2	0	0	3	22	3	6	0	31	0	20	37	0	57	5	14	0	0	19	110
Hourly Total	1	13	1	0	15	126	14	34	0	174	3	81	135	0	219	25	75	2	0	102	510
7:00PM	0	0	0	0	0	25	5	7	0	37	0	11	28	0	39	7	11	0	0	18	94
7:15PM	0	1	0	0	1	22	6	3	0	31	0	16	30	0	46	7	20	0	0	27	105
7:30PM	0	6	0	0	6	14	5	9	0	28	0	13	16	0	29	10	39	0	0	49	112
7:45PM	0	4	0	0	4	15	3	4	0	22	0	21	20	0	41	11	28	0	0	39	106
Hourly Total	0	11	0	0	11	76	19	23	0	118	0	61	94	0	155	35	98	0	0	133	417

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
8:00PM	1	8	0	0	9	17	3	6	0	26	0	14	17	0	31	7	17	1	0	25	91
8:15PM	0	1	0	0	1	17	3	4	0	24	1	8	14	0	23	4	13	0	0	17	65
8:30PM	0	4	0	0	4	13	5	3	0	21	1	9	17	0	27	2	9	0	0	11	63
8:45PM	0	0	0	0	0	12	2	2	0	16	1	10	17	0	28	3	8	1	0	12	56
Hourly Total	1	13	0	0	14	59	13	15	0	87	3	41	65	0	109	16	47	2	0	65	275
9:00PM	0	1	0	0	1	7	0	5	0	12	0	4	11	0	15	3	2	0	0	5	33
9:15PM	0	0	0	0	0	5	0	1	0	6	0	5	10	0	15	0	4	0	0	4	25
9:30PM	0	0	0	0	0	10	1	1	0	12	0	4	6	0	10	0	2	0	0	2	24
9:45PM	0	0	0	0	0	11	0	4	0	15	0	3	9	0	12	1	2	0	0	3	30
Hourly Total	0	1	0	0	1	33	1	11	0	45	0	16	36	0	52	4	10	0	0	14	112
10:00PM	0	2	0	0	2	8	1	1	0	10	0	2	13	0	15	2	0	0	0	2	29
10:15PM	0	0	2	0	2	8	2	0	0	10	3	3	4	0	10	1	0	0	0	1	23
10:30PM	0	1	0	0	1	11	1	0	0	12	0	2	5	0	7	0	3	0	0	3	23
10:45PM	0	0	0	0	0	3	0	1	0	4	0	3	6	0	9	1	0	0	0	1	14
Hourly Total	0	3	2	0	5	30	4	2	0	36	3	10	28	0	41	4	3	0	0	7	89
11:00PM	0	1	0	0	1	4	2	1	0	7	0	2	5	0	7	1	4	0	0	5	20
11:15PM	0	1	0	0	1	3	0	2	0	5	0	2	5	0	7	2	0	1	0	3	16
11:30PM	0	0	0	0	0	6	1	1	0	8	0	1	8	0	9	0	0	0	0	0	17
11:45PM	0	0	0	0	0	3	0	0	0	3	0	1	3	0	4	1	3	0	0	4	11
Hourly Total	0	2	0	0	2	16	3	4	0	23	0	6	21	0	27	4	7	1	0	12	64
Total	39	321	20	0	380	1830	270	411	3	2514	24	1153	1993	1	3171	355	1139	35	0	1529	7594
% Approach	10.3%	84.5%	5.3%	0%	-	72.8%	10.7%	16.3%	0.1%	-	0.8%	36.4%	62.9%	0%	-	23.2%	74.5%	2.3%	0%	-	-
% Total	0.5%	4.2%	0.3%	0%	5.0%	24.1%	3.6%	5.4%	0%	33.1%	0.3%	15.2%	26.2%	0%	41.8%	4.7%	15.0%	0.5%	0%	20.1%	-
Lights	38	317	18	0	373	1758	267	397	3	2425	24	1131	1906	0	3061	343	1129	34	0	1506	7365
% Lights	97.4%	98.8%	90.0%	0%	98.2%	96.1%	98.9%	96.6%	100%	96.5%	100%	98.1%	95.6%	0%	96.5%	96.6%	99.1%	97.1%	0%	98.5%	97.0%
Articulated Trucks	0	0	0	0	0	10	0	0	0	10	0	3	20	1	24	0	1	0	0	1	35
% Articulated Trucks	0%	0%	0%	0%	0%	0.5%	0%	0%	0%	0.4%	0%	0.3%	1.0%	100%	0.8%	0%	0.1%	0%	0%	0.1%	0.5%
Buses and Single-Unit Trucks	1	4	2	0	7	62	3	14	0	79	0	19	67	0	86	12	9	1	0	22	194
% Buses and Single-Unit Trucks	2.6%	1.2%	10.0%	0%	1.8%	3.4%	1.1%	3.4%	0%	3.1%	0%	1.6%	3.4%	0%	2.7%	3.4%	0.8%	2.9%	0%	1.4%	2.6%

*L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Pennsylvania Avenue - TMC

Tue Sep 15, 2020

AM Peak (7 AM - 8 AM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 781297, Location: 40.313849, -83.089809

Provided by: Carpenter Marty (CM) Transportation

Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound						
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int	
2020-09-15																						
7:00AM	1	13	0	0	14	25	2	3	0	30	0	17	46	1	64	11	14	0	0	25	133	
7:15AM	2	11	0	0	13	22	4	5	0	31	1	15	57	0	73	5	17	2	0	24	141	
7:30AM	1	6	0	0	7	31	8	5	0	44	0	16	37	0	53	7	24	1	0	32	136	
7:45AM	0	5	0	0	5	29	3	4	0	36	0	12	26	0	38	6	30	0	0	36	115	
Total	4	35	0	0	39	107	17	17	0	141	1	60	166	1	228	29	85	3	0	117	525	
% Approach	10.3%	89.7%	0%	0%	-	75.9%	12.1%	12.1%	0%	-	0.4%	26.3%	72.8%	0.4%	-	24.8%	72.6%	2.6%	0%	-	-	
% Total	0.8%	6.7%	0%	0%	7.4%	20.4%	3.2%	3.2%	0%	26.9%	0.2%	11.4%	31.6%	0.2%	43.4%	5.5%	16.2%	0.6%	0%	22.3%	-	
PHF	0.500	0.673	-	-	0.696	0.863	0.531	0.850	-	0.801	0.250	0.882	0.728	0.250	0.781	0.659	0.708	0.375	-	0.813	0.931	
Lights	4	35	0	0	39	99	17	15	0	131	1	59	158	0	218	29	85	3	0	117	505	
% Lights	100%	100%	0%	0%	100%	92.5%	100%	88.2%	0%	92.9%	100%	98.3%	95.2%	0%	95.6%	100%	100%	100%	0%	100%	96.2%	
Articulated Trucks	0	0	0	0	0	1	0	0	0	1	0	0	0	1	1	0	0	0	0	0	2	
% Articulated Trucks	0%	0%	0%	0%	0%	0.9%	0%	0%	0%	0.7%	0%	0%	0%	100%	0.4%	0%	0%	0%	0%	0%	0.4%	
Buses and Single-Unit Trucks	0	0	0	0	0	7	0	2	0	9	0	1	8	0	9	0	0	0	0	0	18	
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	6.5%	0%	11.8%	0%	6.4%	0%	1.7%	4.8%	0%	3.9%	0%	0%	0%	0%	0%	3.4%	

*L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Pennsylvania Avenue - TMC

Tue Sep 15, 2020

Midday Peak (11:30 AM - 12:30 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 781297, Location: 40.313849, -83.089809

Provided by: Carpenter Marty (CM) Transportation

Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound						
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int	
2020-09-15																						
11:30AM	0	2	0	0	2	36	1	2	0	39	0	16	40	0	56	5	20	0	0	25		122
11:45AM	1	3	0	0	4	25	4	6	0	35	0	18	23	0	41	7	22	0	0	29		109
12:00PM	0	1	1	0	2	28	5	9	0	42	1	15	32	0	48	2	15	0	0	17		109
12:15PM	0	4	0	0	4	34	1	3	0	38	0	17	33	0	50	6	22	1	0	29		121
Total	1	10	1	0	12	123	11	20	0	154	1	66	128	0	195	20	79	1	0	100		461
% Approach	8.3%	83.3%	8.3%	0%	-	79.9%	7.1%	13.0%	0%	-	0.5%	33.8%	65.6%	0%	-	20.0%	79.0%	1.0%	0%	-		-
% Total	0.2%	2.2%	0.2%	0%	2.6%	26.7%	2.4%	4.3%	0%	33.4%	0.2%	14.3%	27.8%	0%	42.3%	4.3%	17.1%	0.2%	0%	21.7%		-
PHF	0.250	0.625	0.250	-	0.750	0.854	0.550	0.556	-	0.917	0.250	0.917	0.800	-	0.871	0.714	0.898	0.250	-	0.862		0.945
Lights	1	10	0	0	11	117	11	17	0	145	1	63	122	0	186	18	78	1	0	97		439
% Lights	100%	100%	0%	0%	91.7%	95.1%	100%	85.0%	0%	94.2%	100%	95.5%	95.3%	0%	95.4%	90.0%	98.7%	100%	0%	97.0%		95.2%
Articulated Trucks	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0		2
% Articulated Trucks	0%	0%	0%	0%	0%	0.8%	0%	0%	0%	0.6%	0%	1.5%	0%	0%	0.5%	0%	0%	0%	0%	0%		0.4%
Buses and Single-Unit Trucks	0	0	1	0	1	5	0	3	0	8	0	2	6	0	8	2	1	0	0	3		20
% Buses and Single-Unit Trucks	0%	0%	100%	0%	8.3%	4.1%	0%	15.0%	0%	5.2%	0%	3.0%	4.7%	0%	4.1%	10.0%	1.3%	0%	0%	3.0%		4.3%

* L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Pennsylvania Avenue - TMC

Tue Sep 15, 2020

PM Peak (5 PM - 6 PM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 781297, Location: 40.313849, -83.089809

Provided by: Carpenter Marty (CM) Transportation

Inc.

6612 Singletree Drive, Columbus, OH, 43229, US

Leg Direction	Pennsylvania Avenue Eastbound					Pennsylvania Avenue Westbound					Troy Road Northbound					Troy Road Southbound					Int
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2020-09-15																					
5:00PM	1	11	0	0	12	46	10	11	0	67	0	29	48	0	77	4	17	0	0	21	177
5:15PM	3	11	1	0	15	35	8	14	0	57	0	33	54	0	87	17	24	0	0	41	200
5:30PM	0	8	0	0	8	43	7	14	1	65	2	33	42	0	77	5	35	1	0	41	191
5:45PM	1	5	0	0	6	34	5	13	0	52	0	40	40	0	80	11	24	3	0	38	176
Total	5	35	1	0	41	158	30	52	1	241	2	135	184	0	321	37	100	4	0	141	744
% Approach	12.2%	85.4%	2.4%	0%	-	65.6%	12.4%	21.6%	0.4%	-	0.6%	42.1%	57.3%	0%	-	26.2%	70.9%	2.8%	0%	-	-
% Total	0.7%	4.7%	0.1%	0%	5.5%	21.2%	4.0%	7.0%	0.1%	32.4%	0.3%	18.1%	24.7%	0%	43.1%	5.0%	13.4%	0.5%	0%	19.0%	-
PHF	0.417	0.795	0.250	-	0.683	0.859	0.750	0.929	0.250	0.899	0.250	0.844	0.852	-	0.922	0.544	0.714	0.333	-	0.860	0.930
Lights	5	35	1	0	41	158	30	50	1	239	2	135	178	0	315	37	99	4	0	140	735
% Lights	100%	100%	100%	0%	100%	100%	100%	96.2%	100%	99.2%	100%	100%	96.7%	0%	98.1%	100%	99.0%	100%	0%	99.3%	98.8%
Articulate d Trucks	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	0	1	0	0	1	5
% Articulate d Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2.2%	0%	1.2%	0%	1.0%	0%	0%	0.7%	0.7%
Buses and Single-Unit Trucks	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	0	0	0	0	0	4
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	0%	0%	3.8%	0%	0.8%	0%	0%	1.1%	0%	0.6%	0%	0%	0%	0%	0%	0.5%

* L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Hills-Miller Road - TMC

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Tue Mar 16, 2021

Full Length (12 AM-12 AM (+1))

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819943, Location: 40.33335, -83.099843

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
2021-03-16 12:00AM	0	1	0	0	1	0	1	1	0	2	0	2	0	0	2	0	0	0	0	0	5
12:15AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	3
12:30AM	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3
12:45AM	1	1	0	0	2	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	4
Hourly Total	1	4	0	0	5	0	5	1	0	6	0	2	0	0	2	0	1	1	0	2	15
1:00AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
1:15AM	0	0	0	0	0	0	1	0	0	1	0	1	2	0	3	0	0	0	0	0	4
1:30AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
1:45AM	0	1	0	0	1	1	1	1	0	3	0	0	0	0	0	0	0	1	0	1	5
Hourly Total	0	1	0	0	1	2	2	1	0	5	0	2	2	0	4	0	1	1	0	2	12
2:00AM	0	1	0	0	1	0	2	0	0	2	0	0	1	0	1	0	0	1	0	1	5
2:15AM	0	3	0	0	3	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	5
2:30AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2:45AM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	3
Hourly Total	0	5	0	0	5	3	2	0	0	5	0	1	1	0	2	1	0	1	0	2	14
3:00AM	0	1	0	0	1	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	4
3:15AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
3:30AM	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
3:45AM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Hourly Total	0	4	0	0	4	1	2	0	0	3	0	3	1	0	4	0	0	0	0	0	11
4:00AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
4:15AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	10
4:30AM	0	1	0	0	1	0	0	1	0	1	0	1	2	0	3	0	1	0	0	1	6
4:45AM	0	2	0	0	2	1	2	0	0	3	0	0	0	0	0	0	3	1	0	4	9
Hourly Total	0	8	0	0	8	1	4	1	0	6	0	2	2	0	4	2	5	1	0	8	26
5:00AM	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	10
5:15AM	1	2	0	0	3	1	3	1	0	5	0	1	1	0	2	3	1	1	0	5	15
5:30AM	0	7	0	0	7	0	1	1	0	2	0	1	3	0	4	2	5	1	0	8	21
5:45AM	2	8	0	0	10	4	6	0	0	10	0	2	0	0	2	2	2	3	0	7	29
Hourly Total	3	23	0	0	26	5	12	2	0	19	0	4	4	0	8	7	9	6	0	22	75
6:00AM	1	14	0	0	15	2	2	1	0	5	0	2	3	0	5	3	1	0	0	4	29
6:15AM	2	12	0	0	14	3	8	1	0	12	0	4	2	0	6	0	9	2	0	11	43
6:30AM	2	17	0	0	19	3	4	0	0	7	0	4	4	0	8	3	7	0	0	10	44
6:45AM	9	21	0	0	30	2	9	3	0	14	0	16	6	0	22	4	7	1	0	12	78
Hourly Total	14	64	0	0	78	10	23	5	0	38	0	26	15	0	41	10	24	3	0	37	194
7:00AM	26	29	0	0	55	12	2	2	0	16	0	11	11	0	22	5	7	6	0	18	111
7:15AM	77	29	0	0	106	5	6	8	0	19	0	20	7	0	27	6	11	7	0	24	176
7:30AM	15	19	0	0	34	11	12	3	0	26	0	9	15	0	24	8	19	15	0	42	126
7:45AM	1	20	1	0	22	21	17	2	0	40	0	5	6	0	11	4	8	3	0	15	88
Hourly Total	119	97	1	0	217	49	37	15	0	101	0	45	39	0	84	23	45	31	0	99	501
8:00AM	2	18	0	0	20	11	12	3	0	26	0	7	5	0	12	4	5	2	0	11	69
8:15AM	10	18	0	0	28	5	12	3	0	20	0	7	4	0	11	1	6	5	0	12	71
8:30AM	1	16	0	0	17	12	7	1	0	20	0	6	12	0	18	6	8	1	0	15	70
8:45AM	3	16	0	0	19	10	10	2	0	22	0	5	7	0	12	4	7	4	0	15	68
Hourly Total	16	68	0	0	84	38	41	9	0	88	0	25	28	0	53	15	26	12	0	53	278
9:00AM	0	16	0	0	16	6	9	7	0	22	1	5	9	0	15	5	9	6	0	20	73
9:15AM	7	13	1	0	21	3	3	3	0	9	2	7	6	0	15	3	7	1	0	11	56
9:30AM	5	15	0	0	20	3	3	2	0	8	1	7	4	0	12	6	6	2	0	14	54
9:45AM	2	13	0	0	15	4	7	3	0	14	0	6	3	0	9	3	9	2	0	14	52
Hourly Total	14	57	1	0	72	16	22	15	0	53	4	25	22	0	51	17	31	11	0	59	235
10:00AM	1	11	0	0	12	7	7	1	0	15	0	10	9	0	19	1	8	0	0	9	55
10:15AM	3	15	0	0	18	3	8	4	0	15	0	7	3	0	10	5	8	2	0	15	58
10:30AM	7	10	1	0	18	3	7	2	0	12	0	4	6	0	10	5	11	0	0	16	56
10:45AM	2	7	0	0	9	14	5	3	0	22	0	8	7	0	15	3	7	2	0	12	58

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound					Int
	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	
Hourly Total	13	43	1	0	57	27	27	10	0	64	0	29	25	0	54	14	34	4	0	52	227
11:00AM	0	12	1	0	13	5	10	2	0	17	0	4	5	0	9	1	4	3	0	8	47
11:15AM	4	15	2	0	21	4	19	9	0	32	0	11	5	0	16	7	15	3	0	25	94
11:30AM	0	13	0	0	13	3	13	4	0	20	0	8	10	0	18	2	5	2	0	9	60
11:45AM	2	8	0	0	10	4	12	2	0	18	0	6	8	0	14	7	4	1	0	12	54
Hourly Total	6	48	3	0	57	16	54	17	0	87	0	29	28	0	57	17	28	9	0	54	255
12:00PM	1	18	0	0	19	7	10	1	0	18	0	9	8	0	17	5	5	1	0	11	65
12:15PM	5	11	0	0	16	13	10	4	0	27	0	11	6	0	17	3	9	1	0	13	73
12:30PM	0	6	0	0	6	7	9	3	0	19	0	10	7	0	17	5	7	1	0	13	55
12:45PM	2	13	0	0	15	7	7	5	0	19	0	7	6	0	13	5	4	0	0	9	56
Hourly Total	8	48	0	0	56	34	36	13	0	83	0	37	27	0	64	18	25	3	0	46	249
1:00PM	2	16	0	0	18	2	13	1	0	16	0	11	9	0	20	1	7	0	0	8	62
1:15PM	5	15	0	1	21	6	13	2	0	21	0	12	8	0	20	2	8	0	0	10	72
1:30PM	3	12	0	0	15	10	15	2	0	27	1	7	6	0	14	4	8	8	0	20	76
1:45PM	7	13	0	0	20	6	4	5	0	15	0	11	8	0	19	7	11	4	0	22	76
Hourly Total	17	56	0	1	74	24	45	10	0	79	1	41	31	0	73	14	34	12	0	60	286
2:00PM	9	17	0	0	26	7	9	5	0	21	0	12	7	0	19	6	12	2	0	20	86
2:15PM	15	10	0	0	25	3	10	4	0	17	1	13	10	0	24	6	10	5	0	21	87
2:30PM	4	11	0	0	15	11	11	2	0	24	0	11	7	0	18	7	23	52	0	82	139
2:45PM	6	17	0	0	23	16	23	9	0	48	0	15	8	0	23	5	9	10	0	24	118
Hourly Total	34	55	0	0	89	37	53	20	0	110	1	51	32	0	84	24	54	69	0	147	430
3:00PM	7	11	0	0	18	9	15	6	0	30	2	14	13	0	29	5	17	16	0	38	115
3:15PM	7	17	0	0	24	8	15	5	0	28	0	12	13	0	25	1	14	3	0	18	95
3:30PM	8	13	0	0	21	10	15	4	0	29	0	23	8	0	31	8	13	5	0	26	107
3:45PM	11	15	0	0	26	8	31	7	0	46	0	14	9	0	23	4	6	2	0	12	107
Hourly Total	33	56	0	0	89	35	76	22	0	133	2	63	43	0	108	18	50	26	0	94	424
4:00PM	4	23	1	0	28	14	26	7	0	47	0	27	12	0	39	1	12	7	0	20	134
4:15PM	3	19	1	1	24	14	15	9	0	38	1	15	5	0	21	2	18	8	0	28	111
4:30PM	7	16	0	0	23	11	32	9	0	52	0	12	10	0	22	1	16	9	0	26	123
4:45PM	8	21	0	0	29	11	21	6	0	38	0	14	6	0	20	3	20	10	0	33	120
Hourly Total	22	79	2	1	104	50	94	31	0	175	1	68	33	0	102	7	66	34	0	107	488
5:00PM	4	16	0	0	20	7	17	3	0	27	0	21	11	0	32	4	15	17	0	36	115
5:15PM	3	14	0	0	17	10	21	3	0	34	0	14	10	0	24	10	11	6	0	27	102
5:30PM	15	15	0	0	30	9	19	6	0	34	0	13	10	0	23	5	16	5	0	26	113
5:45PM	5	11	1	0	17	16	16	4	0	36	0	11	14	0	25	0	15	10	0	25	103
Hourly Total	27	56	1	0	84	42	73	16	0	131	0	59	45	0	104	19	57	38	0	114	433
6:00PM	3	13	0	0	16	9	21	3	0	33	0	9	6	0	15	2	12	1	0	15	79
6:15PM	5	8	0	0	13	2	15	4	0	21	0	13	9	0	22	2	9	6	0	17	73
6:30PM	1	11	0	0	12	5	15	2	0	22	0	8	5	0	13	3	5	1	0	9	56
6:45PM	2	15	0	0	17	4	8	4	0	16	0	10	9	0	19	2	6	2	0	10	62
Hourly Total	11	47	0	0	58	20	59	13	0	92	0	40	29	0	69	9	32	10	0	51	270
7:00PM	1	12	0	0	13	6	6	3	0	15	0	7	5	0	12	2	9	1	0	12	52
7:15PM	0	11	0	0	11	4	14	7	0	25	0	11	8	0	19	0	10	0	0	10	65
7:30PM	0	9	0	0	9	5	14	1	0	20	0	13	6	0	19	1	2	1	0	4	52
7:45PM	0	5	0	0	5	3	16	2	0	21	0	5	6	0	11	4	6	7	0	17	54
Hourly Total	1	37	0	0	38	18	50	13	0	81	0	36	25	0	61	7	27	9	0	43	223
8:00PM	0	3	0	0	3	7	13	6	0	26	0	12	1	0	13	4	3	1	0	8	50
8:15PM	0	2	0	0	2	4	10	3	0	17	0	4	4	0	8	4	4	0	0	8	35
8:30PM	3	2	0	0	5	5	4	5	0	14	0	4	2	0	6	2	3	1	0	6	31
8:45PM	1	1	0	0	2	3	5	3	0	11	0	6	2	0	8	1	0	0	0	1	22
Hourly Total	4	8	0	0	12	19	32	17	0	68	0	26	9	0	35	11	10	2	0	23	138
9:00PM	1	5	0	0	6	3	6	2	0	11	0	4	3	0	7	2	2	0	0	4	28
9:15PM	1	4	0	0	5	1	4	1	0	6	0	5	2	0	7	3	2	1	0	6	24
9:30PM	2	0	0	0	2	0	3	0	0	3	0	5	2	0	7	1	0	1	0	2	14
9:45PM	0	6	0	0	6	2	4	0	0	6	0	3	3	0	6	0	0	0	0	0	18
Hourly Total	4	15	0	0	19	6	17	3	0	26	0	17	10	0	27	6	4	2	0	12	84
10:00PM	0	3	0	0	3	3	2	0	0	5	0	3	1	0	4	0	3	0	0	3	15
10:15PM	1	4	0	0	5	3	3	2	0	8	0	2	3	0	5	0	1	0	0	1	19
10:30PM	0	4	0	0	4	1	4	0	0	5	0	0	0	0	0	0	2	0	0	2	11
10:45PM	0	1	0	0	1	3	3	2	0	8	1	0	0	0	1	2	1	0	0	3	13

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
Hourly Total	1	12	0	0	13	10	12	4	0	26	1	5	4	0	10	2	7	0	0	9	58
11:00PM	0	2	0	0	2	2	0	1	0	3	2	1	1	0	4	0	2	1	0	3	12
11:15PM	0	1	0	0	1	0	2	1	0	3	0	1	2	0	3	0	0	0	0	0	7
11:30PM	0	0	0	0	0	1	1	2	0	4	0	0	1	0	1	0	1	0	0	1	6
11:45PM	0	1	0	0	1	2	1	0	0	3	0	1	0	0	1	0	0	0	0	0	5
Hourly Total	0	4	0	0	4	5	4	4	0	13	2	3	4	0	9	0	3	1	0	4	30
Total	348	895	9	2	1254	468	782	242	0	1492	12	639	459	0	1110	241	573	286	0	1100	4956
% Approach	27.8%	71.4%	0.7%	0.2%	-	31.4%	52.4%	16.2%	0%	-	1.1%	57.6%	41.4%	0%	-	21.9%	52.1%	26.0%	0%	-	-
% Total	7.0%	18.1%	0.2%	0%	25.3%	9.4%	15.8%	4.9%	0%	30.1%	0.2%	12.9%	9.3%	0%	22.4%	4.9%	11.6%	5.8%	0%	22.2%	-
Lights	316	841	8	0	1165	458	739	234	0	1431	11	626	447	0	1084	230	566	260	0	1056	4736
% Lights	90.8%	94.0%	88.9%	0%	92.9%	97.9%	94.5%	96.7%	0%	95.9%	91.7%	98.0%	97.4%	0%	97.7%	95.4%	98.8%	90.9%	0%	96.0%	95.6%
Articulated Trucks	5	4	0	2	11	1	2	0	0	3	0	2	2	0	4	2	0	6	0	8	26
% Articulated Trucks	1.4%	0.4%	0%	100%	0.9%	0.2%	0.3%	0%	0%	0.2%	0%	0.3%	0.4%	0%	0.4%	0.8%	0%	2.1%	0%	0.7%	0.5%
Buses and Single-Unit Trucks	27	50	1	0	78	9	41	8	0	58	1	11	10	0	22	9	7	20	0	36	194
% Buses and Single-Unit Trucks	7.8%	5.6%	11.1%	0%	6.2%	1.9%	5.2%	3.3%	0%	3.9%	8.3%	1.7%	2.2%	0%	2.0%	3.7%	1.2%	7.0%	0%	3.3%	3.9%

*L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Hills-Miller Road - TMC

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Tue Mar 16, 2021

AM Peak (7 AM - 8 AM) - Overall Peak Hour

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819943, Location: 40.33335, -83.099843

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2021-03-16 7:00AM	26	29	0	0	55	12	2	2	0	16	0	11	11	0	22	5	7	6	0	18	111
7:15AM	77	29	0	0	106	5	6	8	0	19	0	20	7	0	27	6	11	7	0	24	176
7:30AM	15	19	0	0	34	11	12	3	0	26	0	9	15	0	24	8	19	15	0	42	126
7:45AM	1	20	1	0	22	21	17	2	0	40	0	5	6	0	11	4	8	3	0	15	88
Total	119	97	1	0	217	49	37	15	0	101	0	45	39	0	84	23	45	31	0	99	501
% Approach	54.8%	44.7%	0.5%	0%	-	48.5%	36.6%	14.9%	0%	-	0%	53.6%	46.4%	0%	-	23.2%	45.5%	31.3%	0%	-	-
% Total	23.8%	19.4%	0.2%	0%	43.3%	9.8%	7.4%	3.0%	0%	20.2%	0%	9.0%	7.8%	0%	16.8%	4.6%	9.0%	6.2%	0%	19.8%	-
PHF	0.386	0.836	0.250	-	0.512	0.583	0.544	0.469	-	0.631	-	0.563	0.650	-	0.778	0.719	0.592	0.517	-	0.589	0.712
Lights	110	95	1	0	206	47	34	14	0	95	0	44	38	0	82	22	44	29	0	95	478
% Lights	92.4%	97.9%	100%	0%	94.9%	95.9%	91.9%	93.3%	0%	94.1%	0%	97.8%	97.4%	0%	97.6%	95.7%	97.8%	93.5%	0%	96.0%	95.4%
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated Trucks	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Buses and Single-Unit Trucks	9	2	0	0	11	2	3	1	0	6	0	1	1	0	2	1	1	2	0	4	23
% Buses and Single-Unit Trucks	7.6%	2.1%	0%	0%	5.1%	4.1%	8.1%	6.7%	0%	5.9%	0%	2.2%	2.6%	0%	2.4%	4.3%	2.2%	6.5%	0%	4.0%	4.6%

* L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Hills-Miller Road - TMC

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Tue Mar 16, 2021

Midday Peak (11:15 AM - 12:15 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819943, Location: 40.33335, -83.099843

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound						
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int	
2021-03-16 11:15AM	4	15	2	0	21	4	19	9	0	32	0	11	5	0	16	7	15	3	0	25	94	
11:30AM	0	13	0	0	13	3	13	4	0	20	0	8	10	0	18	2	5	2	0	9	60	
11:45AM	2	8	0	0	10	4	12	2	0	18	0	6	8	0	14	7	4	1	0	12	54	
12:00PM	1	18	0	0	19	7	10	1	0	18	0	9	8	0	17	5	5	1	0	11	65	
Total	7	54	2	0	63	18	54	16	0	88	0	34	31	0	65	21	29	7	0	57	273	
% Approach	11.1%	85.7%	3.2%	0%	-	20.5%	61.4%	18.2%	0%	-	0%	52.3%	47.7%	0%	-	36.8%	50.9%	12.3%	0%	-	-	
% Total	2.6%	19.8%	0.7%	0%	23.1%	6.6%	19.8%	5.9%	0%	32.2%	0%	12.5%	11.4%	0%	23.8%	7.7%	10.6%	2.6%	0%	20.9%	-	
PHF	0.438	0.750	0.250	-	0.750	0.643	0.711	0.444	-	0.688	-	0.773	0.775	-	0.903	0.750	0.483	0.583	-	0.570	0.726	
Lights	6	50	1	0	57	18	47	16	0	81	0	34	31	0	65	18	29	5	0	52	255	
% Lights	85.7%	92.6%	50.0%	0%	90.5%	100%	87.0%	100%	0%	92.0%	0%	100%	100%	0%	100%	85.7%	100%	71.4%	0%	91.2%	93.4%	
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% Articulated Trucks	0%	1.9%	0%	0%	1.6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.4%	
Buses and Single-Unit Trucks	1	3	1	0	5	0	7	0	0	7	0	0	0	0	0	3	0	2	0	5	17	
% Buses and Single-Unit Trucks	14.3%	5.6%	50.0%	0%	7.9%	0%	13.0%	0%	0%	8.0%	0%	0%	0%	0%	0%	14.3%	0%	28.6%	0%	8.8%	6.2%	

* L: Left, R: Right, T: Thru, U: U-Turn

Troy Road and Hills-Miller Road - TMC

Provided by: Carpenter Marty (CM) Transportation Inc.
6612 Singletree Drive, Columbus, OH, 43229, US

Tue Mar 16, 2021

PM Peak (4 PM - 5 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks)

All Movements

ID: 819943, Location: 40.33335, -83.099843

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Troy Road Northbound					Troy Road Southbound					
Time	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	L	T	R	U	App	Int
2021-03-16 4:00PM	4	23	1	0	28	14	26	7	0	47	0	27	12	0	39	1	12	7	0	20	134
4:15PM	3	19	1	1	24	14	15	9	0	38	1	15	5	0	21	2	18	8	0	28	111
4:30PM	7	16	0	0	23	11	32	9	0	52	0	12	10	0	22	1	16	9	0	26	123
4:45PM	8	21	0	0	29	11	21	6	0	38	0	14	6	0	20	3	20	10	0	33	120
Total	22	79	2	1	104	50	94	31	0	175	1	68	33	0	102	7	66	34	0	107	488
% Approach	21.2%	76.0%	1.9%	1.0%	-	28.6%	53.7%	17.7%	0%	-	1.0%	66.7%	32.4%	0%	-	6.5%	61.7%	31.8%	0%	-	-
% Total	4.5%	16.2%	0.4%	0.2%	21.3%	10.2%	19.3%	6.4%	0%	35.9%	0.2%	13.9%	6.8%	0%	20.9%	1.4%	13.5%	7.0%	0%	21.9%	-
PHF	0.688	0.859	0.500	0.250	0.897	0.893	0.734	0.861	-	0.841	0.250	0.630	0.688	-	0.654	0.583	0.825	0.850	-	0.811	0.910
Lights	17	77	2	0	96	50	88	31	0	169	1	64	33	0	98	7	65	32	0	104	467
% Lights	77.3%	97.5%	100%	0%	92.3%	100%	93.6%	100%	0%	96.6%	100%	94.1%	100%	0%	96.1%	100%	98.5%	94.1%	0%	97.2%	95.7%
Articulated Trucks	1	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Articulated Trucks	4.5%	0%	0%	100%	1.9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.4%
Buses and Single-Unit Trucks	4	2	0	0	6	0	6	0	0	6	0	4	0	0	4	0	1	2	0	3	19
% Buses and Single-Unit Trucks	18.2%	2.5%	0%	0%	5.8%	0%	6.4%	0%	0%	3.4%	0%	5.9%	0%	0%	3.9%	0%	1.5%	5.9%	0%	2.8%	3.9%

* L: Left, R: Right, T: Thru, U: U-Turn

Hills-Miller Road & Oakhurst Drive - TMC

Thu May 19, 2022

Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953373, Location: 40.332266, -83.078892



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Oakhurst Drive Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 6:00AM	21	0	0	21	0	0	9	0	9	0	2	0	0	2	0	32
6:15AM	21	0	0	21	0	0	17	0	17	0	0	1	0	1	0	39
6:30AM	34	0	0	34	0	2	19	0	21	0	0	3	0	3	0	58
6:45AM	33	0	0	33	0	2	25	0	27	0	1	7	0	8	0	68
Hourly Total	109	0	0	109	0	4	70	0	74	0	3	11	0	14	0	197
7:00AM	47	1	0	48	0	1	19	0	20	0	1	1	0	2	0	70
7:15AM	43	1	0	44	0	1	26	0	27	0	1	5	0	6	0	77
7:30AM	59	5	0	64	0	0	31	0	31	0	4	4	0	8	0	103
7:45AM	54	2	0	56	0	2	27	0	29	0	2	6	0	8	0	93
Hourly Total	203	9	0	212	0	4	103	0	107	0	8	16	0	24	0	343
8:00AM	50	1	0	51	0	1	31	0	32	0	5	6	0	11	0	94
8:15AM	34	2	0	36	0	0	28	0	28	0	0	6	0	6	0	70
8:30AM	33	3	0	36	0	3	29	0	32	0	1	7	0	8	0	76
8:45AM	39	0	0	39	0	3	32	0	35	0	1	5	0	6	0	80
Hourly Total	156	6	0	162	0	7	120	0	127	0	7	24	0	31	0	320
3:00PM	46	1	0	47	0	5	34	0	39	0	1	2	0	3	0	89
3:15PM	45	3	0	48	0	3	37	0	40	0	2	3	0	5	0	93
3:30PM	45	3	0	48	0	7	43	0	50	0	2	6	0	8	0	106
3:45PM	44	0	0	44	0	6	49	0	55	0	2	9	0	11	0	110
Hourly Total	180	7	0	187	0	21	163	0	184	0	7	20	0	27	0	398
4:00PM	33	6	0	39	0	7	35	0	42	0	0	0	0	0	0	81
4:15PM	40	4	0	44	0	5	44	0	49	0	3	1	0	4	0	97
4:30PM	41	3	0	44	0	2	48	0	50	0	2	8	0	10	0	104
4:45PM	47	8	0	55	0	5	45	0	50	0	4	6	0	10	0	115
Hourly Total	161	21	0	182	0	19	172	0	191	0	9	15	0	24	0	397
5:00PM	51	5	0	56	0	3	50	0	53	0	1	7	0	8	0	117
5:15PM	55	3	0	58	0	4	51	0	55	0	1	5	0	6	0	119
5:30PM	47	0	0	47	0	6	40	0	46	0	1	4	0	5	0	98
5:45PM	44	2	0	46	0	1	40	0	41	0	3	10	0	13	0	100
Hourly Total	197	10	0	207	0	14	181	0	195	0	6	26	0	32	0	434
Total	1006	53	0	1059	0	69	809	0	878	0	40	112	0	152	0	2089
% Approach	95.0%	5.0%	0%	-	-	7.9%	92.1%	0%	-	-	26.3%	73.7%	0%	-	-	-
% Total	48.2%	2.5%	0%	50.7%	-	3.3%	38.7%	0%	42.0%	-	1.9%	5.4%	0%	7.3%	-	-
Lights and Motorcycles	956	50	0	1006	-	63	779	0	842	-	38	106	0	144	-	1992
% Lights and Motorcycles	95.0%	94.3%	0%	95.0%	-	91.3%	96.3%	0%	95.9%	-	95.0%	94.6%	0%	94.7%	-	95.4%
Heavy	50	3	0	53	-	6	30	0	36	-	2	6	0	8	-	97
% Heavy	5.0%	5.7%	0%	5.0%	-	8.7%	3.7%	0%	4.1%	-	5.0%	5.4%	0%	5.3%	-	4.6%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Hills-Miller Road & Oakhurst Drive - TMC

Thu May 19, 2022

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

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953373, Location: 40.332266, -83.078892



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Oakhurst Drive Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 7:15AM	43	1	0	44	0	1	26	0	27	0	1	5	0	6	0	77
7:30AM	59	5	0	64	0	0	31	0	31	0	4	4	0	8	0	103
7:45AM	54	2	0	56	0	2	27	0	29	0	2	6	0	8	0	93
8:00AM	50	1	0	51	0	1	31	0	32	0	5	6	0	11	0	94
Total	206	9	0	215	0	4	115	0	119	0	12	21	0	33	0	367
% Approach	95.8%	4.2%	0%	-	-	3.4%	96.6%	0%	-	-	36.4%	63.6%	0%	-	-	-
% Total	56.1%	2.5%	0%	58.6%	-	1.1%	31.3%	0%	32.4%	-	3.3%	5.7%	0%	9.0%	-	-
PHF	0.873	0.450	-	0.840	-	0.500	0.927	-	0.930	-	0.600	0.875	-	0.750	-	0.891
Lights and Motorcycles	189	8	0	197	-	4	112	0	116	-	12	20	0	32	-	345
% Lights and Motorcycles	91.7%	88.9%	0%	91.6%	-	100%	97.4%	0%	97.5%	-	100%	95.2%	0%	97.0%	-	94.0%
Heavy	17	1	0	18	-	0	3	0	3	-	0	1	0	1	-	22
% Heavy	8.3%	11.1%	0%	8.4%	-	0%	2.6%	0%	2.5%	-	0%	4.8%	0%	3.0%	-	6.0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Hills-Miller Road & Oakhurst Drive - TMC

Thu May 19, 2022

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

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953373, Location: 40.332266, -83.078892



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Oakhurst Drive Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 4:30PM	41	3	0	44	0	2	48	0	50	0	2	8	0	10	0	104
4:45PM	47	8	0	55	0	5	45	0	50	0	4	6	0	10	0	115
5:00PM	51	5	0	56	0	3	50	0	53	0	1	7	0	8	0	117
5:15PM	55	3	0	58	0	4	51	0	55	0	1	5	0	6	0	119
Total	194	19	0	213	0	14	194	0	208	0	8	26	0	34	0	455
% Approach	91.1%	8.9%	0%	-	-	6.7%	93.3%	0%	-	-	23.5%	76.5%	0%	-	-	-
% Total	42.6%	4.2%	0%	46.8%	-	3.1%	42.6%	0%	45.7%	-	1.8%	5.7%	0%	7.5%	-	-
PHF	0.882	0.594	-	0.918	-	0.700	0.951	-	0.945	-	0.500	0.813	-	0.850	-	0.956
Lights and Motorcycles	187	19	0	206	-	12	194	0	206	-	8	24	0	32	-	444
% Lights and Motorcycles	96.4%	100%	0%	96.7%	-	85.7%	100%	0%	99.0%	-	100%	92.3%	0%	94.1%	-	97.6%
Heavy	7	0	0	7	-	2	0	0	2	-	0	2	0	2	-	11
% Heavy	3.6%	0%	0%	3.3%	-	14.3%	0%	0%	1.0%	-	0%	7.7%	0%	5.9%	-	2.4%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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

Hills-Miller Road & Bruce Road - TMC

Thu May 19, 2022

Full Length (6 AM-9 AM, 3 PM-6 PM)

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953448, Location: 40.33216, -83.076837



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Bruce Road Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 6:00AM	23	0	0	23	0	0	8	0	8	1	0	5	0	5	0	36
6:15AM	22	0	0	22	0	0	19	0	19	0	0	4	0	4	0	45
6:30AM	40	0	0	40	0	1	17	0	18	0	3	16	0	19	0	77
6:45AM	37	3	0	40	0	3	22	0	25	0	4	10	0	14	0	79
Hourly Total	122	3	0	125	0	4	66	0	70	1	7	35	0	42	0	237
7:00AM	47	0	0	47	0	2	22	0	24	1	0	5	0	5	1	76
7:15AM	47	1	0	48	0	2	24	0	26	2	1	14	0	15	1	89
7:30AM	62	3	0	65	0	3	29	0	32	0	2	12	0	14	0	111
7:45AM	60	0	0	60	0	6	27	0	33	2	2	6	0	8	0	101
Hourly Total	216	4	0	220	0	13	102	0	115	5	5	37	0	42	2	377
8:00AM	51	5	0	56	0	3	29	0	32	0	3	5	0	8	0	96
8:15AM	38	2	0	40	0	4	23	0	27	0	5	7	0	12	0	79
8:30AM	36	4	0	40	0	8	29	0	37	0	1	12	0	13	0	90
8:45AM	42	2	0	44	0	2	35	0	37	0	3	7	0	10	0	91
Hourly Total	167	13	0	180	0	17	116	0	133	0	12	31	0	43	0	356
3:00PM	47	3	0	50	0	10	36	0	46	0	3	8	0	11	0	107
3:15PM	42	6	0	48	0	14	36	0	50	0	4	5	0	9	0	107
3:30PM	46	6	0	52	0	9	45	0	54	0	5	3	0	8	0	114
3:45PM	47	3	0	50	0	11	56	0	67	0	1	16	0	17	1	134
Hourly Total	182	18	0	200	0	44	173	0	217	0	13	32	0	45	1	462
4:00PM	33	2	0	35	0	13	42	0	55	1	0	6	0	6	1	96
4:15PM	38	2	0	40	0	12	47	0	59	1	2	10	0	12	1	111
4:30PM	46	4	0	50	0	12	47	0	59	1	3	4	0	7	0	116
4:45PM	52	2	0	54	0	8	46	0	54	5	3	6	0	9	4	117
Hourly Total	169	10	0	179	0	45	182	0	227	8	8	26	0	34	6	440
5:00PM	53	5	0	58	0	14	53	0	67	0	2	12	0	14	0	139
5:15PM	55	4	0	59	0	12	52	0	64	0	1	9	0	10	0	133
5:30PM	51	1	0	52	0	19	46	0	65	1	3	6	0	9	0	126
5:45PM	52	3	0	55	0	5	37	0	42	1	3	2	0	5	0	102
Hourly Total	211	13	0	224	0	50	188	0	238	2	9	29	0	38	0	500
Total	1067	61	0	1128	0	173	827	0	1000	16	54	190	0	244	9	2372
% Approach	94.6%	5.4%	0%	-	-	17.3%	82.7%	0%	-	-	22.1%	77.9%	0%	-	-	-
% Total	45.0%	2.6%	0%	47.6%	-	7.3%	34.9%	0%	42.2%	-	2.3%	8.0%	0%	10.3%	-	-
Lights and Motorcycles	1011	58	0	1069	-	167	793	0	960	-	48	187	0	235	-	2264
% Lights and Motorcycles	94.8%	95.1%	0%	94.8%	-	96.5%	95.9%	0%	96.0%	-	88.9%	98.4%	0%	96.3%	-	95.4%
Heavy	56	3	0	59	-	6	34	0	40	-	6	3	0	9	-	108
% Heavy	5.2%	4.9%	0%	5.2%	-	3.5%	4.1%	0%	4.0%	-	11.1%	1.6%	0%	3.7%	-	4.6%
Pedestrians	-	-	-	-	0	-	-	-	-	16	-	-	-	-	9	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-

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

Hills-Miller Road & Bruce Road - TMC

Thu May 19, 2022

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

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953448, Location: 40.33216, -83.076837



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Bruce Road Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 7:15AM	47	1	0	48	0	2	24	0	26	2	1	14	0	15	1	89
7:30AM	62	3	0	65	0	3	29	0	32	0	2	12	0	14	0	111
7:45AM	60	0	0	60	0	6	27	0	33	2	2	6	0	8	0	101
8:00AM	51	5	0	56	0	3	29	0	32	0	3	5	0	8	0	96
Total	220	9	0	229	0	14	109	0	123	4	8	37	0	45	1	397
% Approach	96.1%	3.9%	0%	-	-	11.4%	88.6%	0%	-	-	17.8%	82.2%	0%	-	-	-
% Total	55.4%	2.3%	0%	57.7%	-	3.5%	27.5%	0%	31.0%	-	2.0%	9.3%	0%	11.3%	-	-
PHF	0.887	0.450	-	0.881	-	0.583	0.940	-	0.932	-	0.667	0.661	-	0.750	-	0.894
Lights and Motorcycles	202	8	0	210	-	14	106	0	120	-	7	37	0	44	-	374
% Lights and Motorcycles	91.8%	88.9%	0%	91.7%	-	100%	97.2%	0%	97.6%	-	87.5%	100%	0%	97.8%	-	94.2%
Heavy	18	1	0	19	-	0	3	0	3	-	1	0	0	1	-	23
% Heavy	8.2%	11.1%	0%	8.3%	-	0%	2.8%	0%	2.4%	-	12.5%	0%	0%	2.2%	-	5.8%
Pedestrians	-	-	-	-	0	-	-	-	-	4	-	-	-	-	-	1
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-

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

Hills-Miller Road & Bruce Road - TMC

Thu May 19, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights and Motorcycles, Heavy, Pedestrians)

All Movements

ID: 953448, Location: 40.33216, -83.076837



Provided by: Smart Services, Inc.
88 W. Church Street, Newark, OH, 43055, US

Leg Direction	Hills-Miller Road Eastbound					Hills-Miller Road Westbound					Bruce Road Northbound					
Time	T	R	U	App	Ped*	L	T	U	App	Ped*	L	R	U	App	Ped*	Int
2022-05-19 4:45PM	52	2	0	54	0	8	46	0	54	5	3	6	0	9	4	117
5:00PM	53	5	0	58	0	14	53	0	67	0	2	12	0	14	0	139
5:15PM	55	4	0	59	0	12	52	0	64	0	1	9	0	10	0	133
5:30PM	51	1	0	52	0	19	46	0	65	1	3	6	0	9	0	126
Total	211	12	0	223	0	53	197	0	250	6	9	33	0	42	4	515
% Approach	94.6%	5.4%	0%	-	-	21.2%	78.8%	0%	-	-	21.4%	78.6%	0%	-	-	-
% Total	41.0%	2.3%	0%	43.3%	-	10.3%	38.3%	0%	48.5%	-	1.7%	6.4%	0%	8.2%	-	-
PHF	0.959	0.600	-	0.945	-	0.697	0.929	-	0.933	-	0.750	0.688	-	0.750	-	0.926
Lights and Motorcycles	204	12	0	216	-	53	194	0	247	-	9	32	0	41	-	504
% Lights and Motorcycles	96.7%	100%	0%	96.9%	-	100%	98.5%	0%	98.8%	-	100%	97.0%	0%	97.6%	-	97.9%
Heavy	7	0	0	7	-	0	3	0	3	-	0	1	0	1	-	11
% Heavy	3.3%	0%	0%	3.1%	-	0%	1.5%	0%	1.2%	-	0%	3.0%	0%	2.4%	-	2.1%
Pedestrians	-	-	-	-	0	-	-	-	-	6	-	-	-	-	4	-
% Pedestrians	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	100%	-

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

APPENDIX C

ITE *Trip Generation Manual* Output

Single-Family Detached Housing (210)

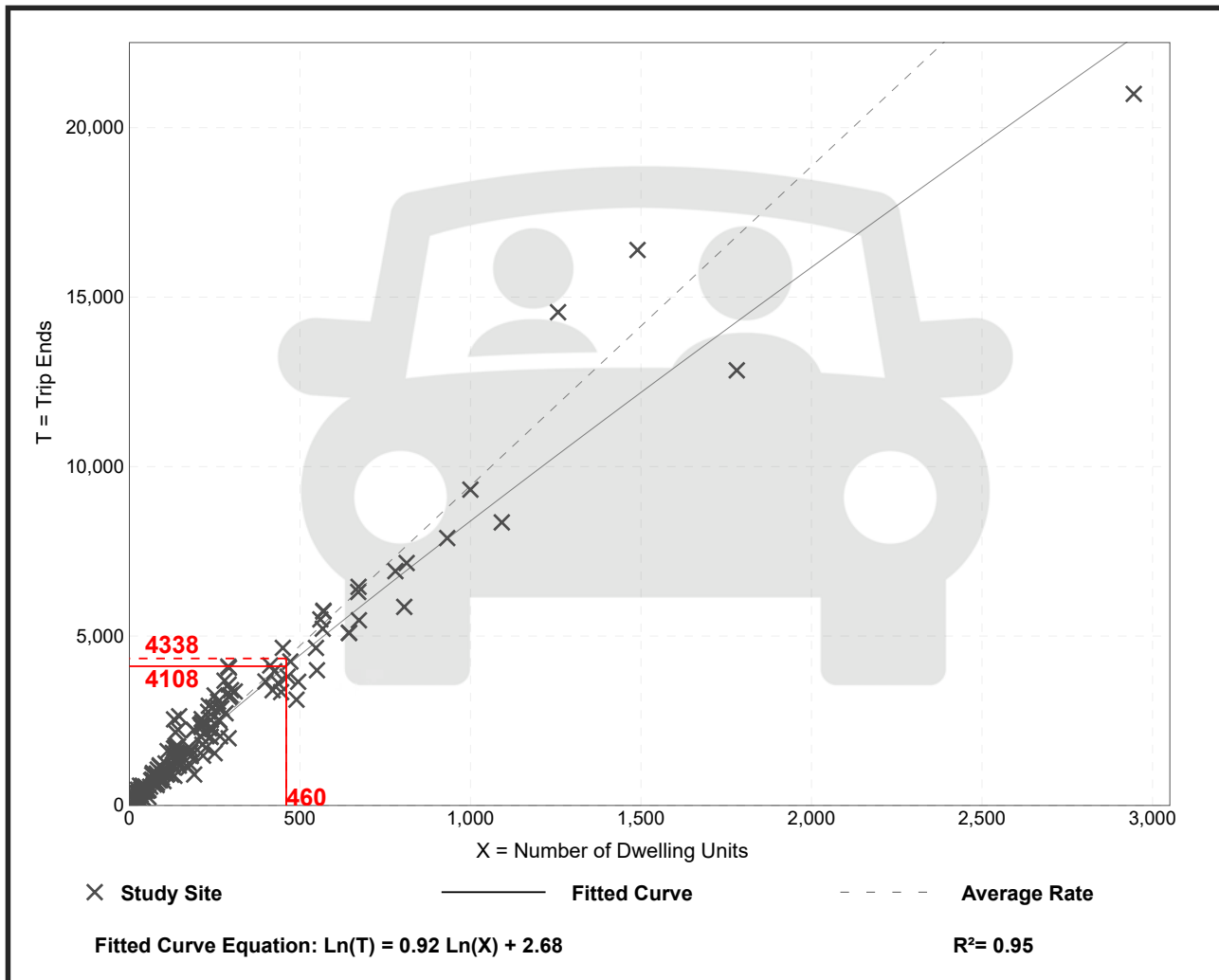
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 174
Avg. Num. of Dwelling Units: 246
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.43	4.45 - 22.61	2.13

Data Plot and Equation



Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

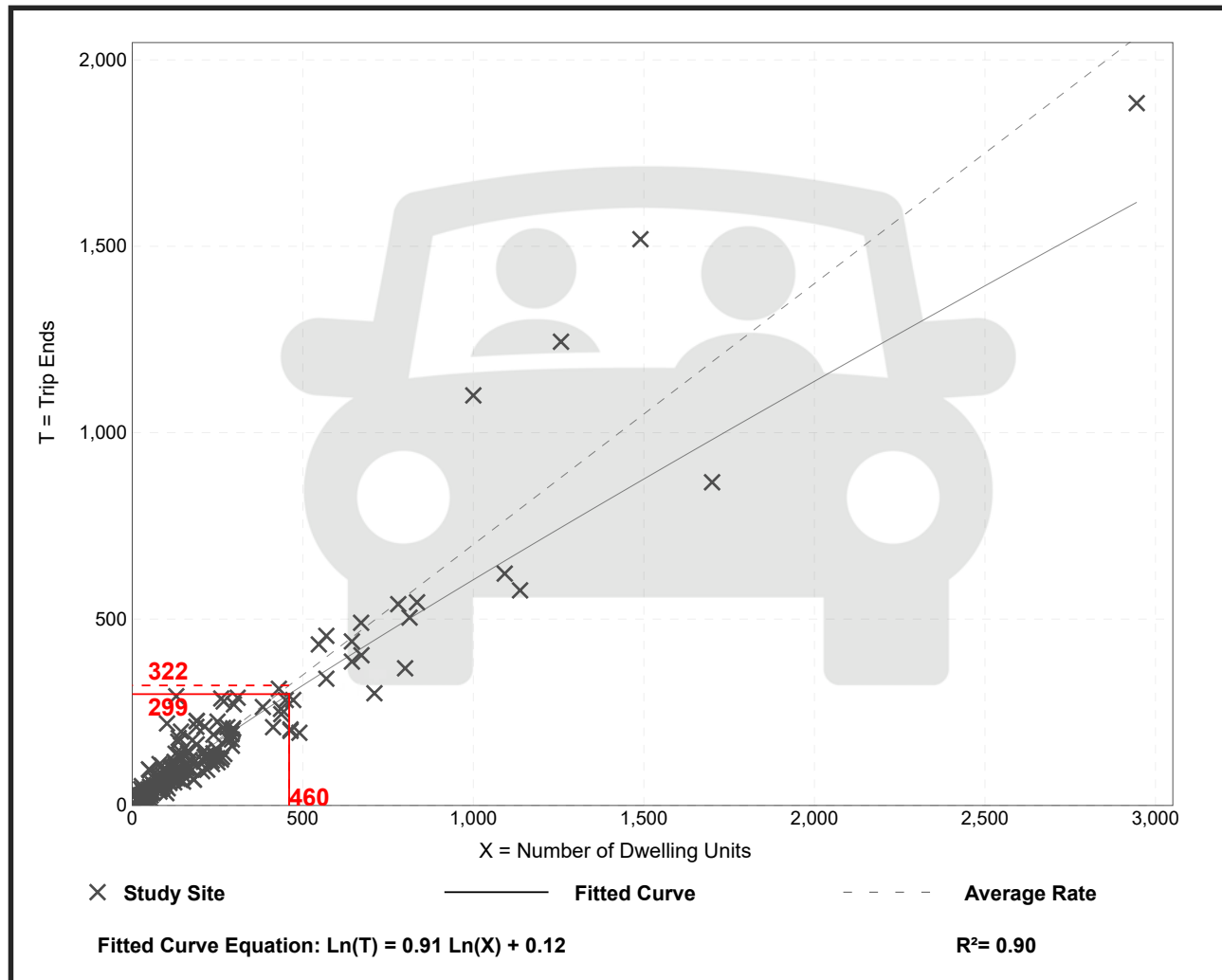
Setting/Location: General Urban/Suburban

Number of Studies: 192
 Avg. Num. of Dwelling Units: 226
 Directional Distribution: 26% entering, 74% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.27 - 2.27	0.24

Data Plot and Equation



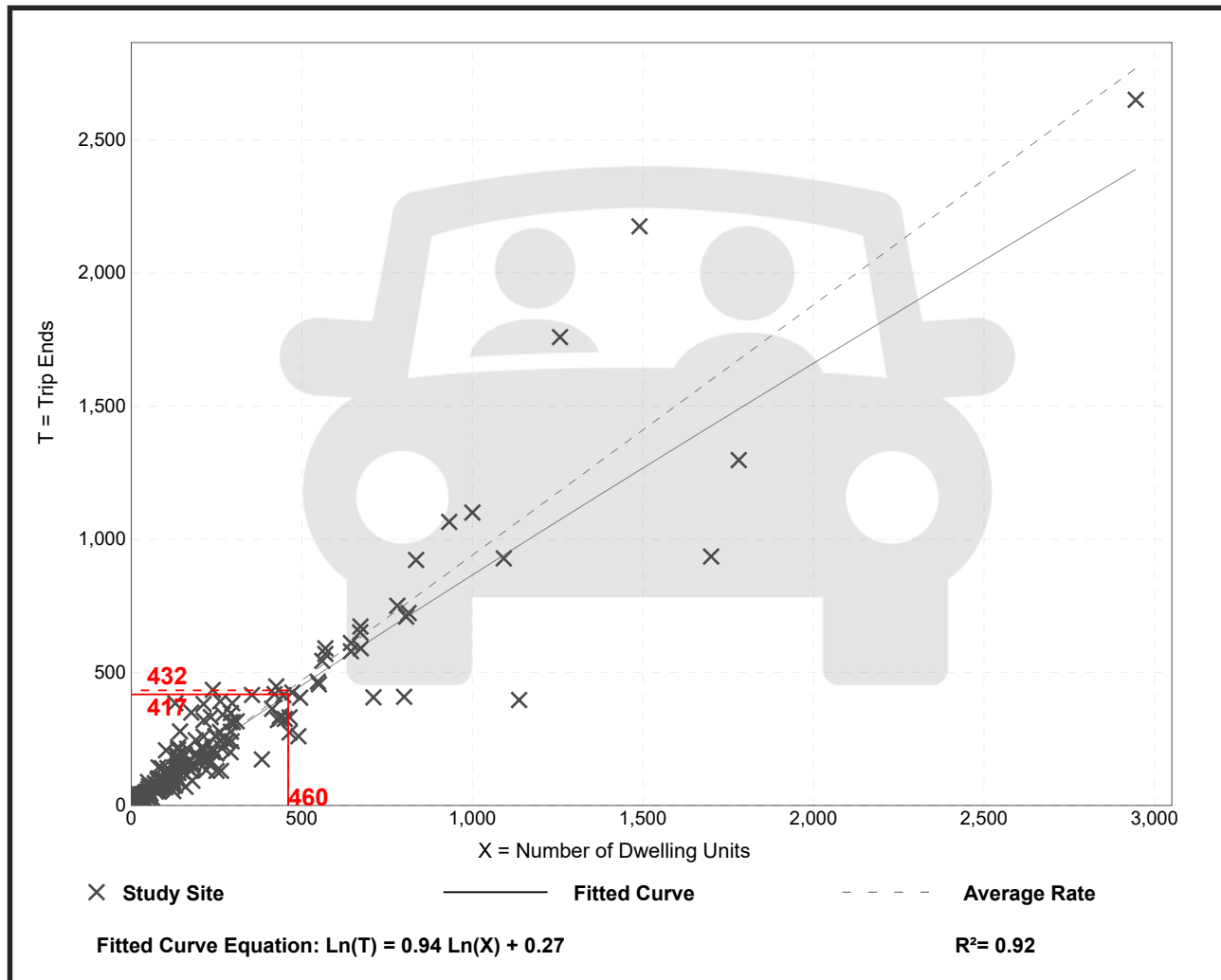
Single-Family Detached Housing (210)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 208
 Avg. Num. of Dwelling Units: 248
 Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.94	0.35 - 2.98	0.31

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

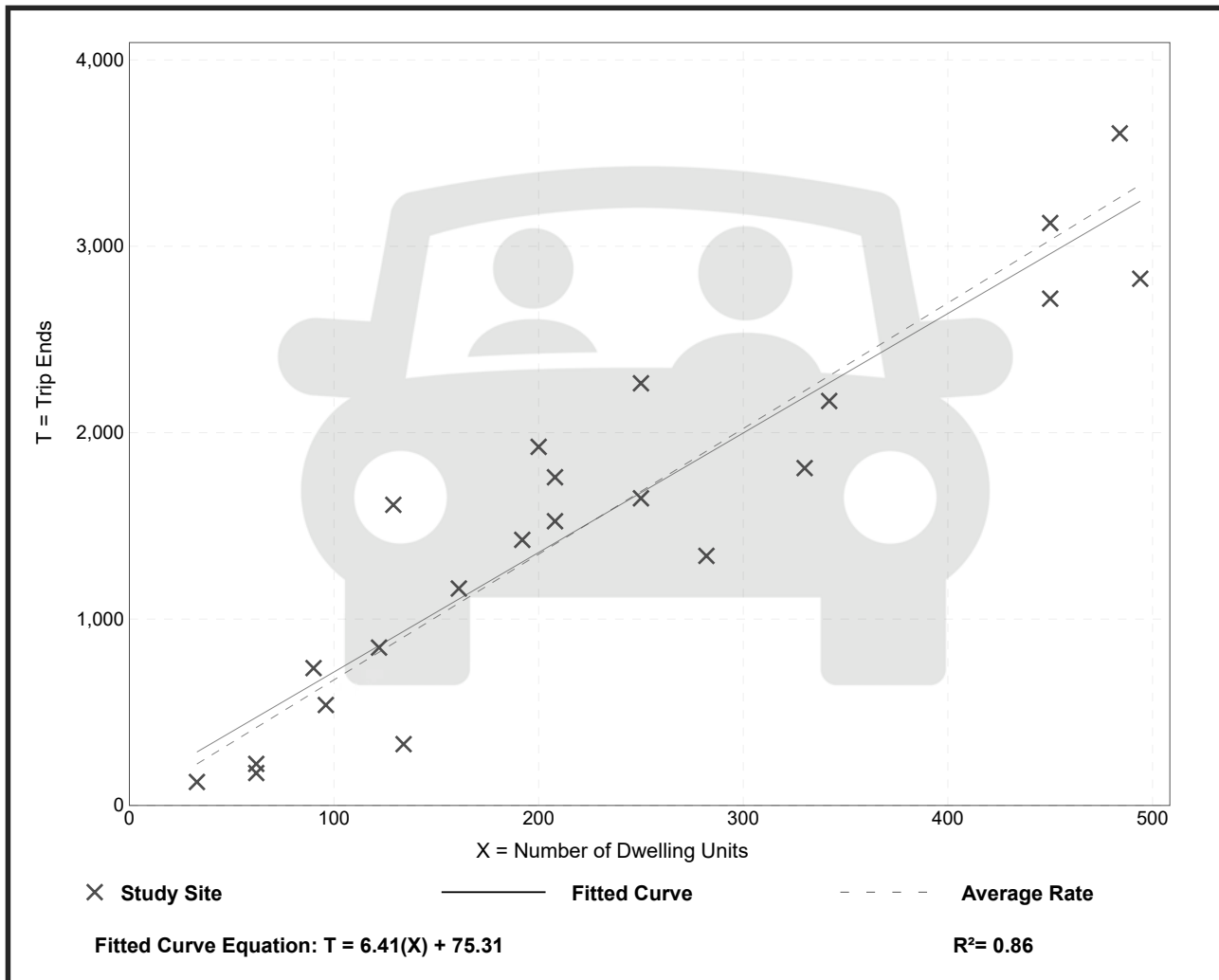
Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 22
Avg. Num. of Dwelling Units: 229
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.74	2.46 - 12.50	1.79

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

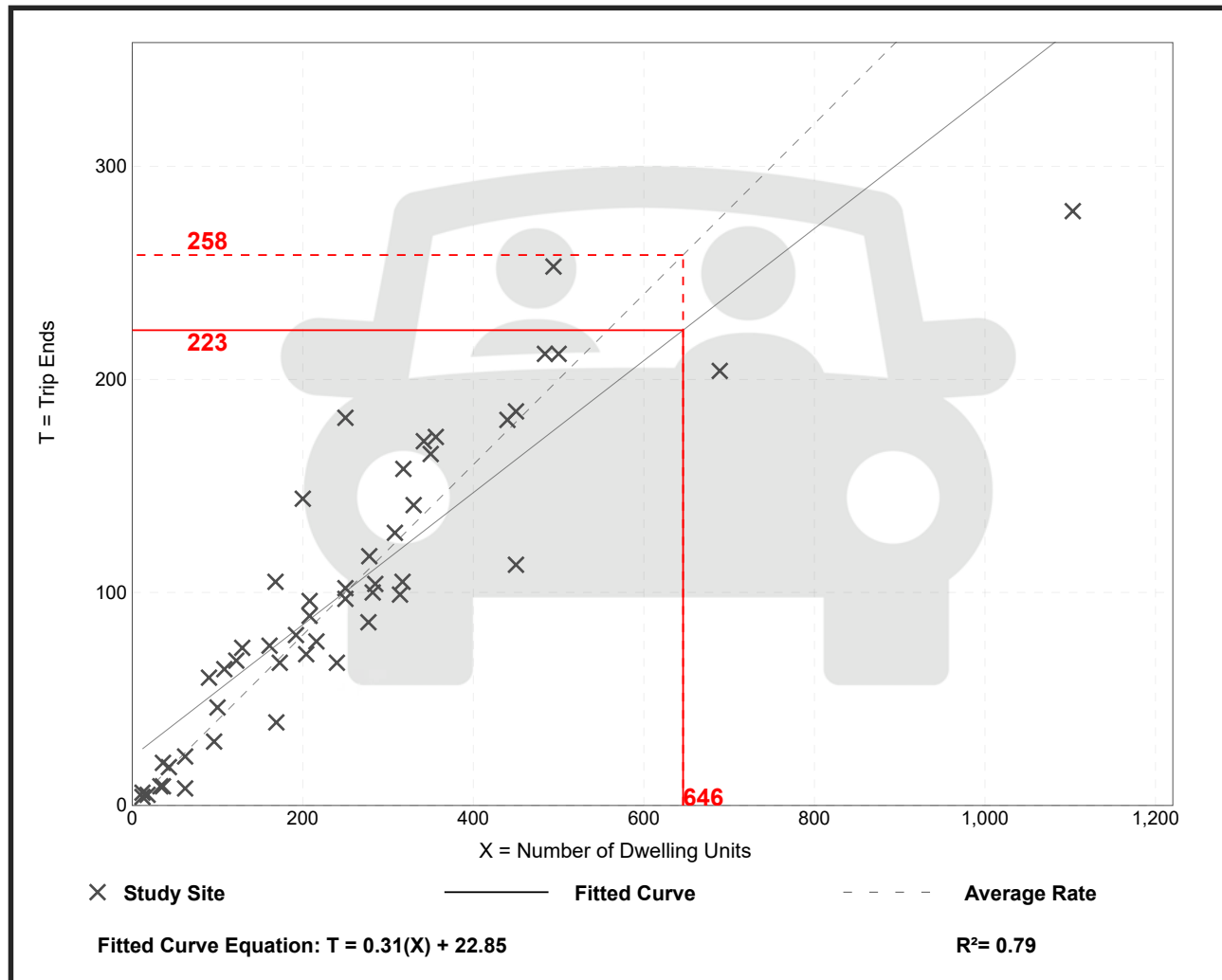
Setting/Location: General Urban/Suburban

Number of Studies: 49
Avg. Num. of Dwelling Units: 249
Directional Distribution: 24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.40	0.13 - 0.73	0.12

Data Plot and Equation



Multifamily Housing (Low-Rise) Not Close to Rail Transit (220)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 59

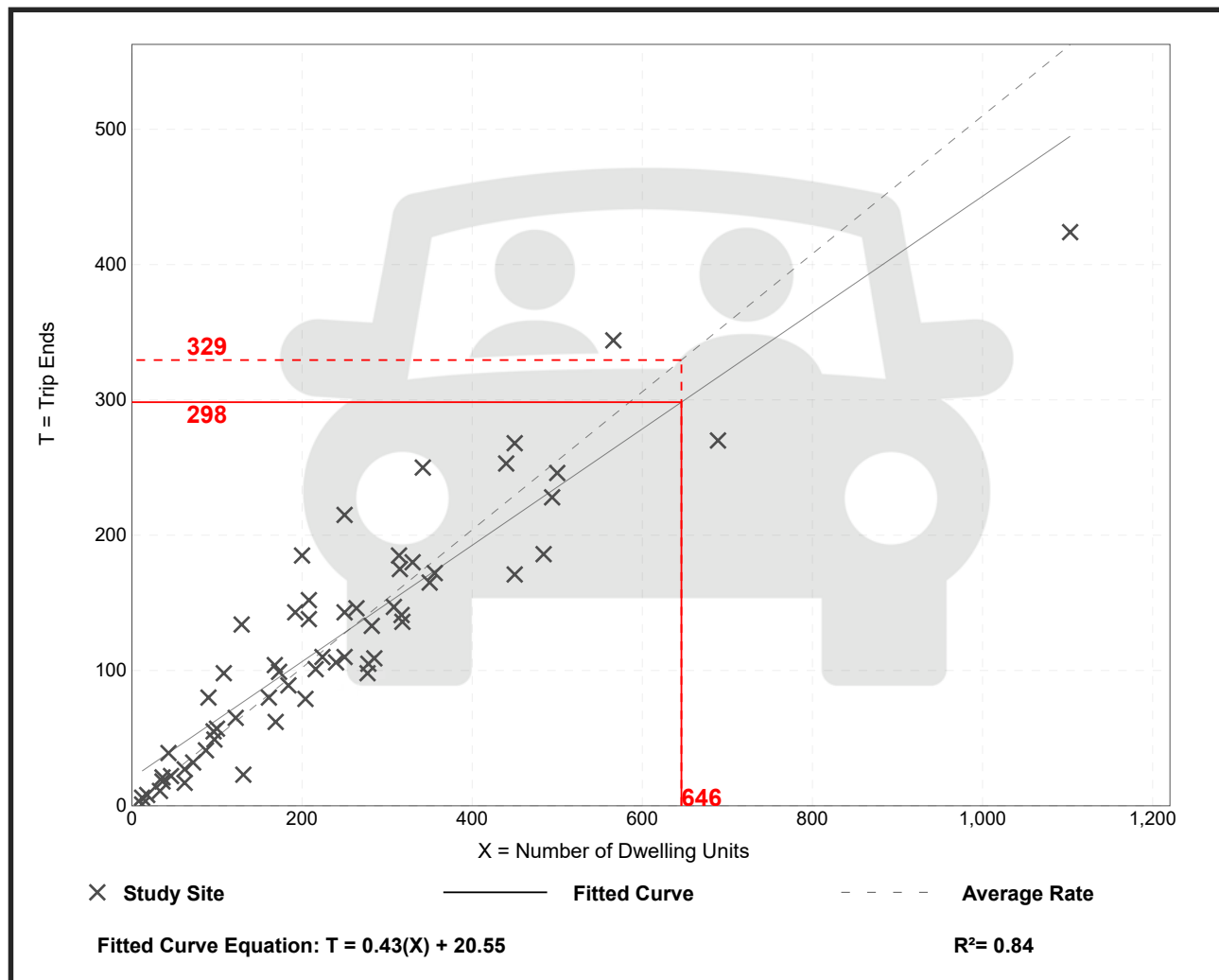
Avg. Num. of Dwelling Units: 241

Directional Distribution: 63% entering, 37% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.08 - 1.04	0.15

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

**Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday**

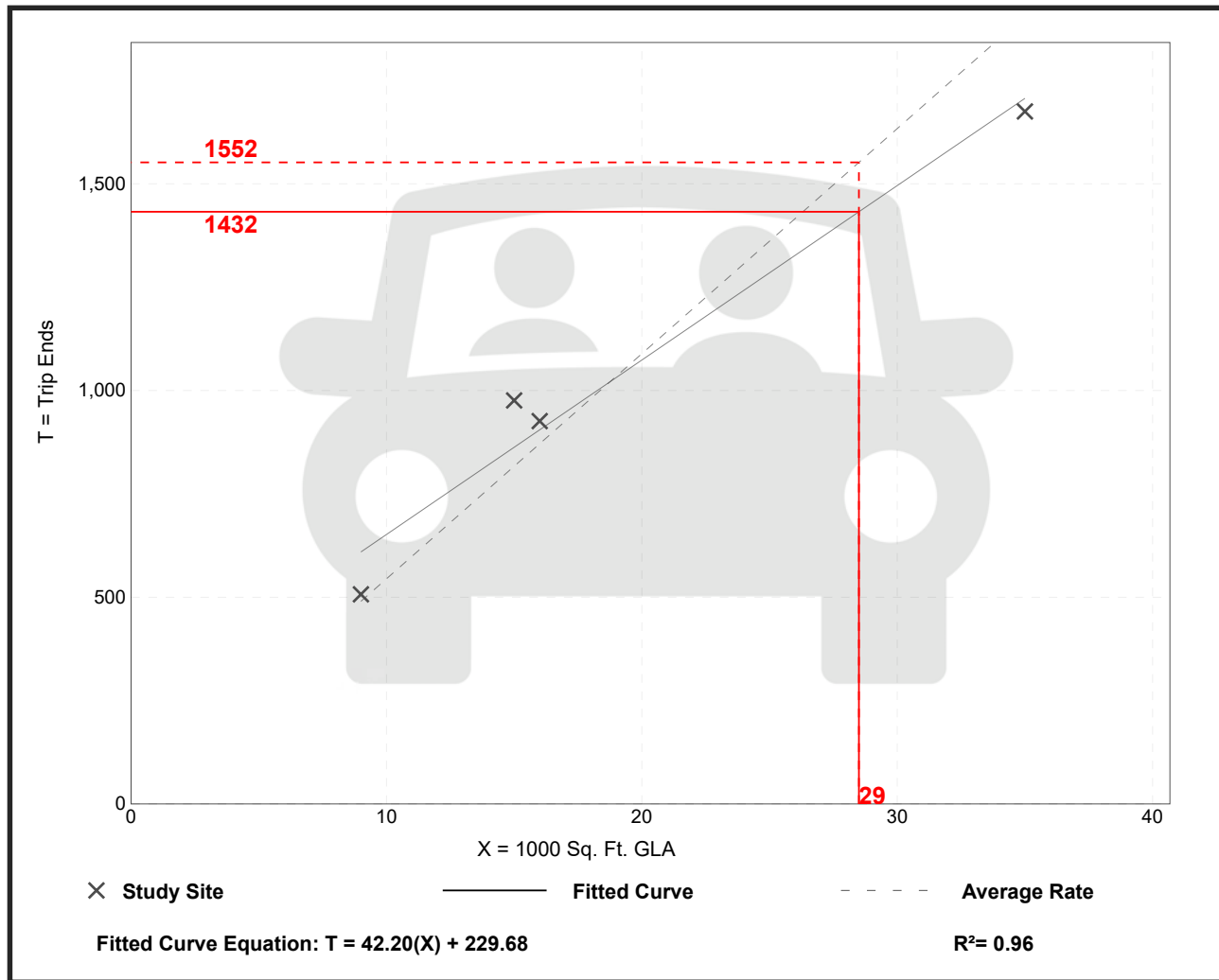
Setting/Location: General Urban/Suburban
 Number of Studies: 4
 Avg. 1000 Sq. Ft. GLA: 19
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k) (822)

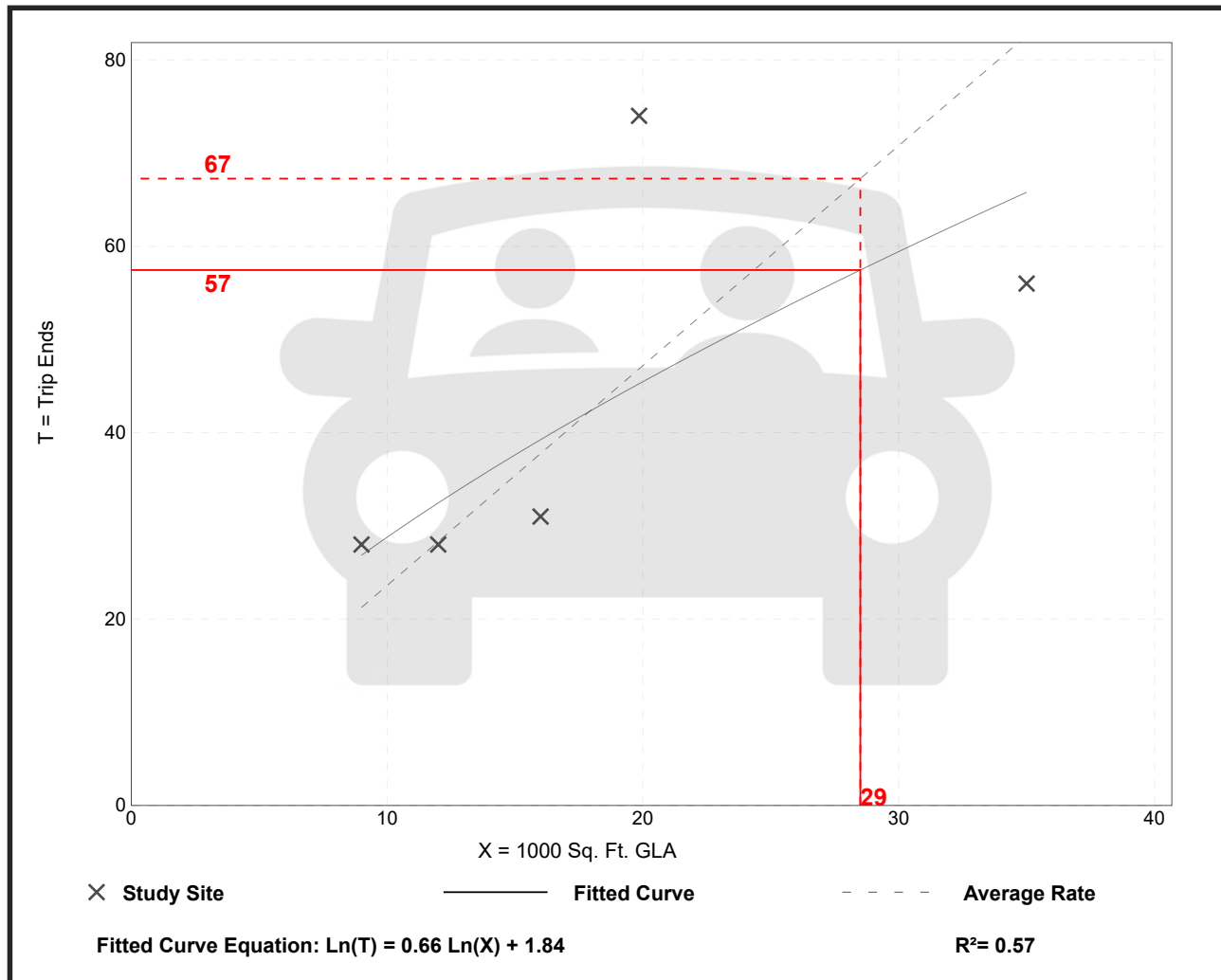
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 5
 Avg. 1000 Sq. Ft. GLA: 18
 Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation

Caution – Small Sample Size



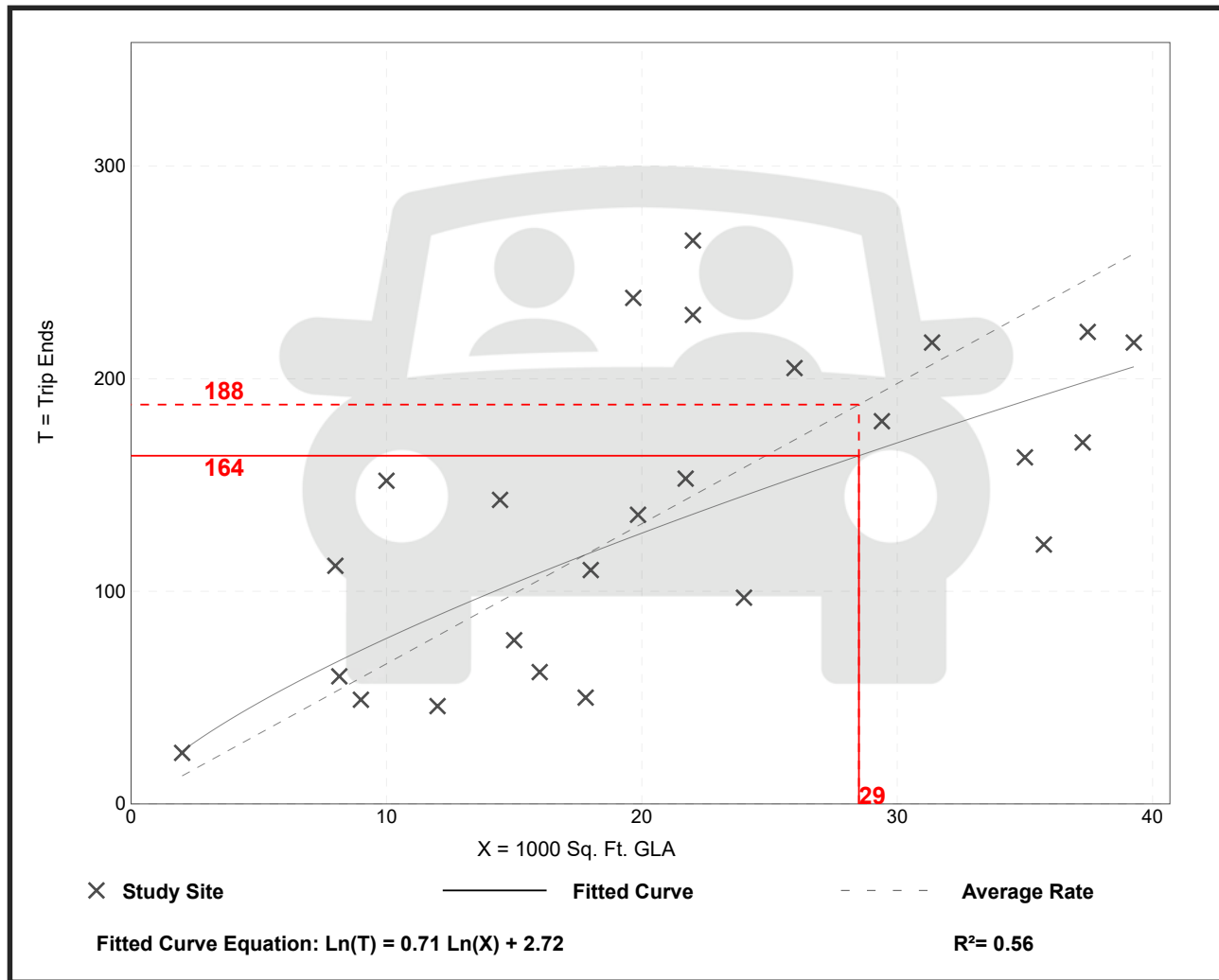
Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 25
 Avg. 1000 Sq. Ft. GLA: 21
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Fast-Food Restaurant with Drive-Through Window (934)

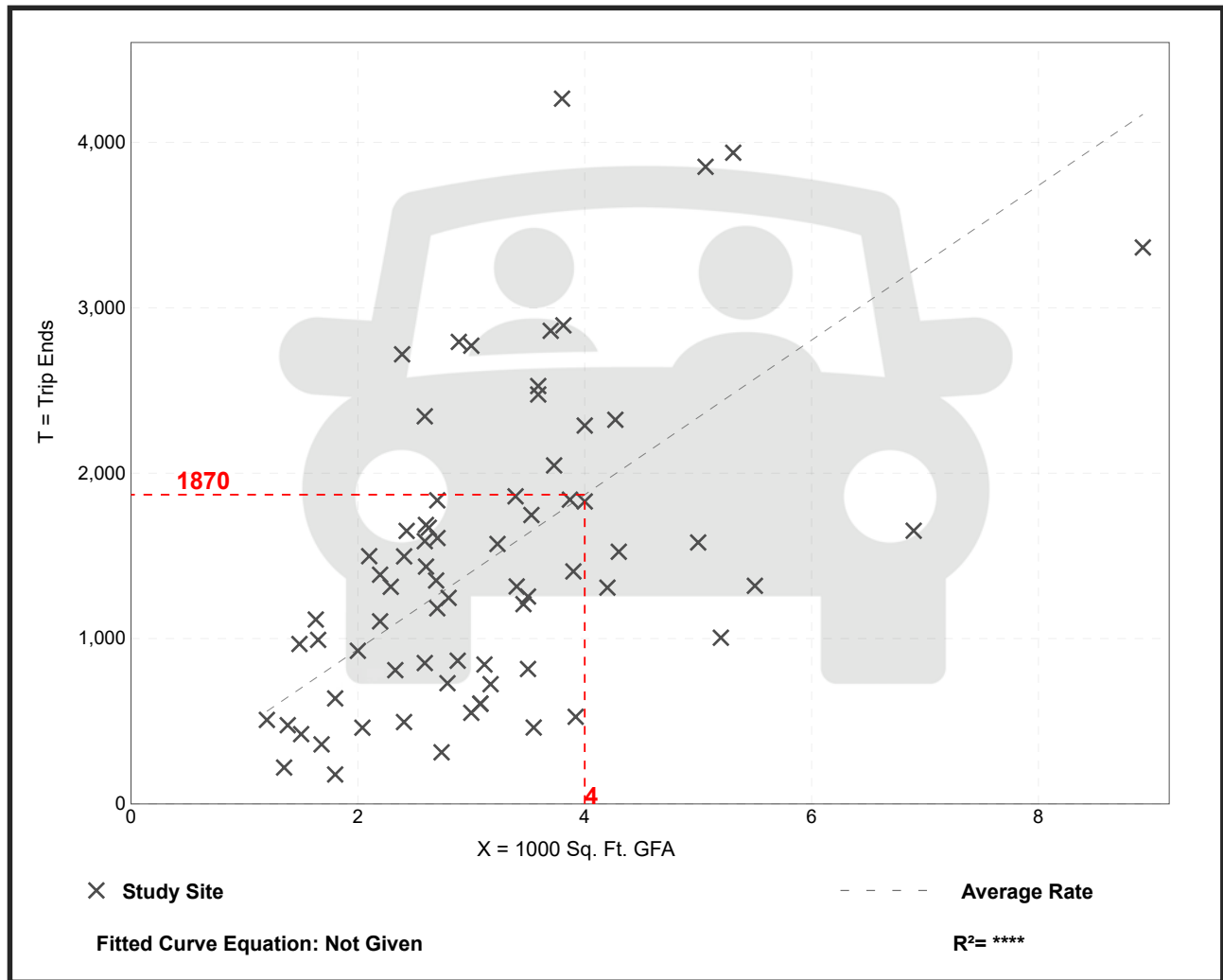
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 71
Avg. 1000 Sq. Ft. GFA: 3
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
467.48	98.89 - 1137.66	238.62

Data Plot and Equation



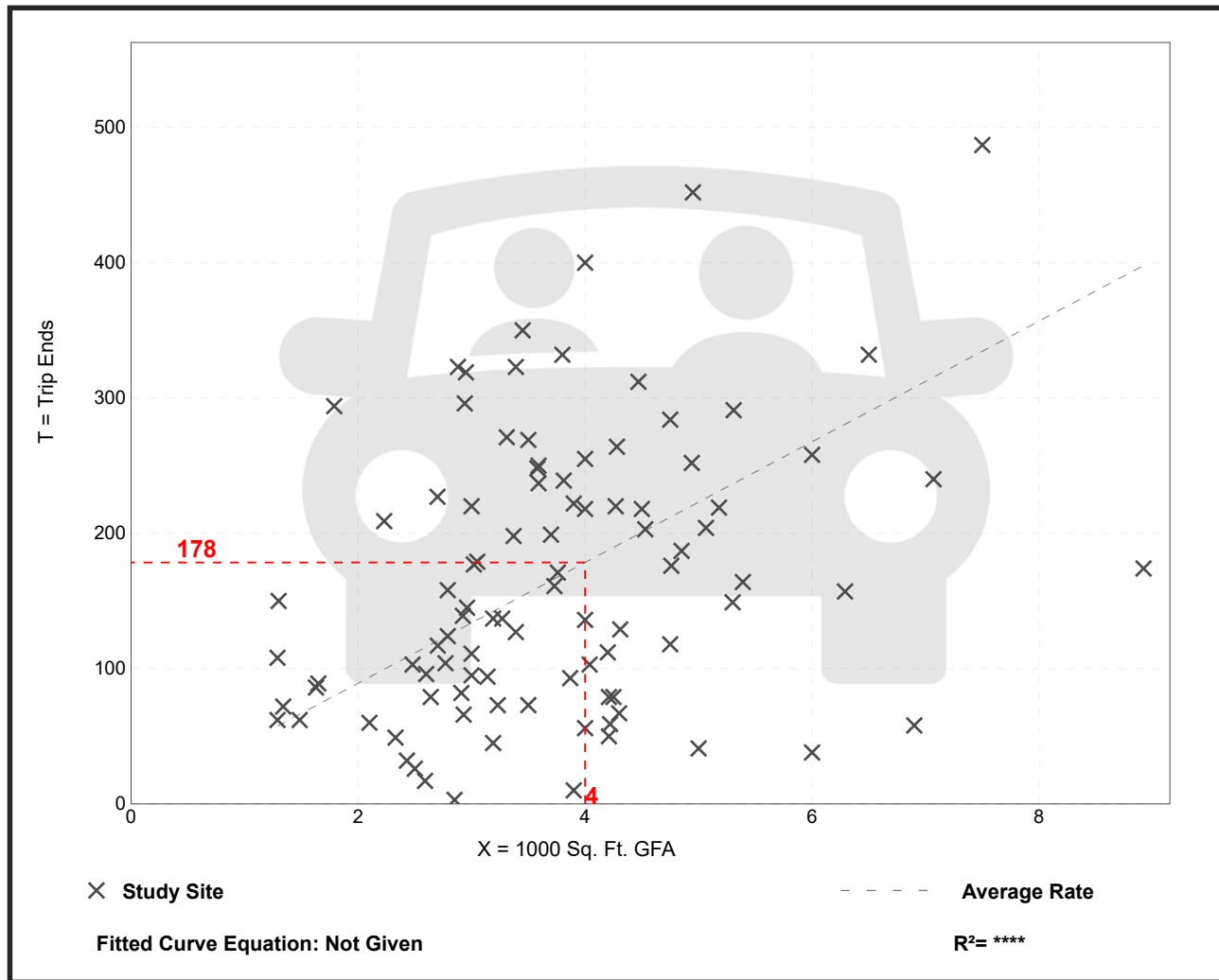
Fast-Food Restaurant with Drive-Through Window (934)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 96
 Avg. 1000 Sq. Ft. GFA: 4
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
44.61	1.05 - 164.25	27.14

Data Plot and Equation



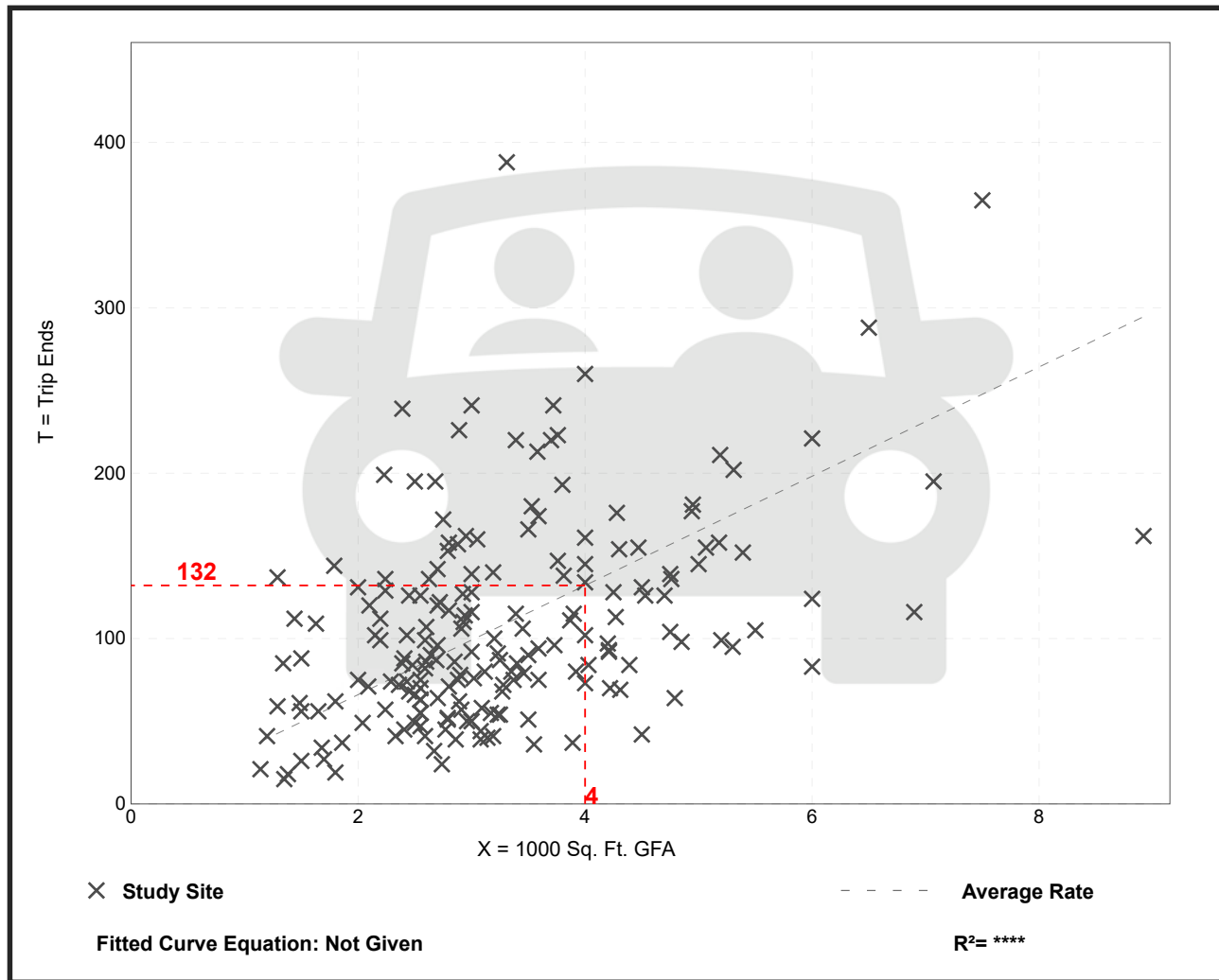
Fast-Food Restaurant with Drive-Through Window (934)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 190
 Avg. 1000 Sq. Ft. GFA: 3
 Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
33.03	8.77 - 117.22	17.59

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

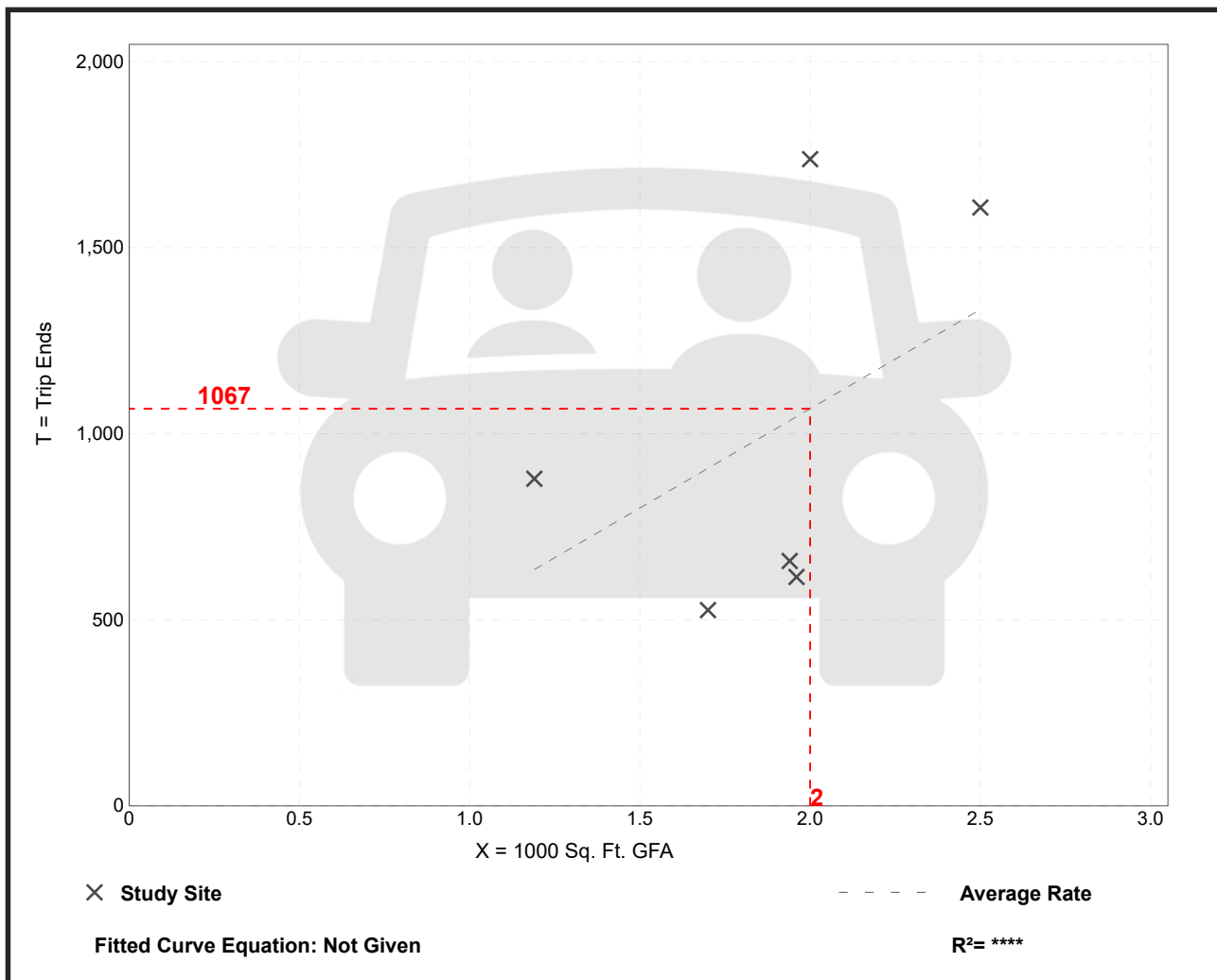
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 6
Avg. 1000 Sq. Ft. GFA: 2
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
533.57	309.41 - 869.00	243.65

Data Plot and Equation



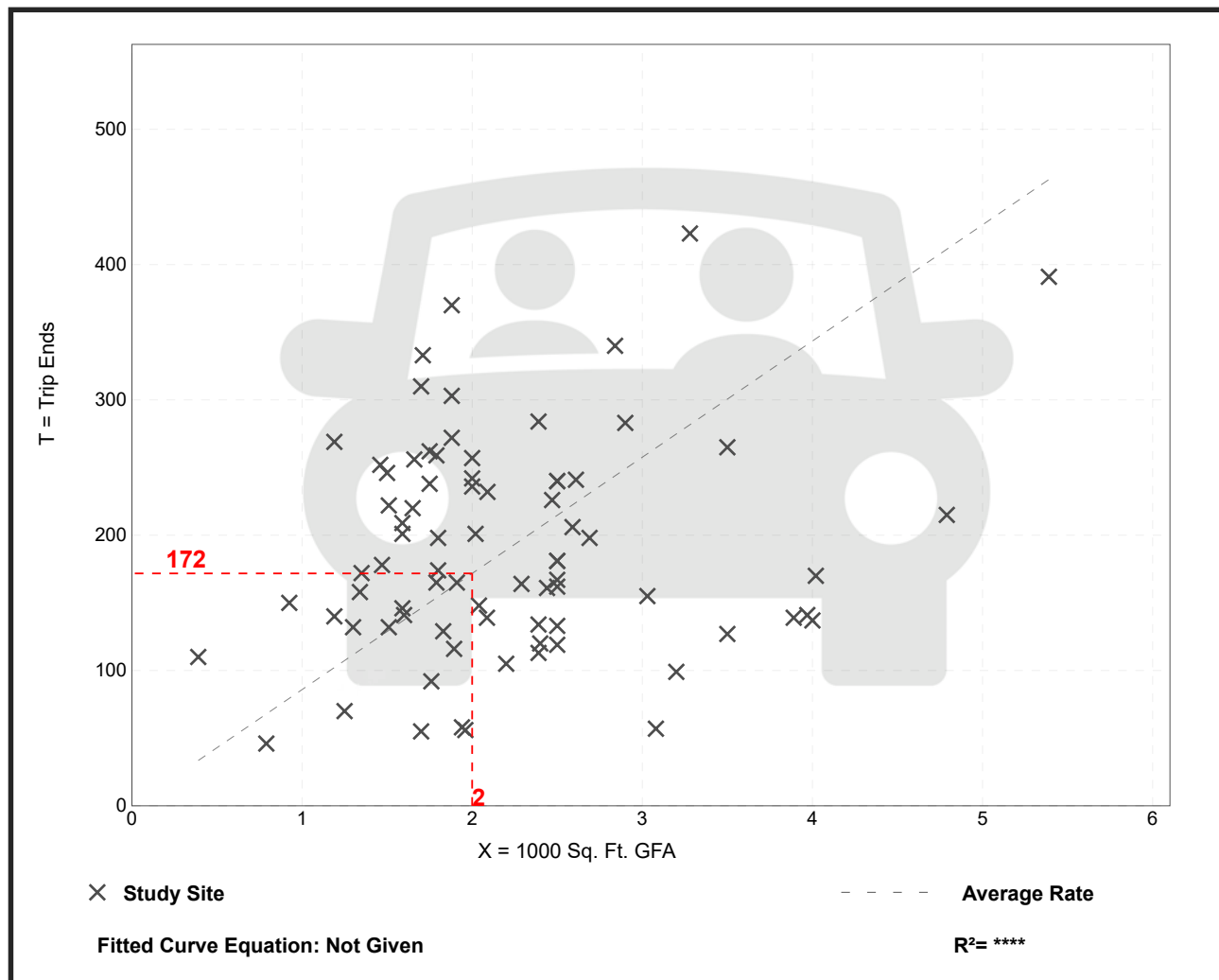
Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 78
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
85.88	18.51 - 282.05	44.92

Data Plot and Equation



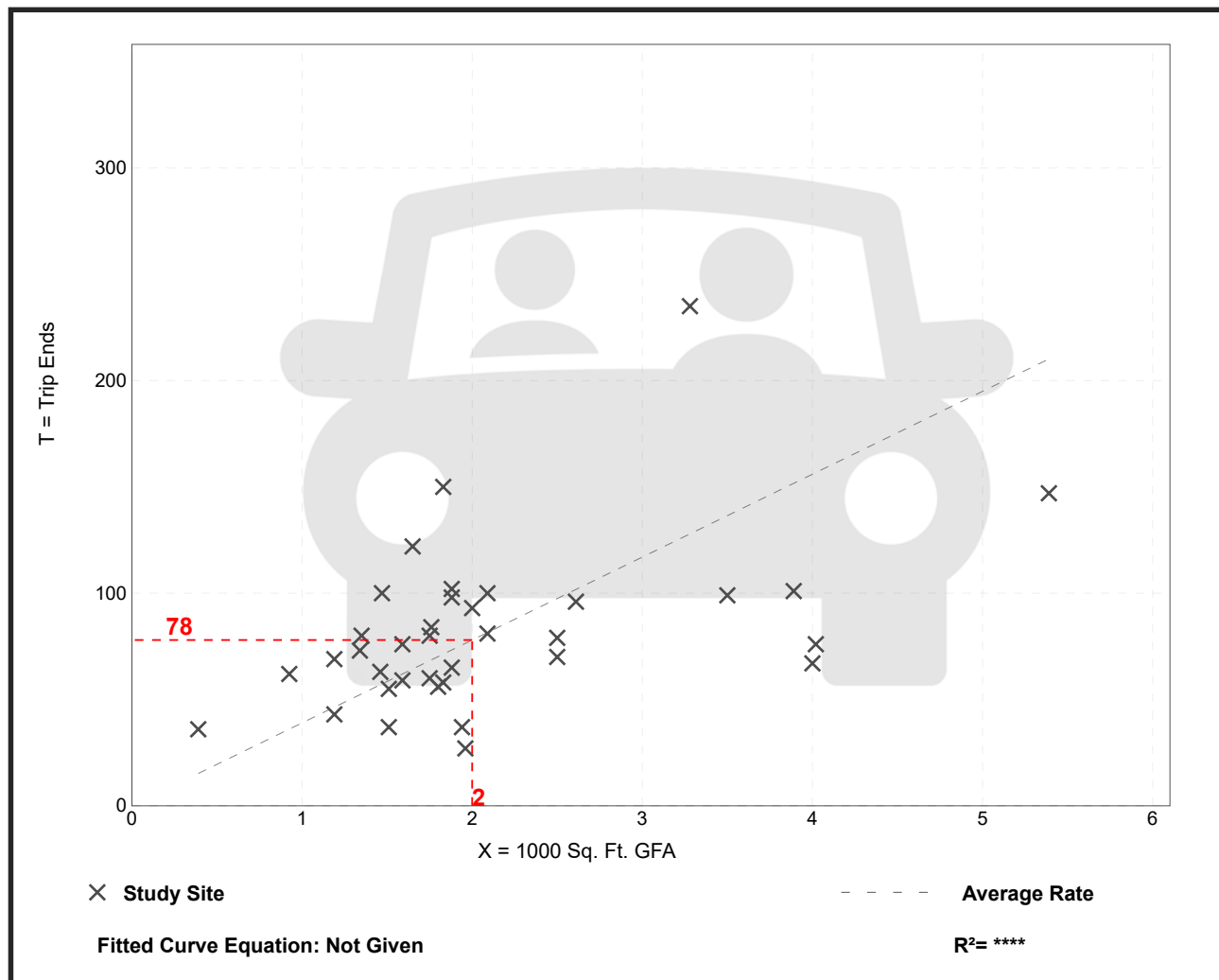
Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 36
 Avg. 1000 Sq. Ft. GFA: 2
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
38.99	13.78 - 92.31	17.79

Data Plot and Equation



Convenience Store/Gas Station - GFA (4-5.5k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday

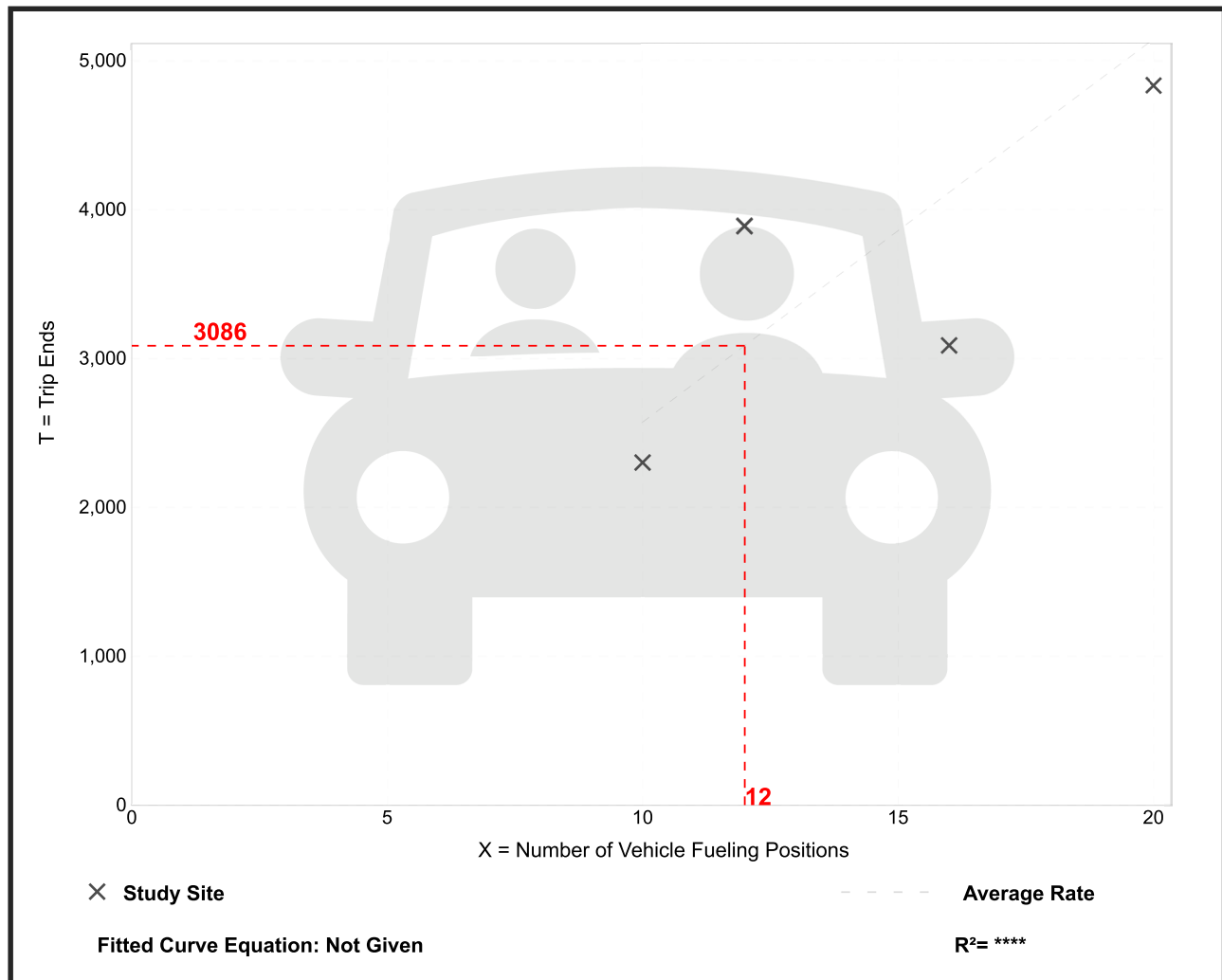
Setting/Location: General Urban/Suburban
Number of Studies: 5
Avg. Num. of Vehicle Fueling Positions: 14
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
257.13	193.00 - 324.17	57.53

Data Plot and Equation

Caution – Small Sample Size



Convenience Store/Gas Station - GFA (4-5.5k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions

**On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.**

Setting/Location: General Urban/Suburban

Number of Studies: 18

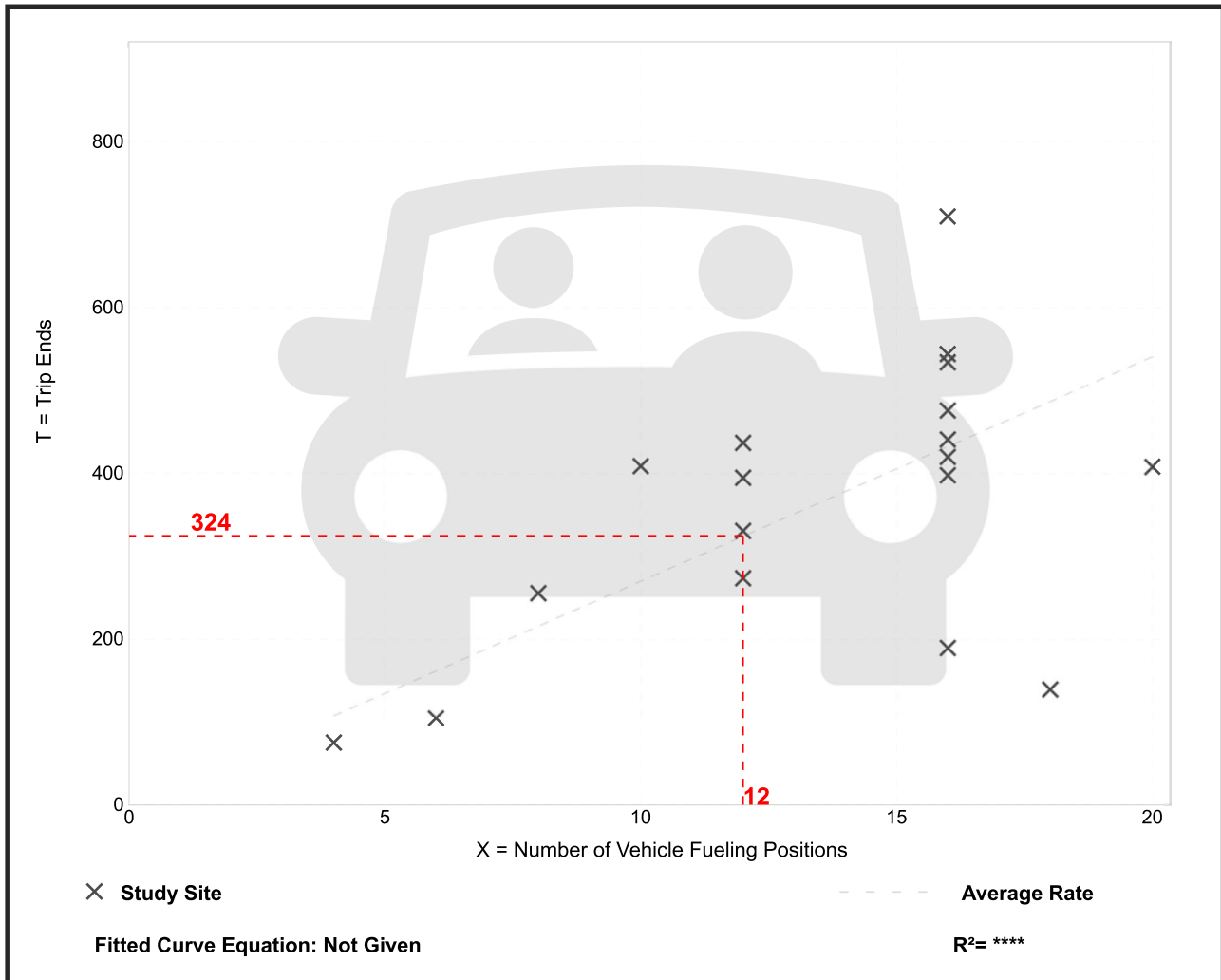
Avg. Num. of Vehicle Fueling Positions: 13

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

Average Rate	Range of Rates	Standard Deviation
27.04	7.78 - 44.38	9.88

Data Plot and Equation



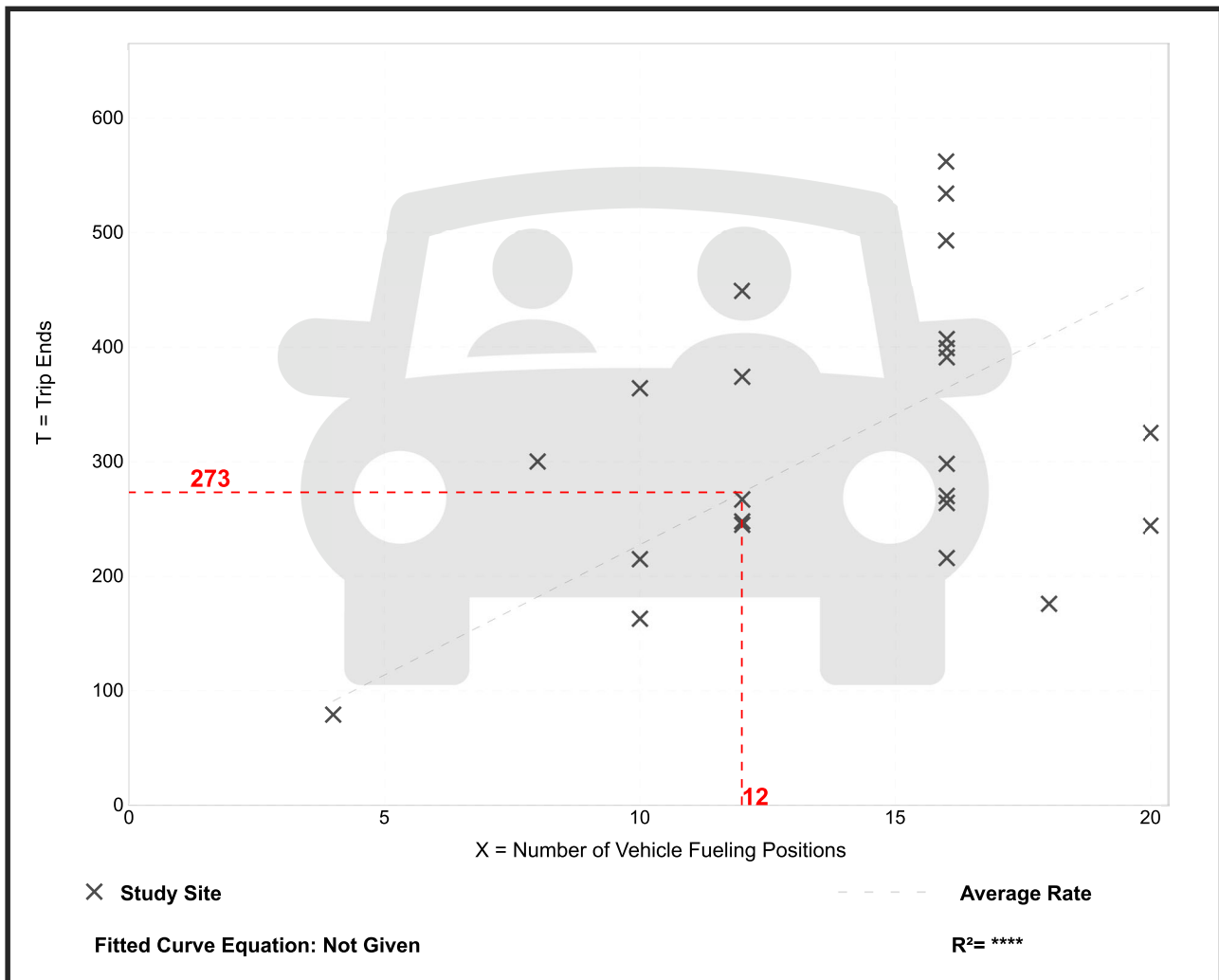
Convenience Store/Gas Station - GFA (4-5.5k) (945)

Vehicle Trip Ends vs: Vehicle Fueling Positions
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 23
 Avg. Num. of Vehicle Fueling Positions: 14
 Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Vehicle Fueling Position

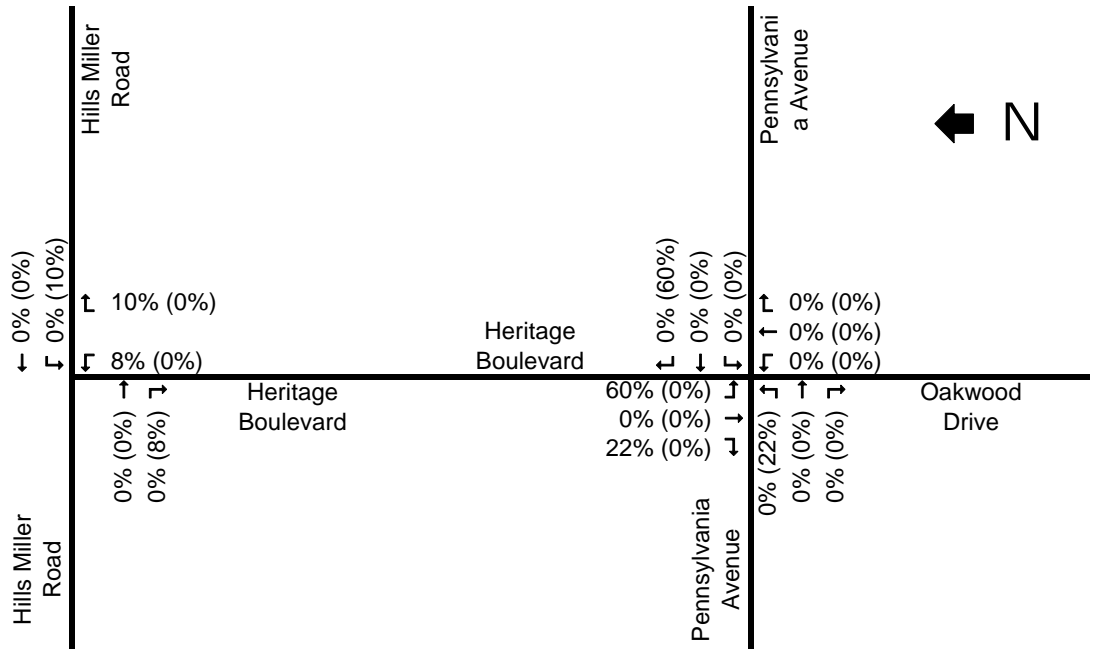
Average Rate	Range of Rates	Standard Deviation
22.76	9.78 - 37.50	8.49

Data Plot and Equation



APPENDIX D

Subarea Primary Trip Distribution Exhibits



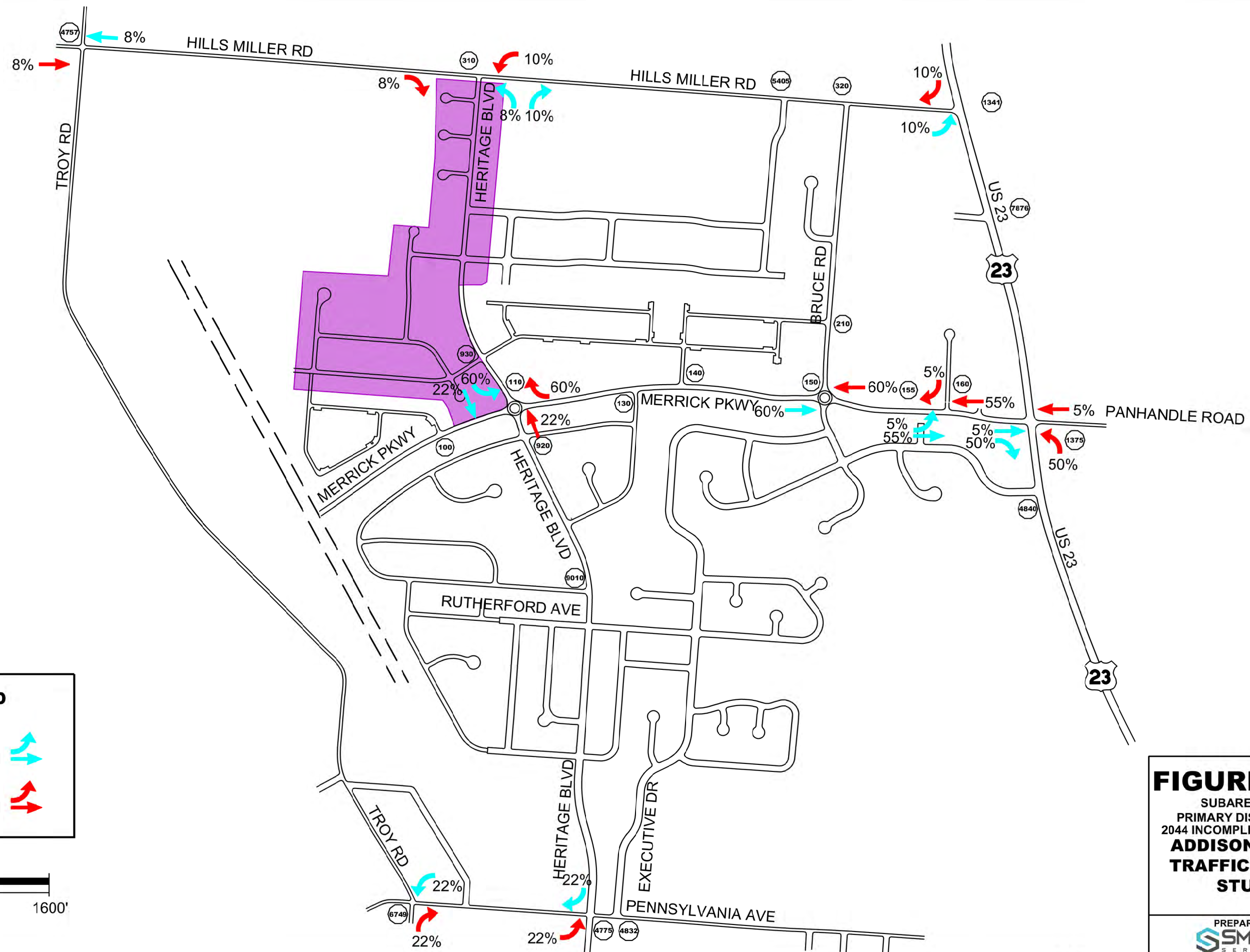
LEGEND

##% - Entering Distribution
 (##%) - Exiting Distribution

ADDISON FARMS
 TRAFFIC IMPACT STUDY
 PREPARED BY: SMART SERVICES

2/2023

FIGURE D-3C & D-4C
 2024 SUBAREA C & D 'BUILD' - DISTRIBUTION



LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

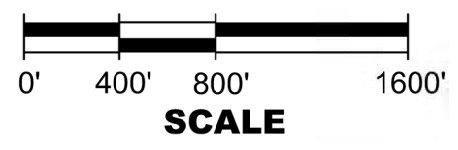
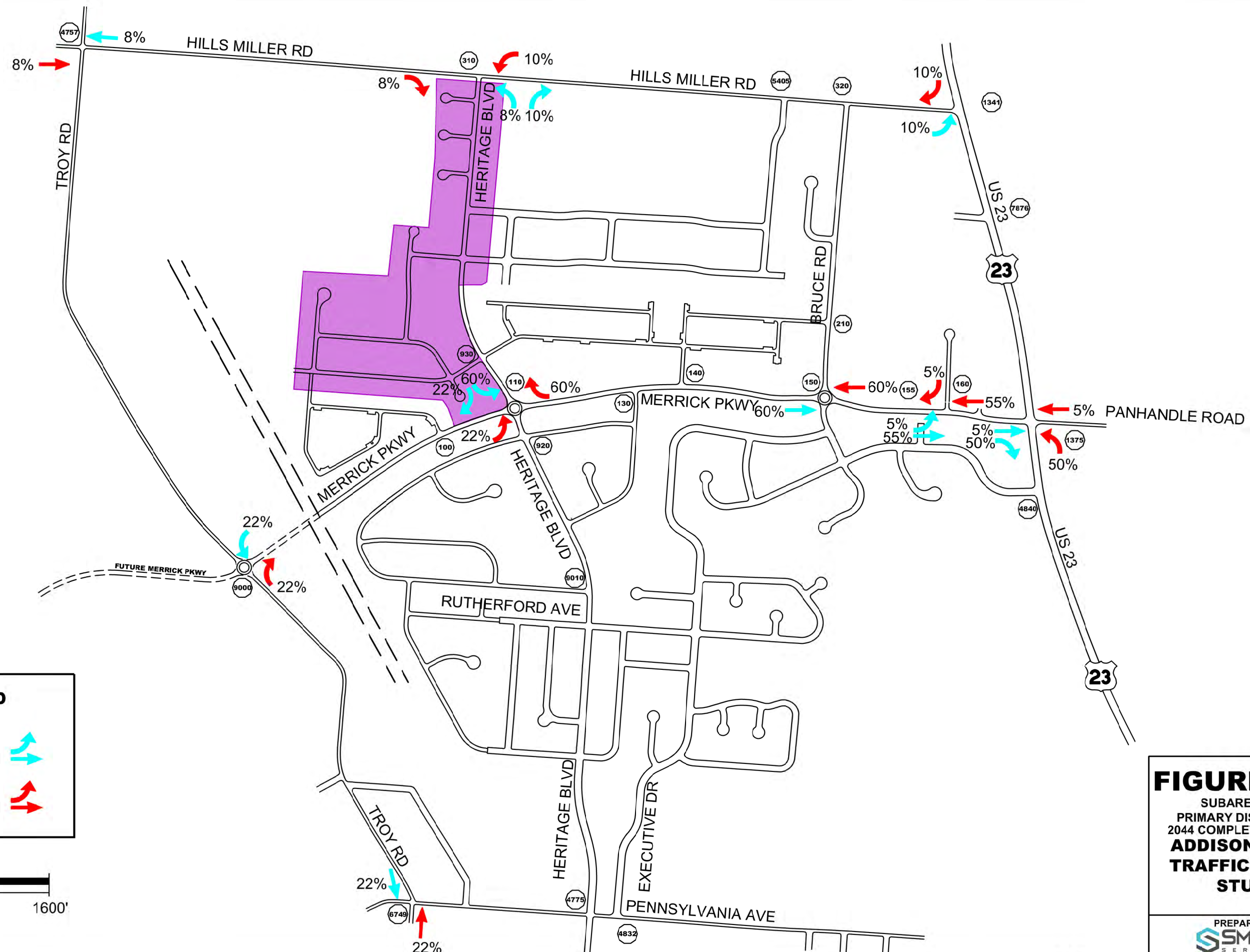


FIGURE D-1A
SUBAREAS A&H
PRIMARY DISTRIBUTION
2044 INCOMPLETE NETWORK
ADDISON FARMS
TRAFFIC IMPACT
STUDY

2/2023

PREPARED BY:



LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

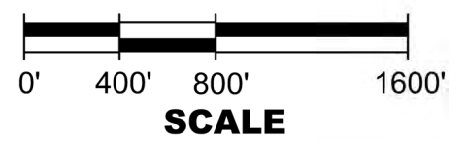
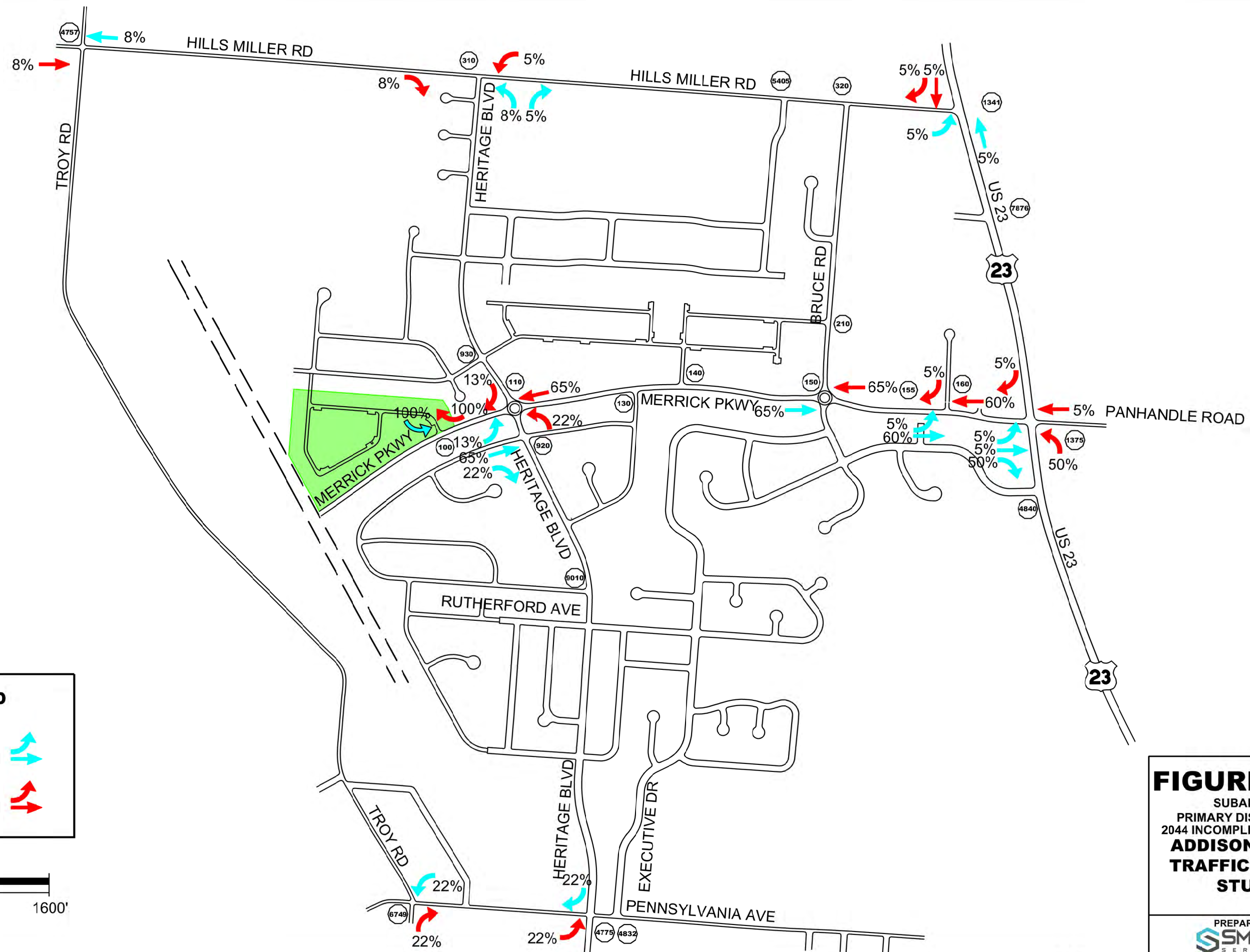



FIGURE D-1B
 SUBAREAS A&H
 PRIMARY DISTRIBUTION
 2044 COMPLETE NETWORK
ADDISON FARMS
TRAFFIC IMPACT
STUDY


2/2023

PREPARED BY:



LEGEND

EXITING DISTRIBUTION 

ENTERING DISTRIBUTION 

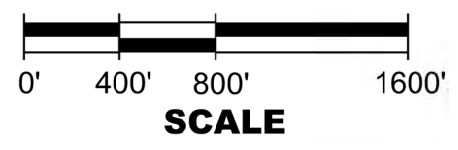

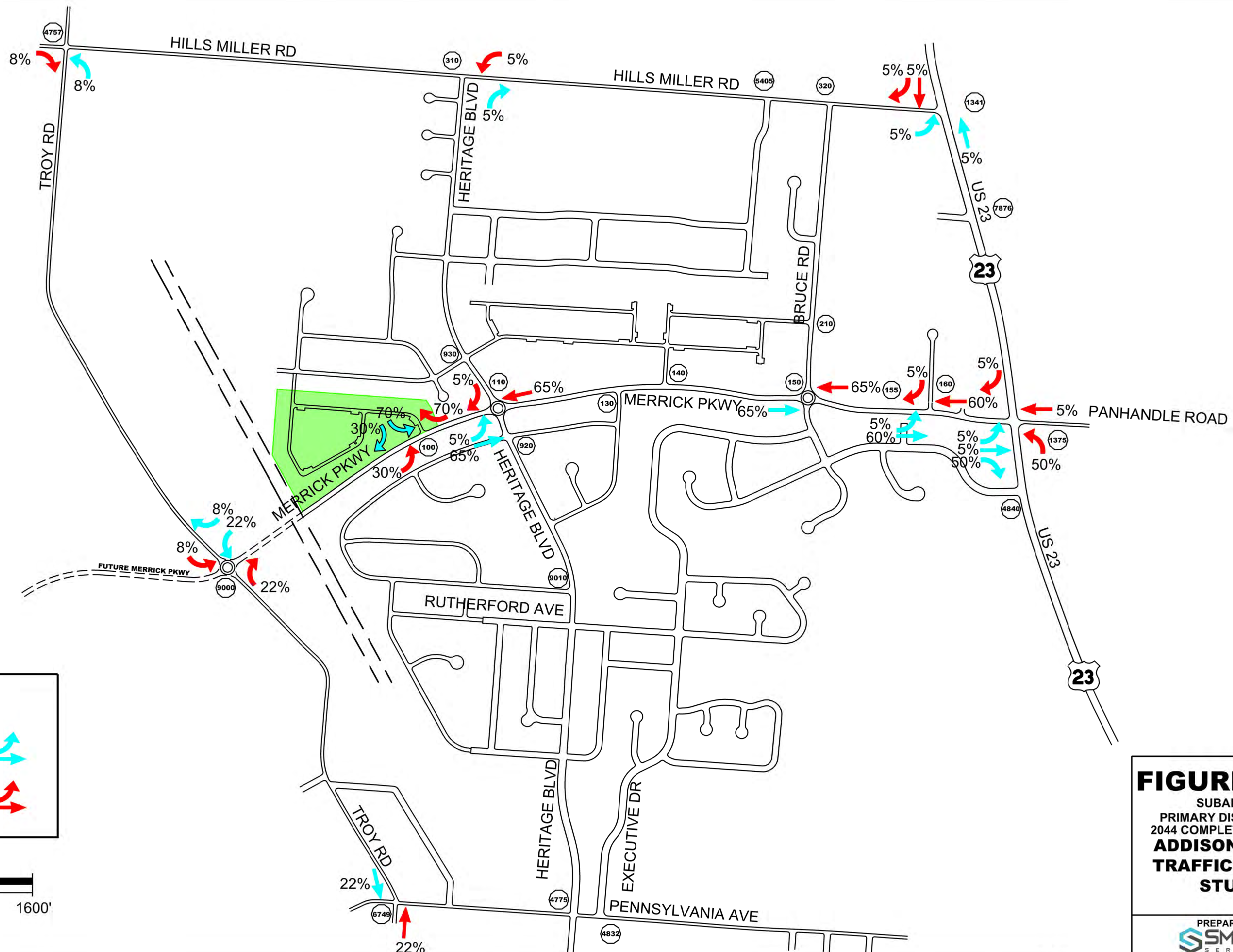


FIGURE D-2A

SUBAREA B
PRIMARY DISTRIBUTION
2044 INCOMPLETE NETWORK
ADDISON FARMS
TRAFFIC IMPACT
STUDY

2/2023

PREPARED BY:




LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

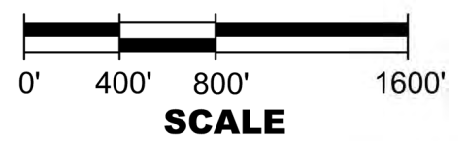
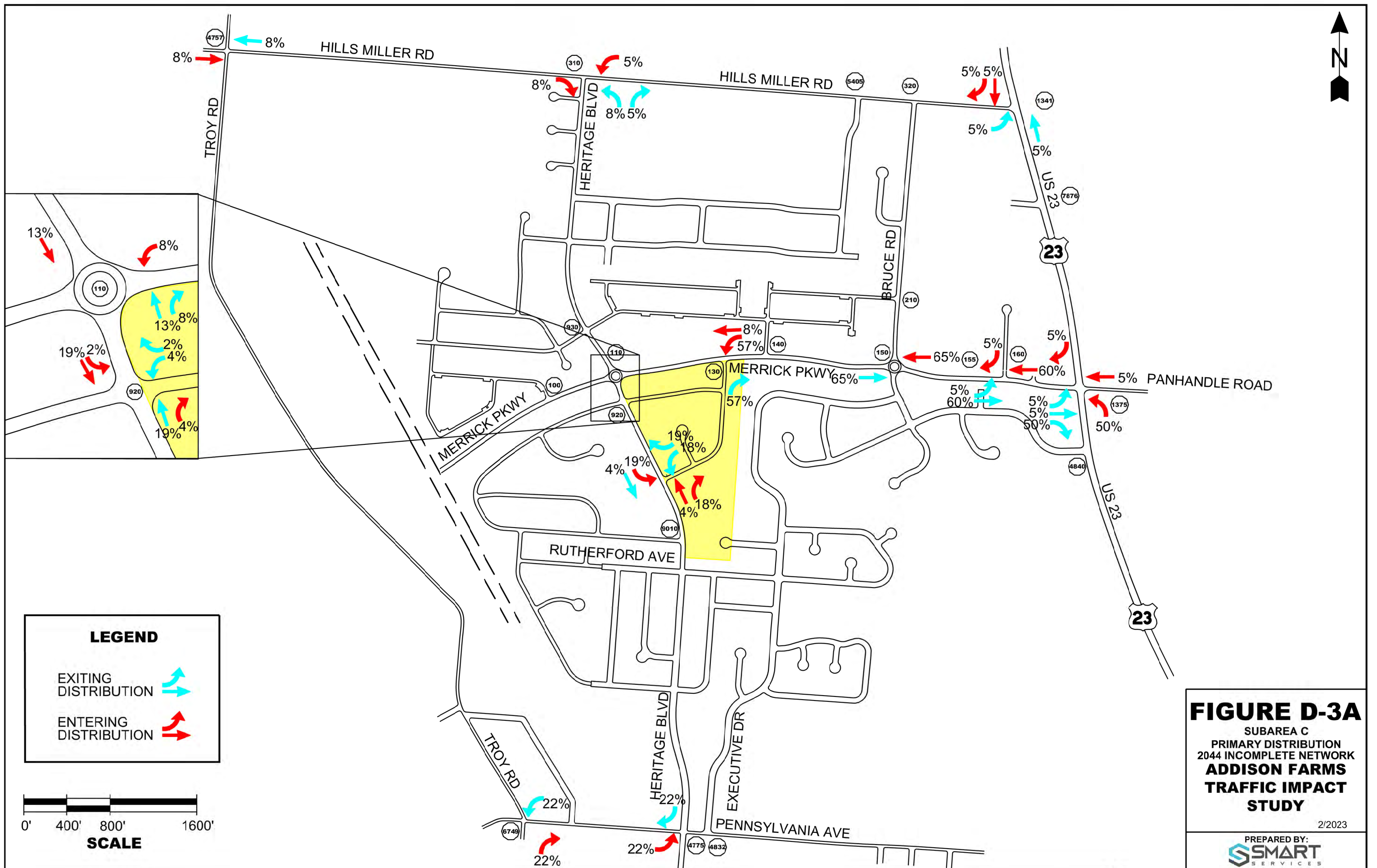


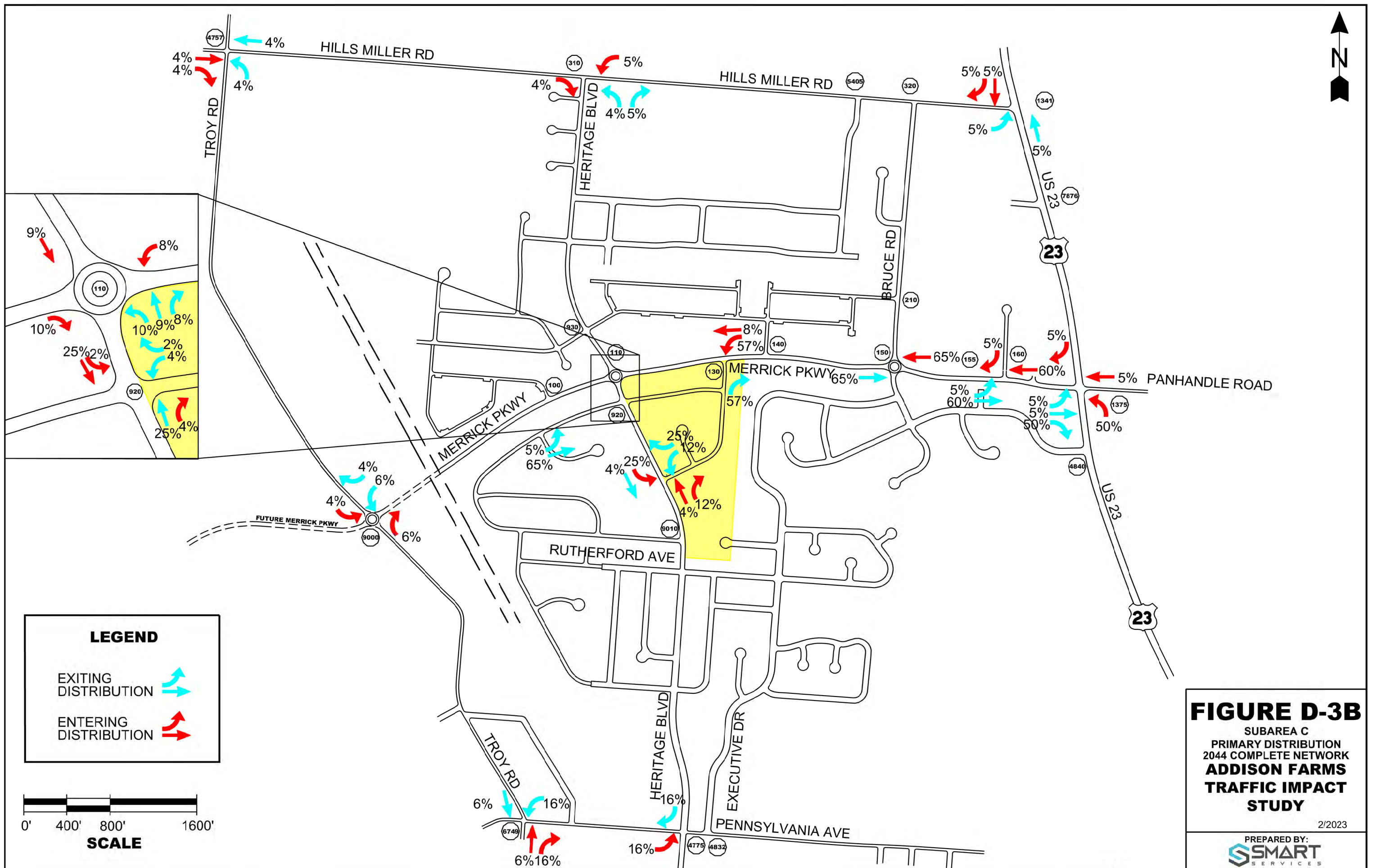
FIGURE D-2B

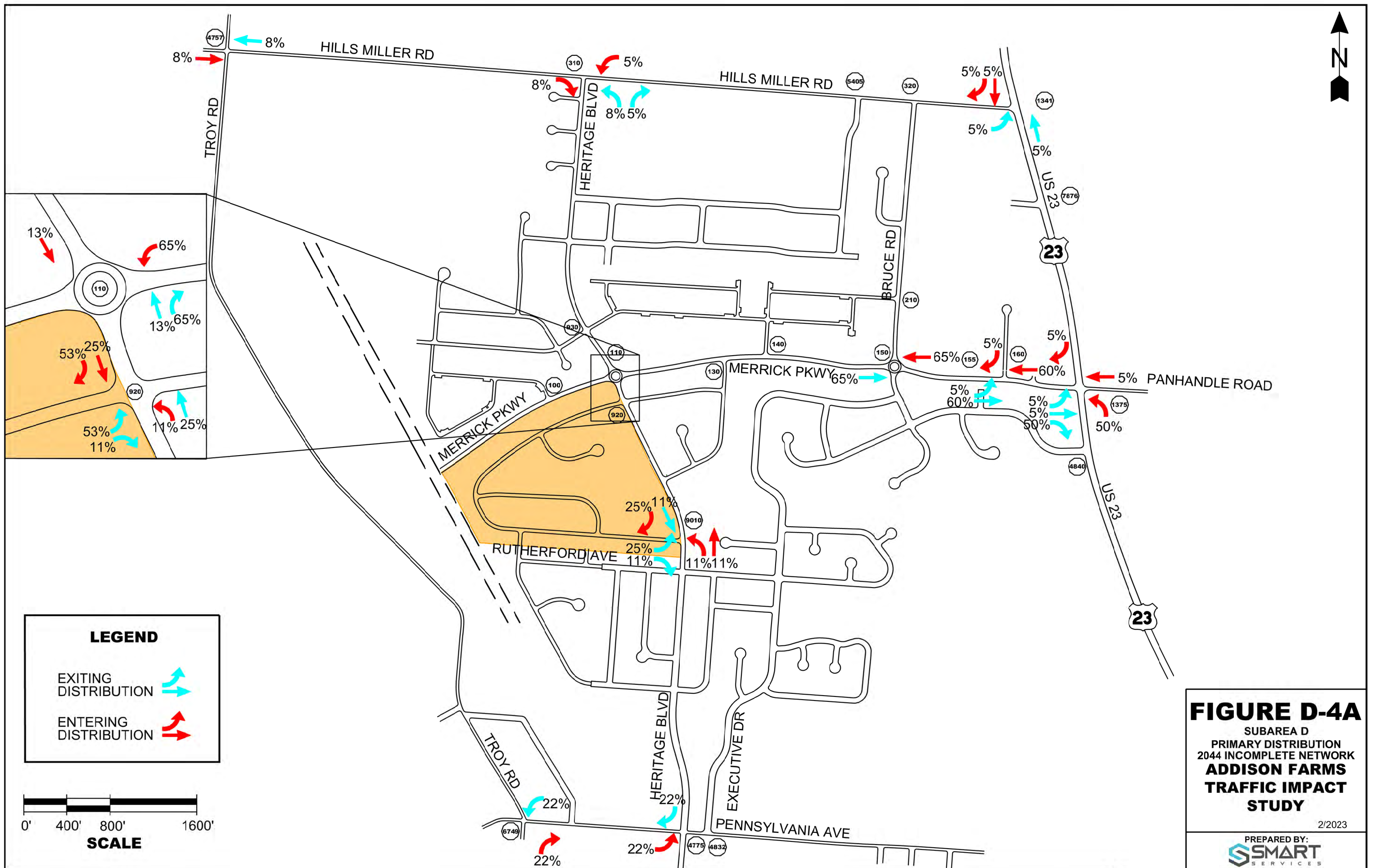
SUBAREA B
PRIMARY DISTRIBUTION
2044 COMPLETE NETWORK
ADDISON FARMS
TRAFFIC IMPACT
STUDY

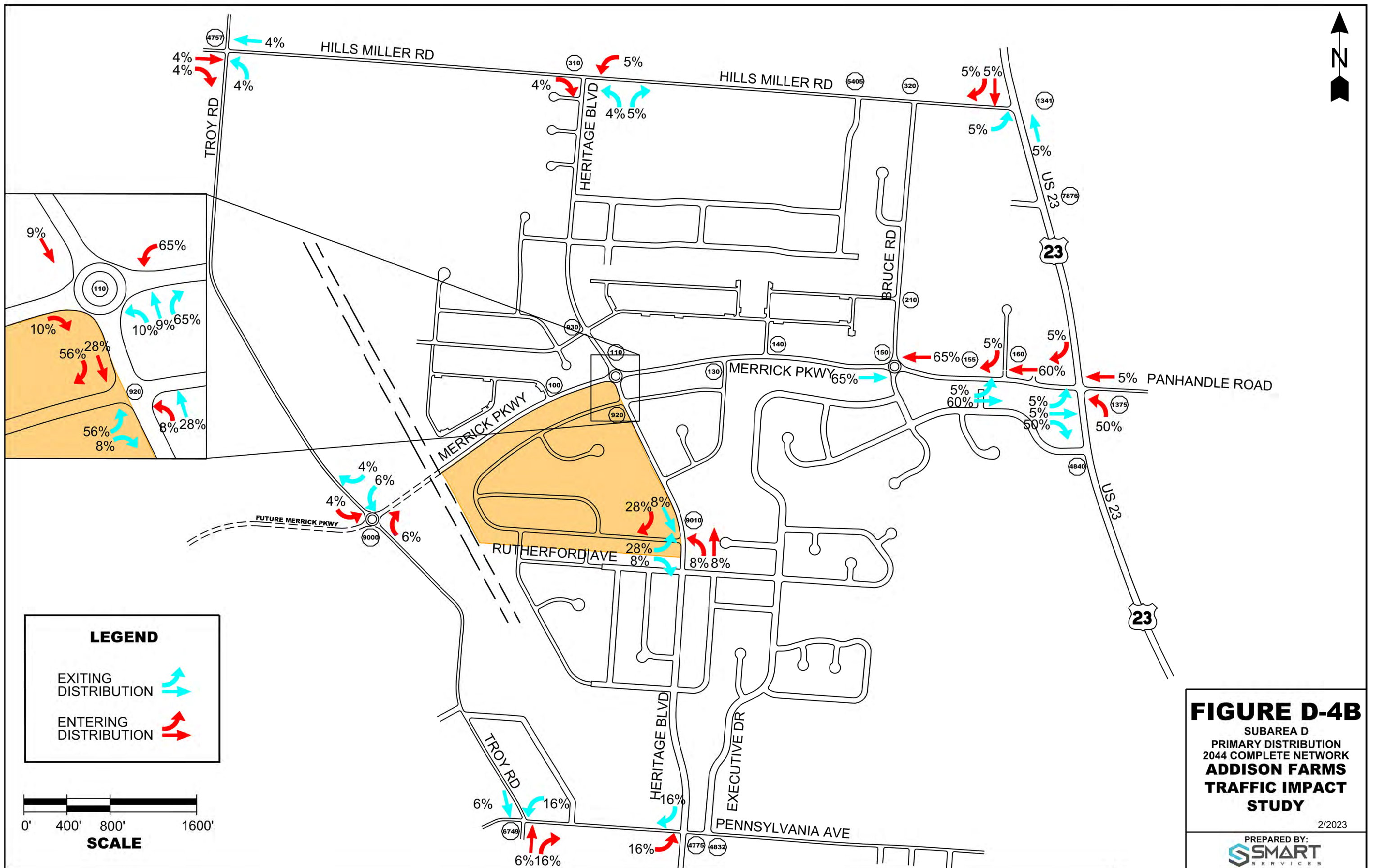
2/2023

PREPARED BY:













LEGEND

EXITING DISTRIBUTION 

ENTERING DISTRIBUTION 

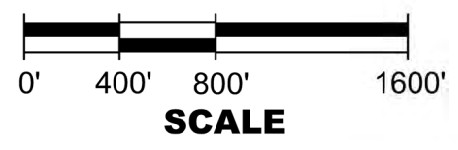



FIGURE D-5A
SUBAREA E
PRIMARY DISTRIBUTION
2044 INCOMPLETE NETWORK
**ADDISON FARMS
TRAFFIC IMPACT
STUDY**

2/2023

PREPARED BY:




LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

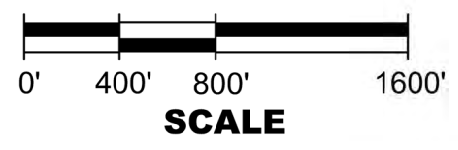
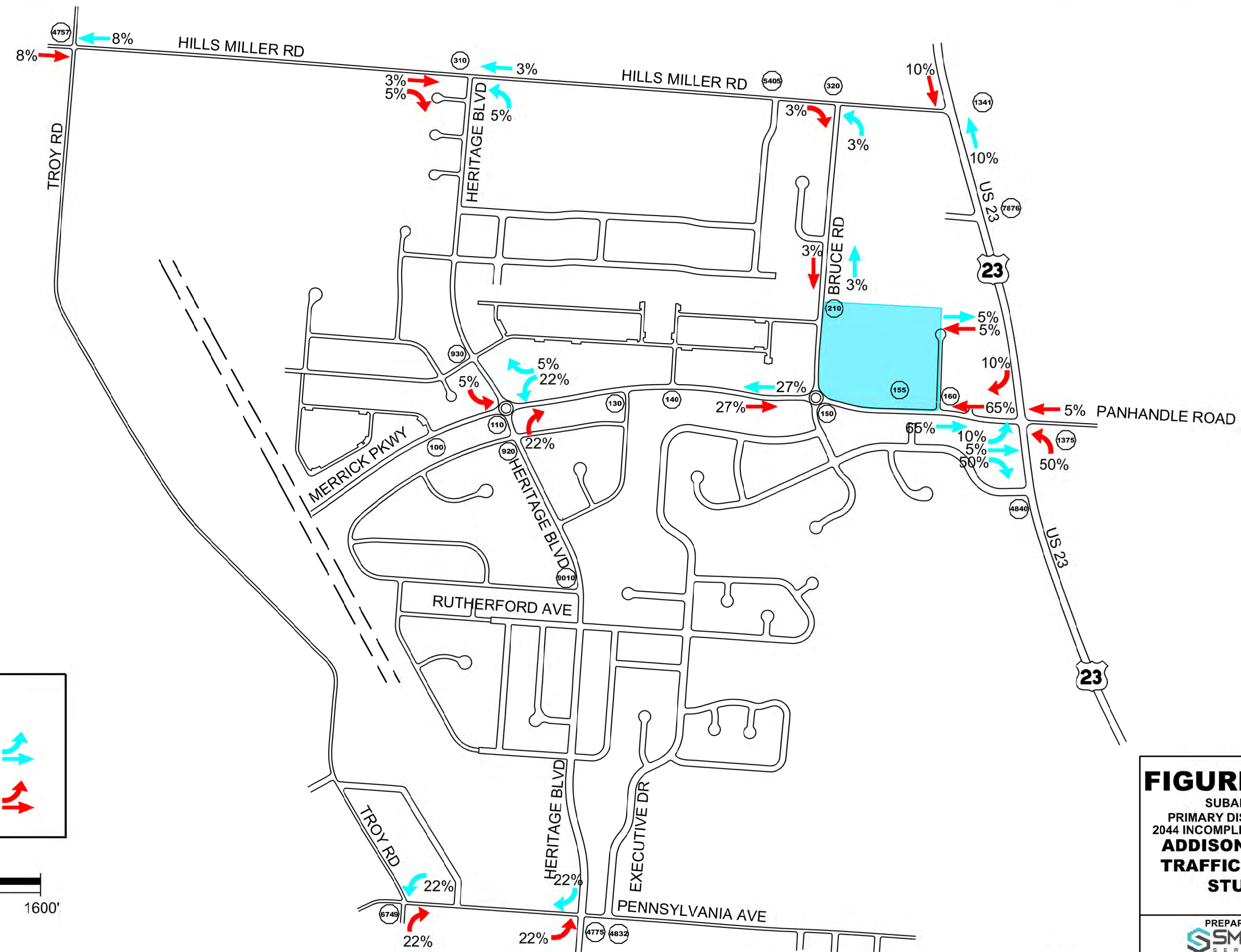



FIGURE D-5B


SUBAREA E
PRIMARY DISTRIBUTION
2044 COMPLETE NETWORK
ADDISON FARMS
TRAFFIC IMPACT
STUDY

PREPARED BY:
 SMART SERVICES



LEGEND

EXITING DISTRIBUTION 

ENTERING DISTRIBUTION 

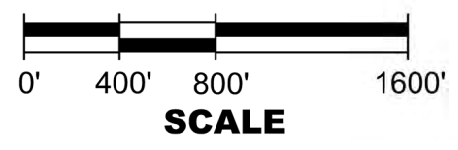

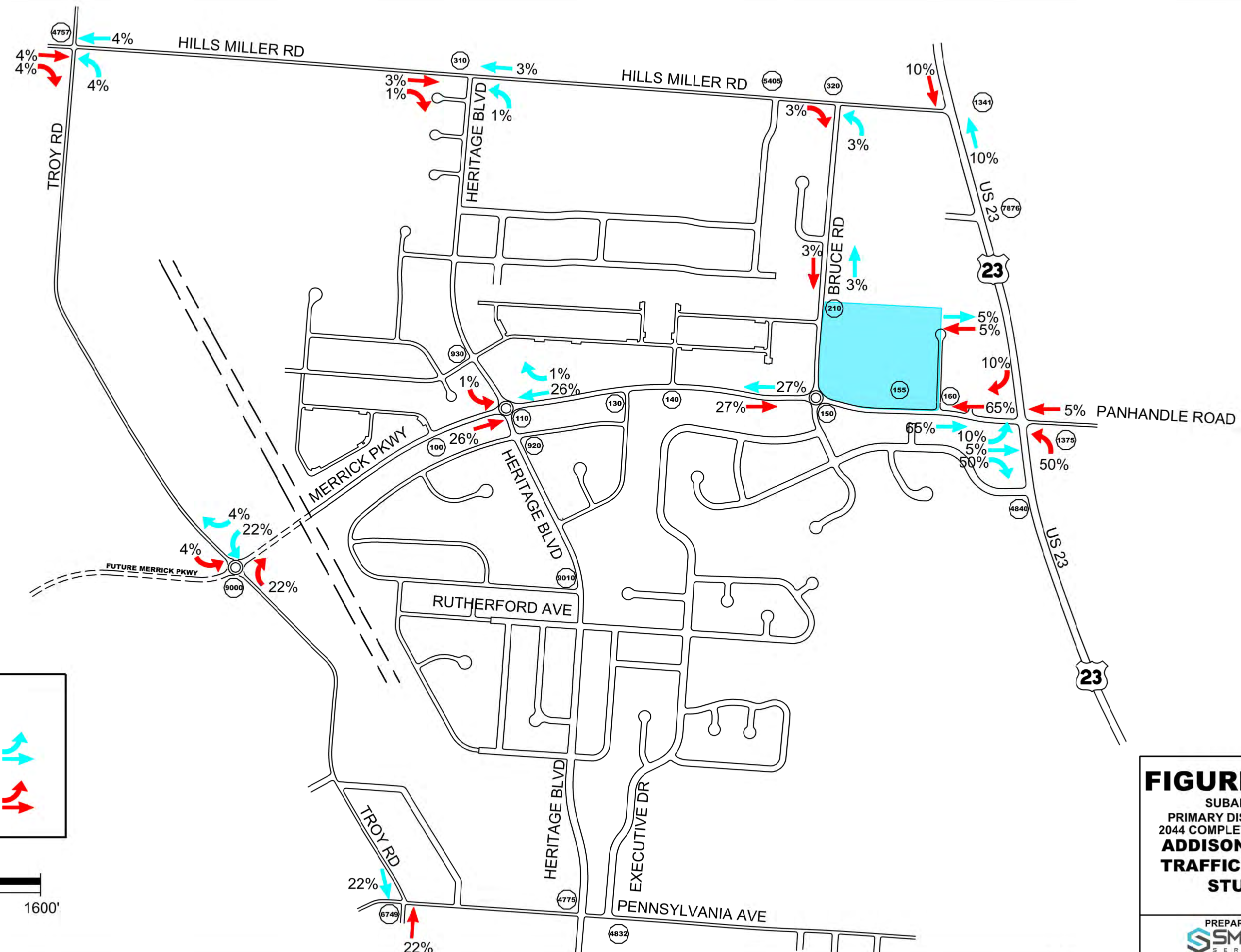


FIGURE D-6A

SUBAREA F
PRIMARY DISTRIBUTION
2044 INCOMPLETE NETWORK
**ADDISON FARMS
TRAFFIC IMPACT
STUDY**

2/2023

PREPARED BY:




LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

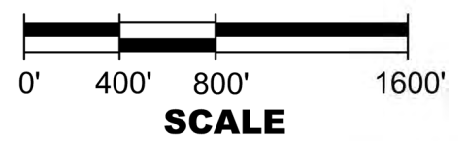
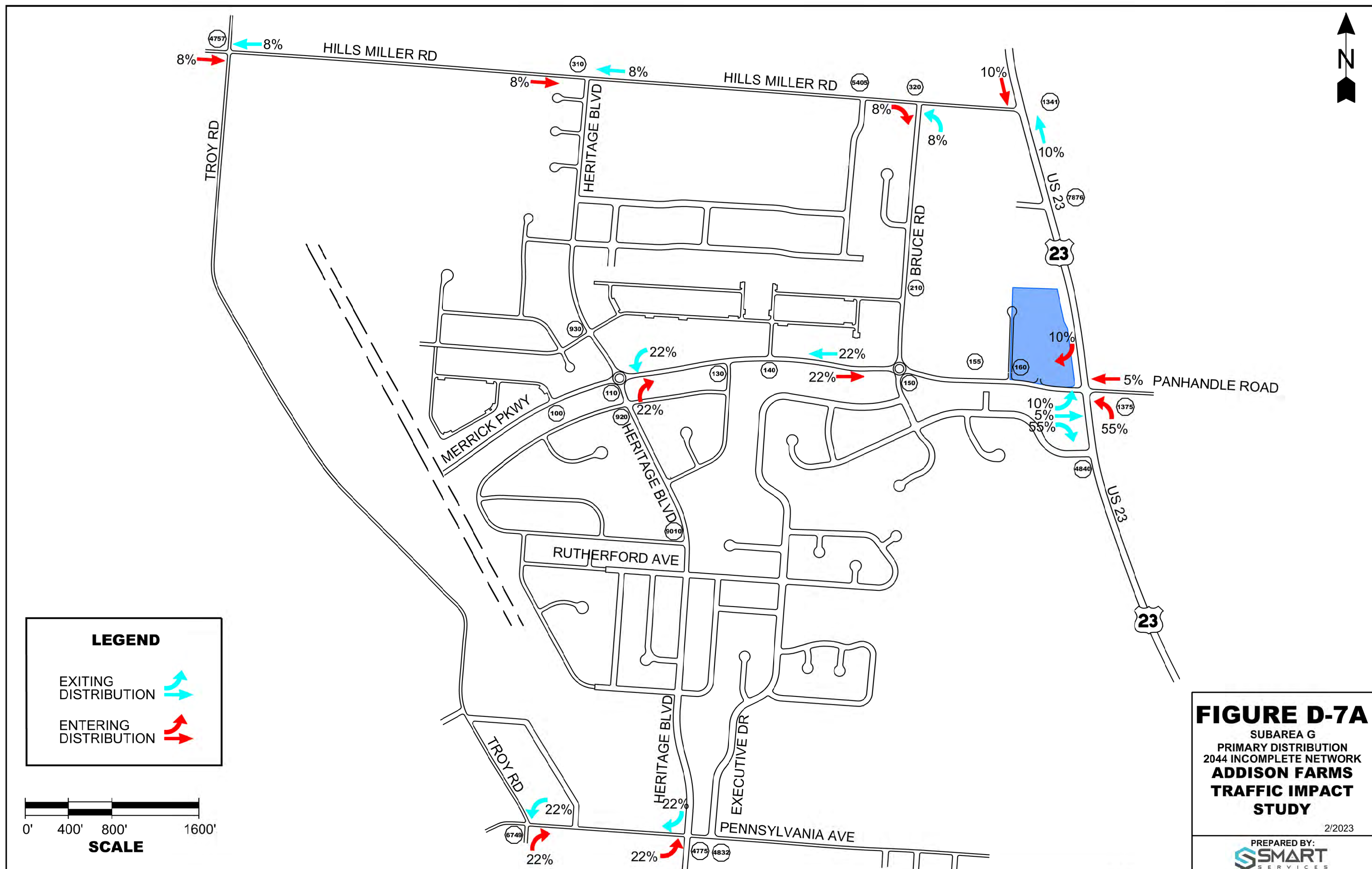


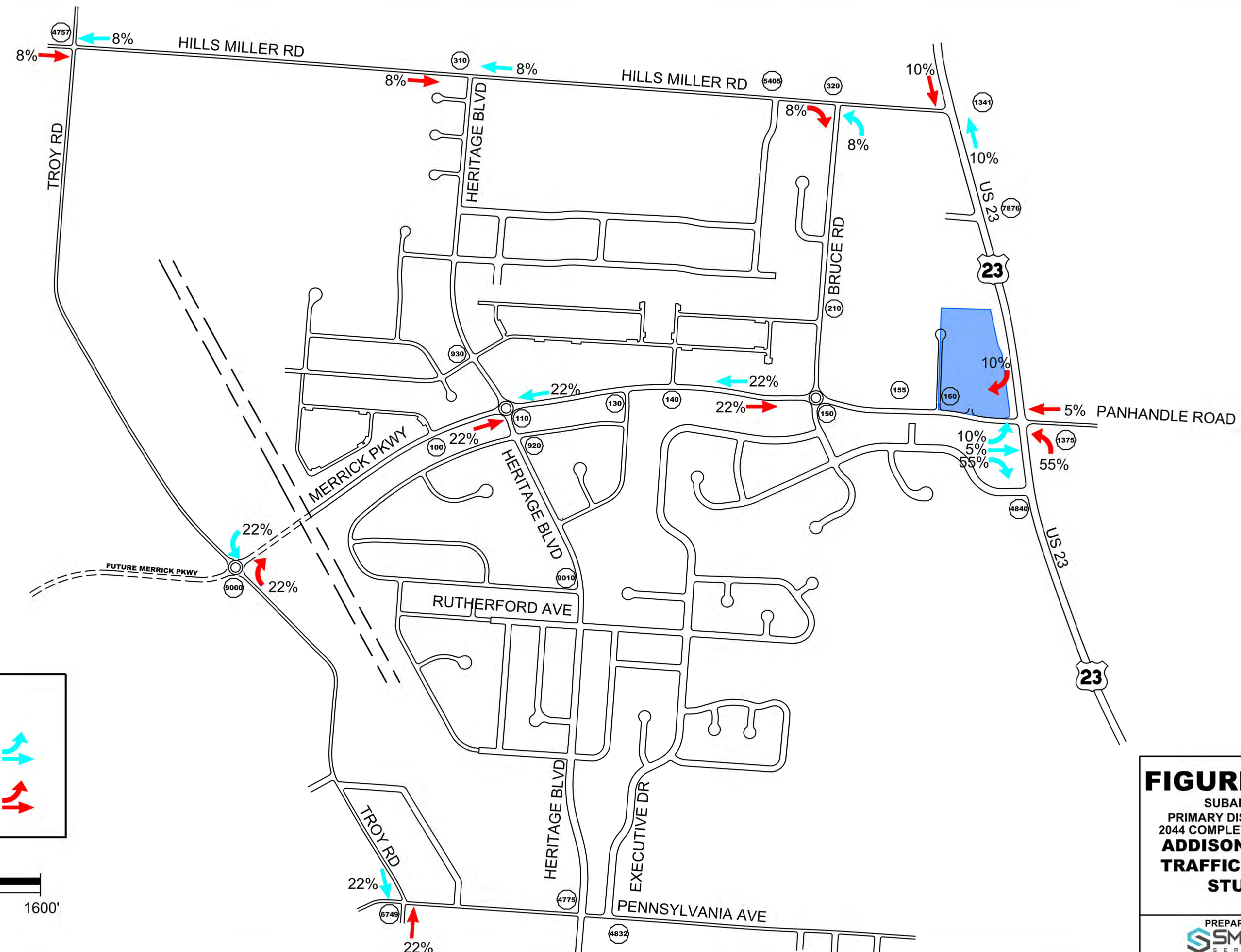
FIGURE D-6B

SUBAREA F
PRIMARY DISTRIBUTION
2044 COMPLETE NETWORK
**ADDISON FARMS
TRAFFIC IMPACT
STUDY**

2/2023

PREPARED BY:





LEGEND

EXITING DISTRIBUTION

ENTERING DISTRIBUTION

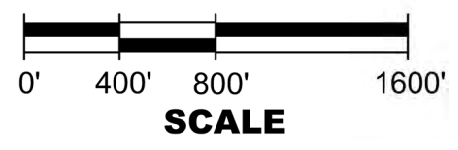


FIGURE D-7B

SUBAREA G
PRIMARY DISTRIBUTION
2044 COMPLETE NETWORK
**ADDISON FARMS
TRAFFIC IMPACT
STUDY**

2/2023

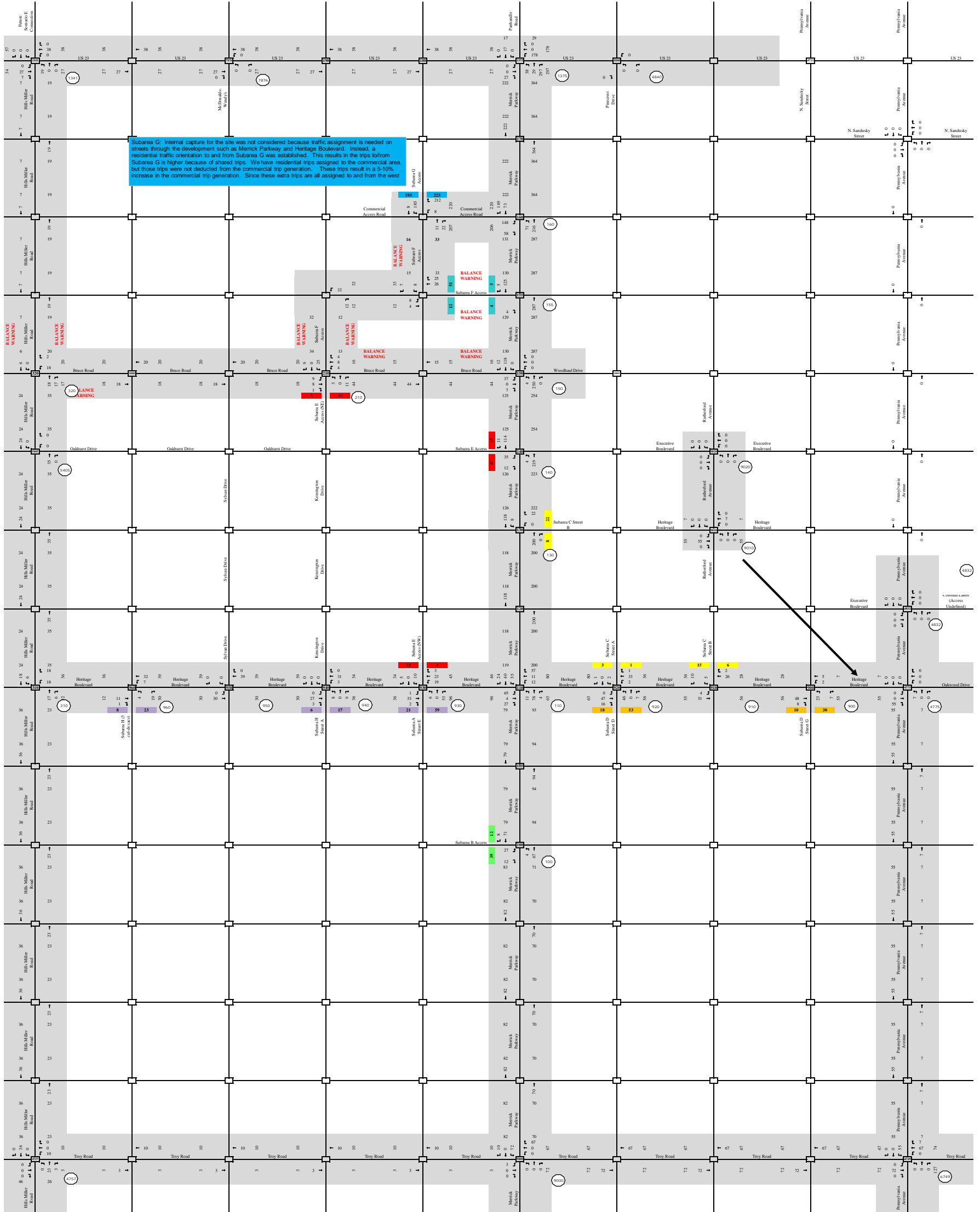
PREPARED BY:

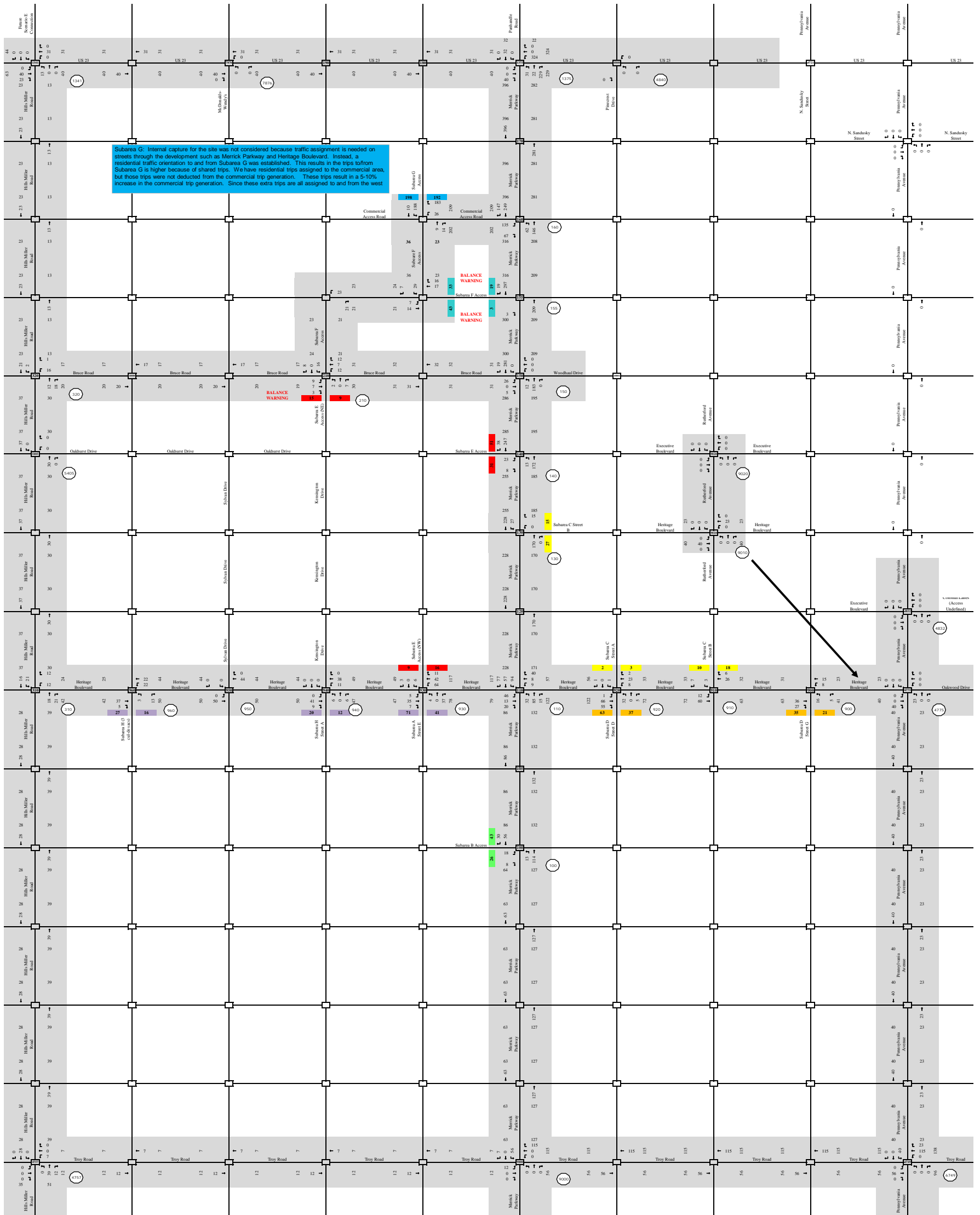
TRAFFIC STUDY SUBAREA	LAND USE	TIME OF DAY	DATA SET <i>Trip Generation Manual, 11th Edition</i> (Unless noted Otherwise)	OVERRIDE WITH AVERAGE	RATE OR EQUATION FROM: <i>Trip Generation Manual 11th Edition</i>	Pass-By % From <i>Trip Generation Handbook 3rd Edition</i> unless	TOTAL TRIPS	TOTAL PRIMARY TRIPS	ENTERING			EXITING				
									%	TOTAL TRIPS	PASS-BY TRIPS	PRIMARY TRIPS	%	TOTAL TRIPS	PASS-BY TRIPS	PRIMARY TRIPS
A & H	Single-Family Detached Housing (ITE Code 210) based on 460 units (Non ITE Source) Ind. Variable (X) = 206 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 8.93	NA	1840	1840	50%	920	0	920	50%	920	0	920
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.65	NA NA	134	134	26%	35	0	35	74%	99	0	99
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.91	NA NA	187	187	63%	118	0	118	37%	69	0	69
B	Multi-family Housing -Low-Rise (ITE Code 220) based on 460 units (Non ITE Source) Ind. Variable (X) = 148 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 6.53	NA	966	966	50%	483	0	483	50%	483	0	483
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.35	NA NA	51	51	24%	12	0	12	76%	39	0	39
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.46	NA NA	68	68	63%	43	0	43	37%	25	0	25
C	Single-Family Detached Housing (ITE Code 210) based on 460 units (Non ITE Source) Ind. Variable (X) = 82 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 8.93	NA	732	732	50%	366	0	366	50%	366	0	366
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.65	NA NA	53	53	26%	14	0	14	74%	39	0	39
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.91	NA NA	74	74	63%	47	0	47	37%	27	0	27
D	Single-Family Detached Housing (ITE Code 210) based on 460 units (Non ITE Source) Ind. Variable (X) = 172 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 8.93	NA	1536	1536	50%	768	0	768	50%	768	0	768
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.65	NA NA	112	112	26%	29	0	29	74%	83	0	83
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.91	NA NA	156	156	63%	98	0	98	37%	58	0	58
E	Multi-family Housing -Low-Rise (ITE Code 220) based on 460 units (Non ITE Source) Ind. Variable (X) = 288 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 6.53	NA	1867	1867	50%	934	0	934	50%	933	0	933
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.35	NA NA	99	99	24%	24	0	24	76%	75	0	75
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.46	NA NA	132	132	63%	83	0	83	37%	49	0	49
F	Multi-family Housing -Low-Rise (ITE Code 220) based on 646 units (Non ITE Source) Ind. Variable (X) = 212 Dwelling Units	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 6.53	NA	1384	1384	50%	692	0	692	50%	692	0	692
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 0.35	NA NA	73	73	24%	18	0	18	76%	55	0	55
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 0.46	NA NA	98	98	63%	62	0	62	37%	36	0	36
G-1	Strip Retail Plaza (<40k) (ITE Code #822) Ind. Variable (X) = 28.50 1000 SF Gross Leasable Area	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 54.45	NA	1552	1552	50%	776	0	776	50%	776	0	776
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 2.36	No Data	67	67	60%	40	0	40	40%	27	0	27
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	$\ln(T)=0.71\ln(X)+2.72$	34.0% *Similar to 820	164	108	50%	82	28	54	50%	82	28	54
G-2	Coffee/Donut Shop with Drive-Through Window (ITE Code #937) Ind. Variable (X) = 2.00 1000 SF Gross Floor Area	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 533.57	NA	1067	1067	50%	534	0	534	50%	533	0	533
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 85.88	49.0% *Similar to 934	172	88	51%	88	43	45	49%	84	41	43
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 38.99	50.0% *Similar to 934	78	39	50%	39	20	20	50%	39	20	20
G-3	Fast Food Restaurant with Drive-Through Window (ITE Code #934) Ind. Variable (X) = 4.00 1000 SF Gross Floor Area	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 467.48	NA	1870	1870	50%	935	0	935	50%	935	0	935
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 44.61	49.0%	178	91	51%	91	45	46	49%	87	43	44
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 33.03	50.0%	132	66	52%	69	35	35	48%	63	32	32
G-4	Convenience Store/Gas Station - GFA (5.5-10K) (ITE Code #945) Ind. Variable (X) = 12 Fueling Positions	Daily	Weekday	<input checked="" type="checkbox"/>	Average Rate= 345.75	NA	4149	4149	50%	2075	0	2075	50%	2074	0	2074
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	<input type="checkbox"/>	Average Rate= 31.60	62.0%	379	144	50%	190	118	72	50%	189	117	72
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	<input type="checkbox"/>	Average Rate= 26.90	56.0%	323	142	50%	162	91	71	50%	161	90	71
TOTALS				<input checked="" type="checkbox"/>	Daily		16963	16963		8483	0	8483		8480	0	8480
				<input type="checkbox"/>	AM Peak		1318	912		541	206	335		777	201	576
				<input type="checkbox"/>	PM Peak		1412	1070		803	173	630		609	169	440

Addison Farms Traffic Impact Study - 11/2022

TABLE # - COLOR CODED FULL TRIP GENERATION SUMMARY

G TOTALS	Daily	8638	8638	4320	0	4320	4318	0	4318
	AM Peak	796	390	409	206	203	387	201	186
	PM Peak	697	355	352	173	179	345	169	176





APPENDIX E

Background Traffic References

From: [Drew Laurent](#)
To: [Carrie Fortman](#); [Todd Stanhope](#); [Jessica.Ormeroid@dot.ohio.gov](#)
Cc: [Bill Ferrigno](#); [Jonathan Owen](#); [Jon Roseler](#); [Jason Friedman \(jaf@addisonprops.com\)](#); "Jeff Shafer"; [Kathy Krock](#); [Thomas.Slack@dot.ohio.gov](#); [Michael A. Love \(mlove@co.delaware.oh.us\)](#); [Andrew.Hurst@dot.ohio.gov](#); [Gina Balsamo](#)
Subject: RE: Addison Farms TIS - Traffic Development Submission V2
Date: Monday, February 6, 2023 10:52:05 AM
Attachments: [image001.png](#)
[image002.png](#)

All,

Below is our response regarding the highlighted question below.

The differences seen are from rerouted volumes.

W plates – It would appear the removal of 37 west/23 north and 36 west/23 north traffic from 23 was not carried south of Panhandle. The following revisions may be made: AM -> -7 to SBT and -18 to NBT, PM -> -16 to SBT and -24 to NBT.

X plates – It would appear that the removal of the Lexington Blvd from the Pennsylvania Ave route was left off. This would result in two vehicles being removed from the SBT movement at Panhandle in both the AM and PM. In the PM, an additional vehicle should be removed from the SBT movement for the Locust Curve reroute.

Y plates – The difference between the two intersections (Panhandle and Hills Miller) is caused by adjusting rerouted volumes. This sheet is reliant on adjustments made in plates B, C, D, and E.

Drew Laurent, AICP

Carpenter Marty Transportation

(D) 614.656.2421

(M) 614.327.0709

From: Carrie Fortman <cfortman@delawareohio.net>
Sent: Wednesday, February 1, 2023 11:24 AM
To: Todd Stanhope <TStanhope@smartservices-inc.com>; [Jessica.Ormeroid@dot.ohio.gov](#)
Cc: [Bill Ferrigno <bferrigno@delawareohio.net>](#); [Jonathan Owen <jowen@delawareohio.net>](#); [Jon Roseler <jroseler@delawareohio.net>](#); [Jason Friedman \(jaf@addisonprops.com\) <jaf@addisonprops.com>](#); 'Jeff Shafer' <jeff@addisonprops.com>; [Kathy Krock <KKrock@smartservices-inc.com>](#); [Thomas.Slack@dot.ohio.gov](#); [Michael A. Love \(mlove@co.delaware.oh.us\) <mlove@co.delaware.oh.us>](#); [Andrew.Hurst@dot.ohio.gov](#); [Drew Laurent <dlaurent@cmtran.com>](#); [Gina Balsamo <gbalsamo@cmtran.com>](#)
Subject: RE: Addison Farms TIS - Traffic Development Submission V2

Todd-

I have augmented the ODOT response with COD/CMT responses, please see attached. Regarding the highlighted question below, I will need to follow up with CMT to best response

(Drew or Gina, feel free to respond!)

CORDIALLY-

CARRIE F. FORTMAN, P.E.

PROJECT ENGINEER | CITY OF DELAWARE

Direct: 740-203-1711 **Email:** cfortman@delawareohio.net

From: Todd Stanhope <TStanhope@smartservices-inc.com>

Sent: Tuesday, January 31, 2023 1:48 PM

To: Jessica.Ormeroid@dot.ohio.gov; Carrie Fortman <cfortman@delawareohio.net>

Cc: Bill Ferrigno <bferrigno@delawareohio.net>; Jonathan Owen <jowen@delawareohio.net>; Jon Roseler <jroseler@delawareohio.net>; Jason Friedman (jaf@addisonprops.com) <jaf@addisonprops.com>; 'Jeff Shafer' <jeff@addisonprops.com>; Kathy Krock <KKrock@smartservices-inc.com>; Thomas.Slack@dot.ohio.gov; Michael A. Love (mlove@co.delaware.oh.us) <mlove@co.delaware.oh.us>; Andrew.Hurst@dot.ohio.gov; Drew Laurent <dlaurent@cmtran.com>; Gina Balsamo <gbalsamo@cmtran.com>

Subject: RE: Addison Farms TIS - Traffic Development Submission V2

Caution! This message was sent from outside your organization.

Jessica

Thank you for the responses to our proposed disposition of comments.

Carrie

When can we expect the City's responses or a meeting to get direction on questions related to City Comments 2f, 2g, 4, 5ai, 5aii, 5aiii, 5b, 5f, 5g, and ODOT General 1 (ODOT deferred to City on answer to question)

In addition, ODOT had responses to our questions on Figures 6 and 7 but appeared to pick up an imbalance in the US 23 volumes between Merrick Parkway/Panhandle and Hills-Miller. In reviewing this, it appears the imbalance occurs on Plates W1, W2, X1, X2, and Y2 as we rechecked the data entry. Follow up question, is there a loading point between these intersections not shown on the plate that can explain this? If needed, we can provide our entries on those plates for review.

Thank you!

TODD STANHOPE, PE, PTOE
SMART SERVICES
DIRECTOR OF TRAFFIC ENGINEERING

✉ tstanhope@smartservices-inc.com
📍 1900 Crown Park Ct, Columbus, OH 43235
☎ OFFICE 614.914.5543 FAX 740.522.4706
🌐 SmartServices-Inc.com



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

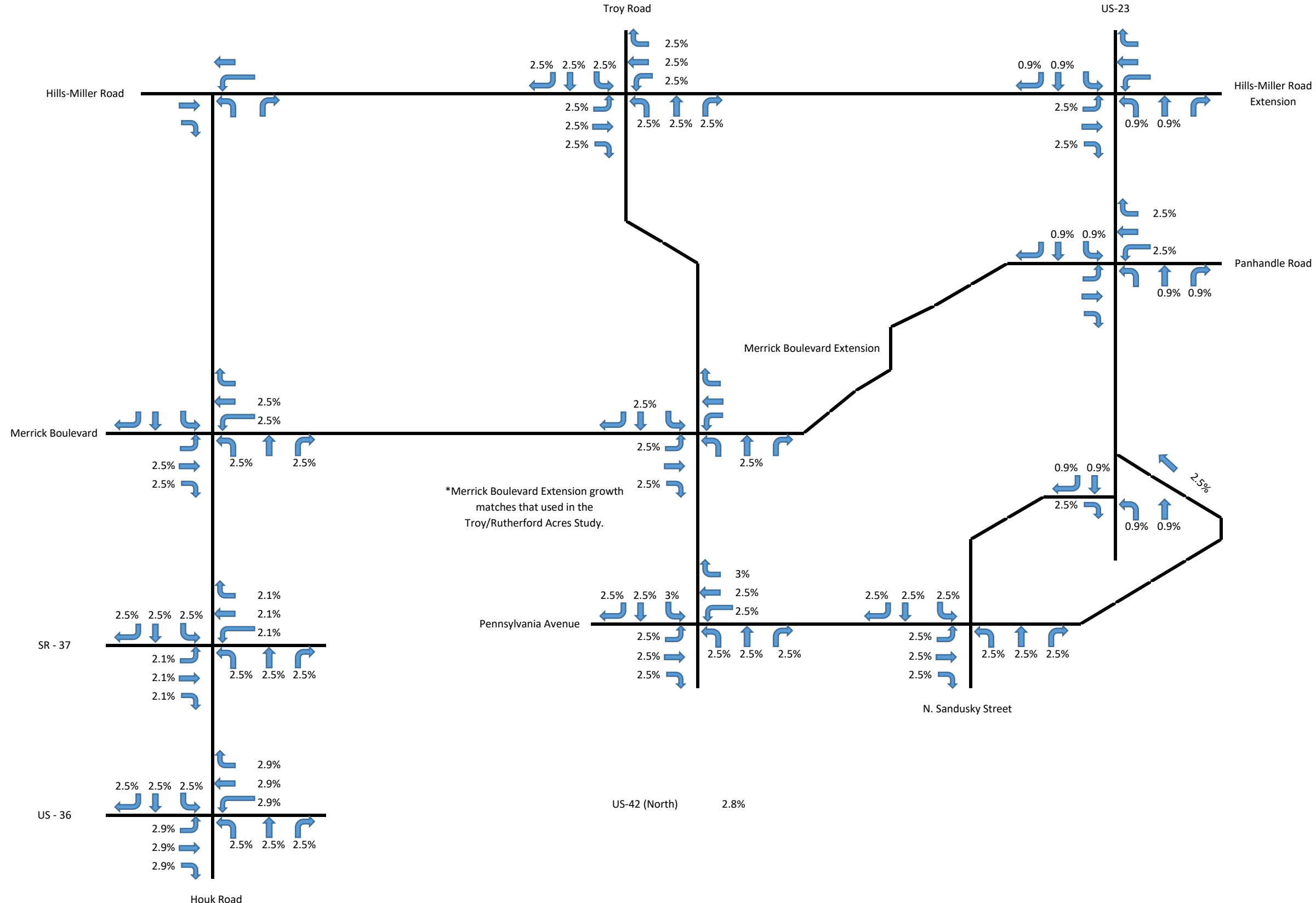


Year	Period	Scenario	Plate
		Growth Rates	

^
N

Average Value Growths

US-23	0.9%
SR-37	2.1%
US-36	2.9%
Rest of Area	2.5%



Northwest Arterial Corridor Analysis Traffic Volume Calculations



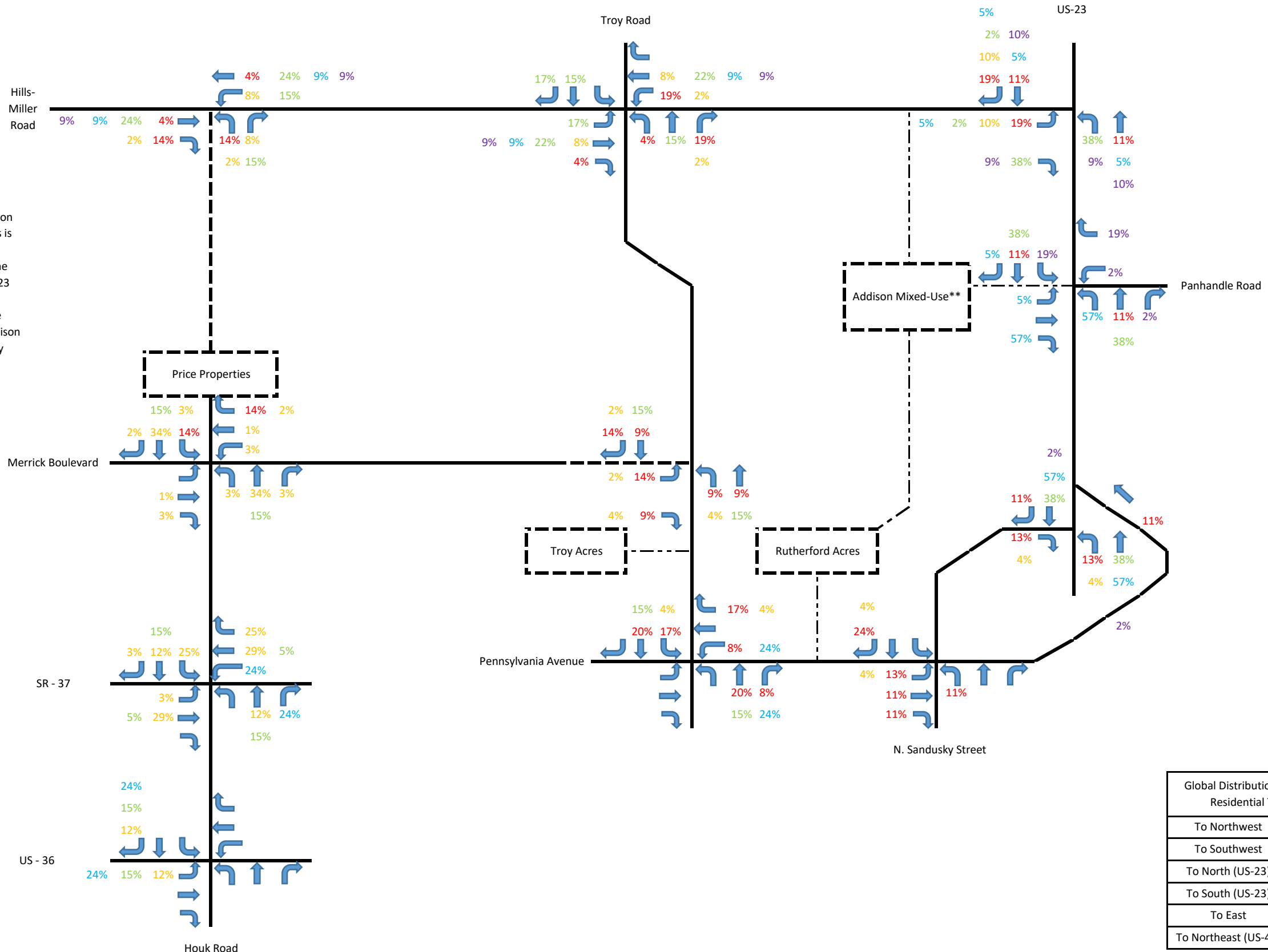
Year	Period	Scenario	Plate
		Committed Conditions - Background Development Traffic Distributions	



* Trips distributed based on global distribution from existing residential traffic StreetLight data

**The Addison property is likely to be developed by 2040 and is likely to have some type of access to US-23. The location and allowable movements of said access is not yet determined. For purposes of the volume development, it was assumed the access would align with the existing US-23 & Panhandle Road intersection. The location and movements shown in these volumes are not guaranteed for the Addison development access. Volumes show only the traffic demand for the site access.

- Troy & Rutherford Acres Traffic
- Price Properties Traffic
- Rural Residential (north of Merrick to Buttermilk Hill)
- Addison Mixed-Use Traffic
- East Residential



Global Distribution of Existing Residential Traffic*	
To Northwest	9%
To Southwest	24%
To North (US-23)	10%
To South (US-23)	18%
To East	35%
To Northeast (US-42)	4%

Northwest Arterial Corridor Analysis
Traffic Volume Calculations

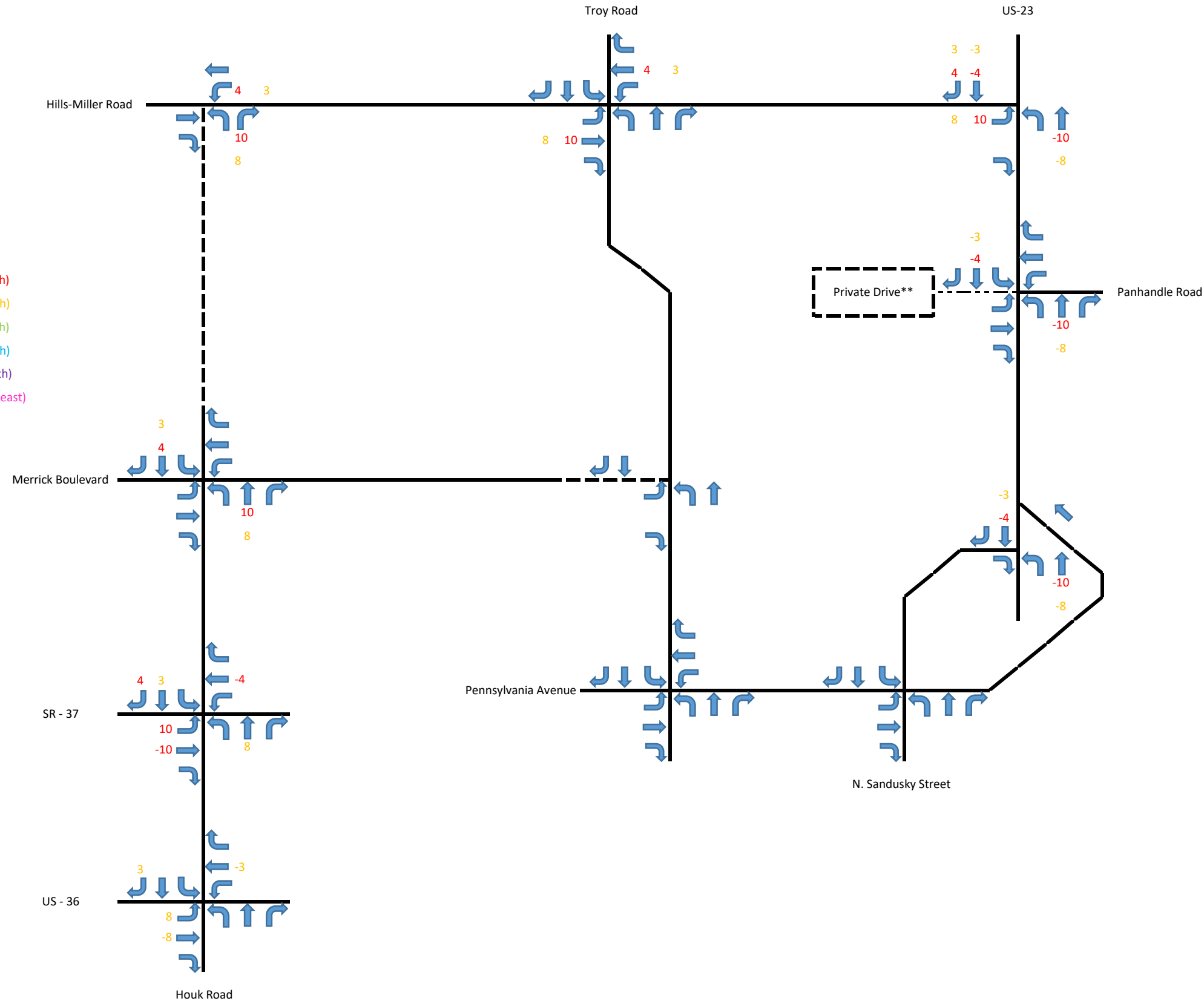


Year	Period	Scenario	Plate
	AM	Adjustments to Existing By-Pass Traffic for Committed Conditions	C1



*It was assumed that 80% of the by-pass traffic would reroute while 20% would continue using the existing travel paths.

- SR-37 (west) and US-23 (north)
- US-36 (west) and US-23 (north)
- SR-37 (west) and US-42 (north)
- US-36 (west) and US-42 (north)
- US-23 (north) and US-42 (north)
- US-23 (north) and US-36/SR-37 (east)



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

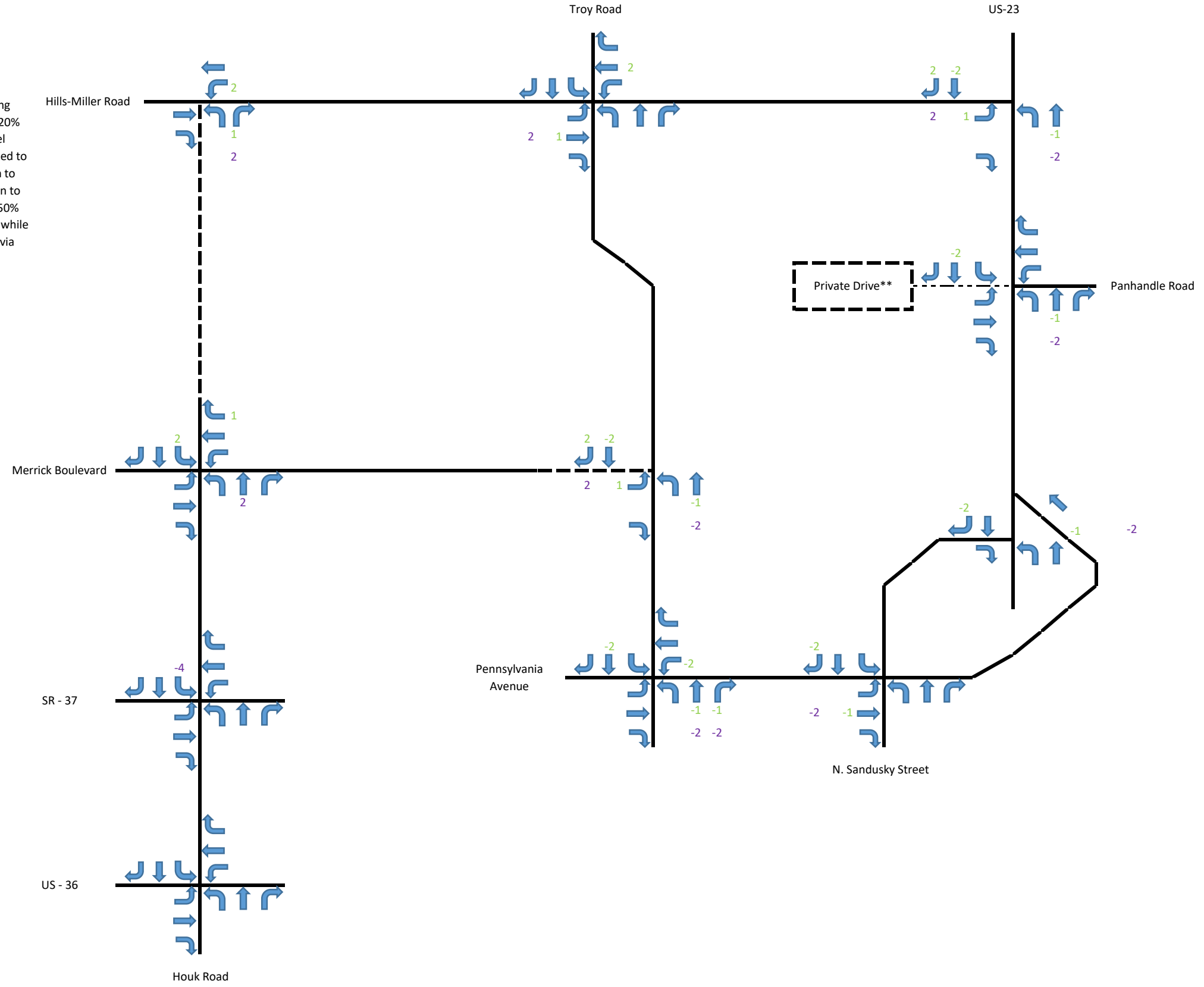


Year	Period	Scenario	Plate
	AM	Adjustments to Existing Residential Traffic for the Committed Conditions	D1



*It was assumed that 80% of the existing residential traffic would reroute while 20% would continue using the existing travel paths. For those routes that are expected to utilize the Merrick Boulevard extension to Troy Road and the Houk Road extension to Hills-Miller Road, it was assumed that 50% would utilize the Houk Road extension while the other 50% would utilize Troy Road via the Merrick Boulevard Extension.

- Buehler Drive
- Grandview Avenue
- Lexington Boulevard
- Locust Curve
- Residential n/o SR-37 on Houk Rd



Houk Road

Northwest Arterial Corridor Analysis
Traffic Volume Calculations

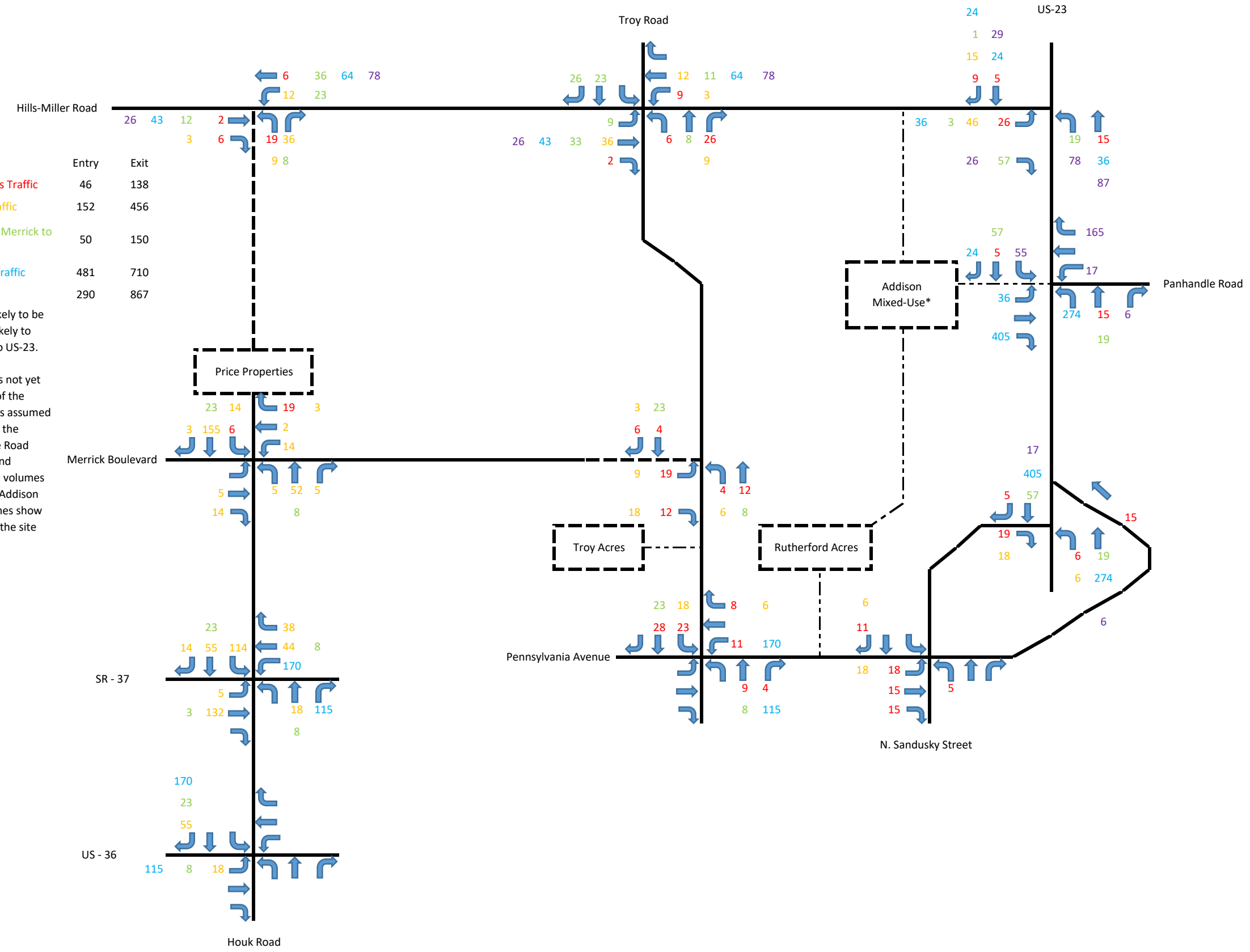


Year	Period	Scenario	Plate
	AM	Committed Conditions - Background Development Traffic*	E1

^
N

Troy & Rutherford Acres Traffic	46	138
Price Properties Traffic	152	456
Rural Residential (north of Merrick to Buttermilk Hill)	50	150
Addison Mixed-Use Traffic	481	710
East Residential	290	867

*The Addison property is likely to be developed by 2040 and is likely to have some type of access to US-23. The location and allowable movements of said access is not yet determined. For purposes of the volume development, it was assumed the access would align with the existing US-23 & Panhandle Road intersection. The location and movements shown in these volumes are not guaranteed for the Addison development access. Volumes show only the traffic demand for the site access.



Northwest Arterial Corridor Analysis Traffic Volume Calculations



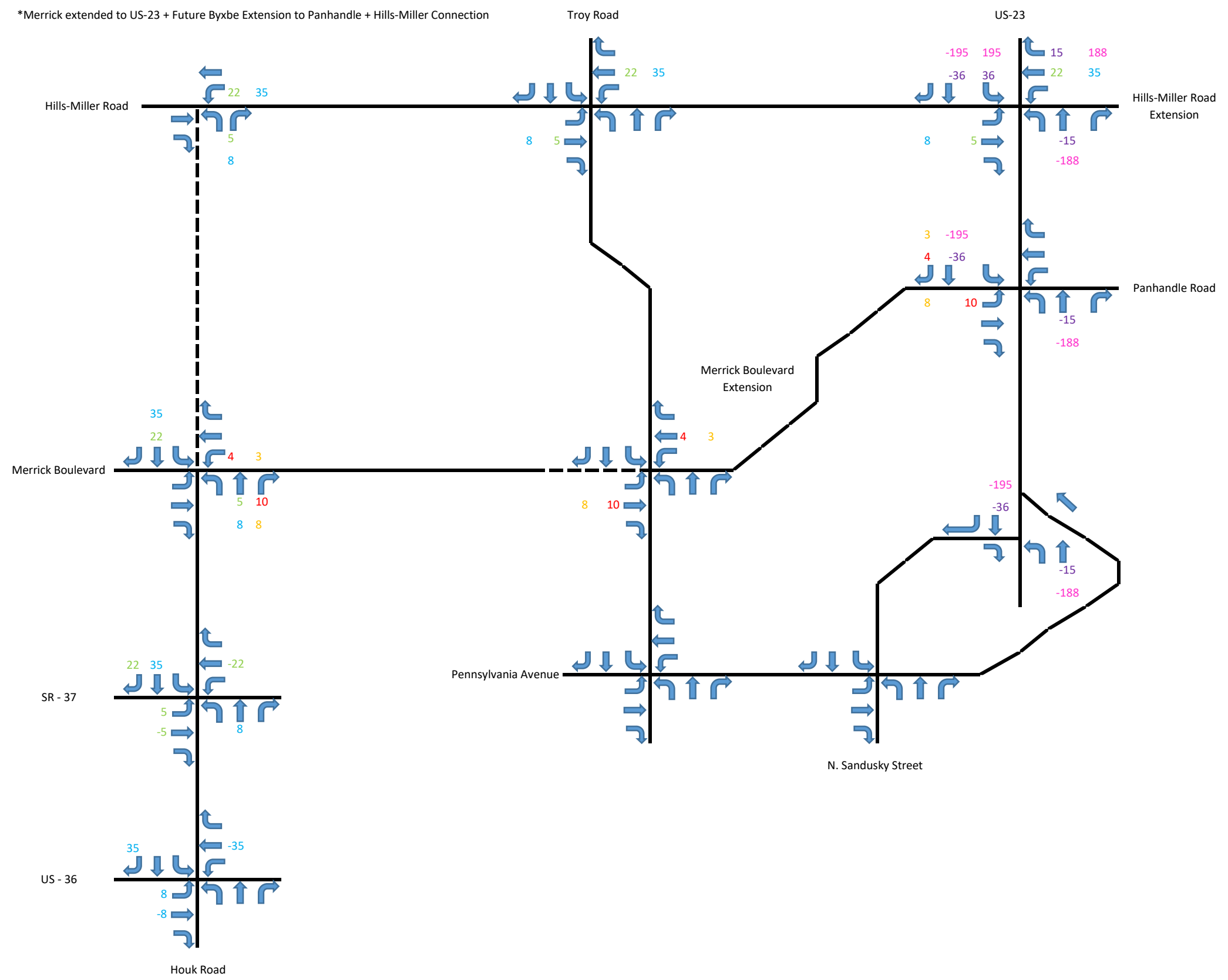
Year	Period	Scenario	Plate
2040	AM	Scenario E* - Adjustments to Existing By-Pass Traffic	W1



*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

It was assumed that 80% of the by-pass traffic would reroute while 20% would continue using the existing travel paths.

- SR-37 (west) and US-23 (north)
- US-36 (west) and US-23 (north)
- SR-37 (west) and US-42 (north)
- US-36 (west) and US-42 (north)
- US-23 (north) and US-42 (north)
- US-23 (north) and US-36/SR-37 (east)



Northwest Arterial Corridor Analysis
Traffic Volume Calculations



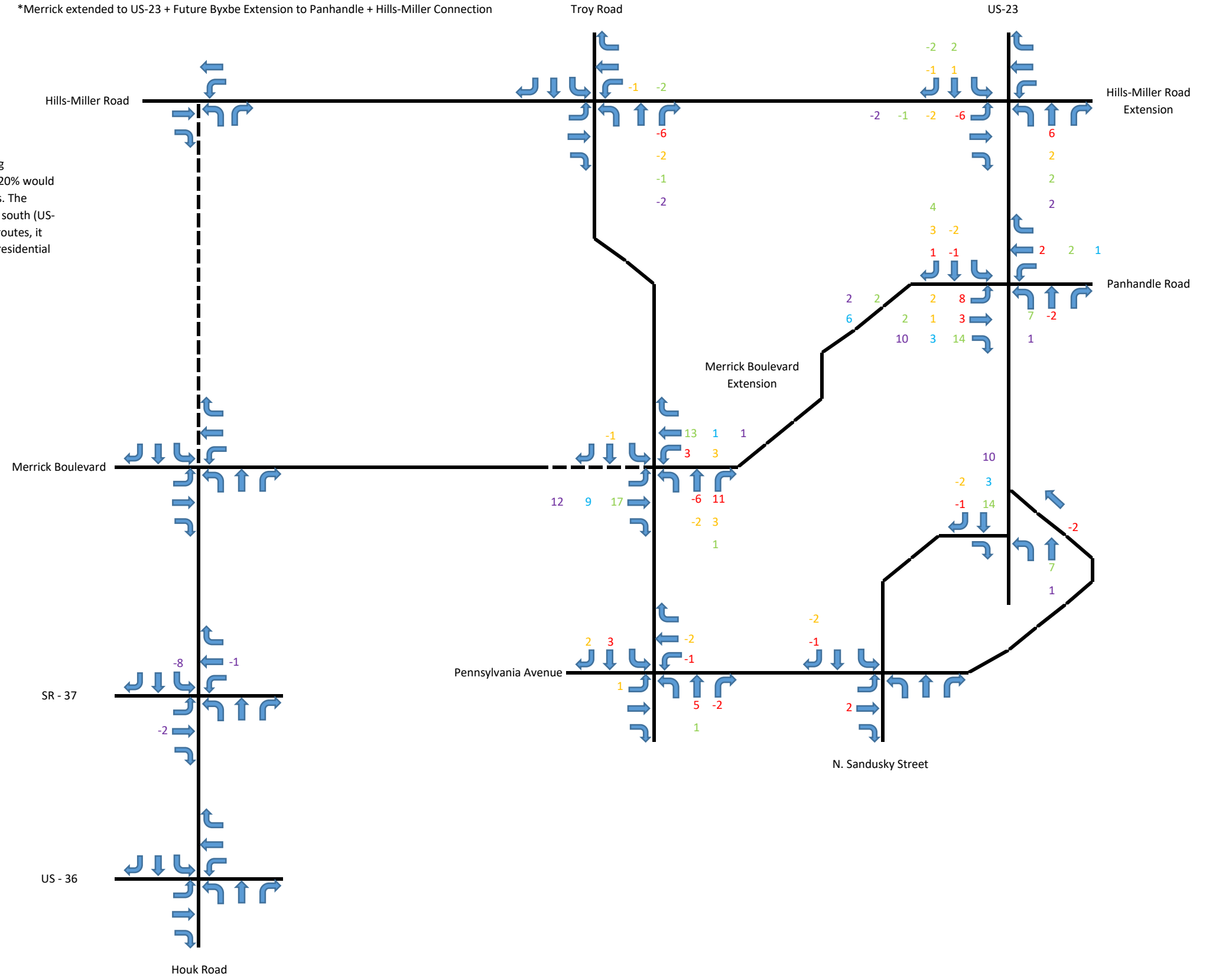
Year	Period	Scenario	Plate
2040	AM	Scenario E* - Adjustments to Existing Residential Traffic	X1

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection



It was assumed that 80% of the existing residential traffic would reroute while 20% would continue using the existing travel paths. The exception to this was trips to/from the south (US-23 South and US-42 South). For these routes, it was assumed that 50% of the existing residential traffic would reroute.

- Buehler Drive
- Grandview Avenue
- Lexington Boulevard
- Locust Curve
- Residential n/o SR-37 on Houk Rd



Northwest Arterial Corridor Analysis Traffic Volume Calculations



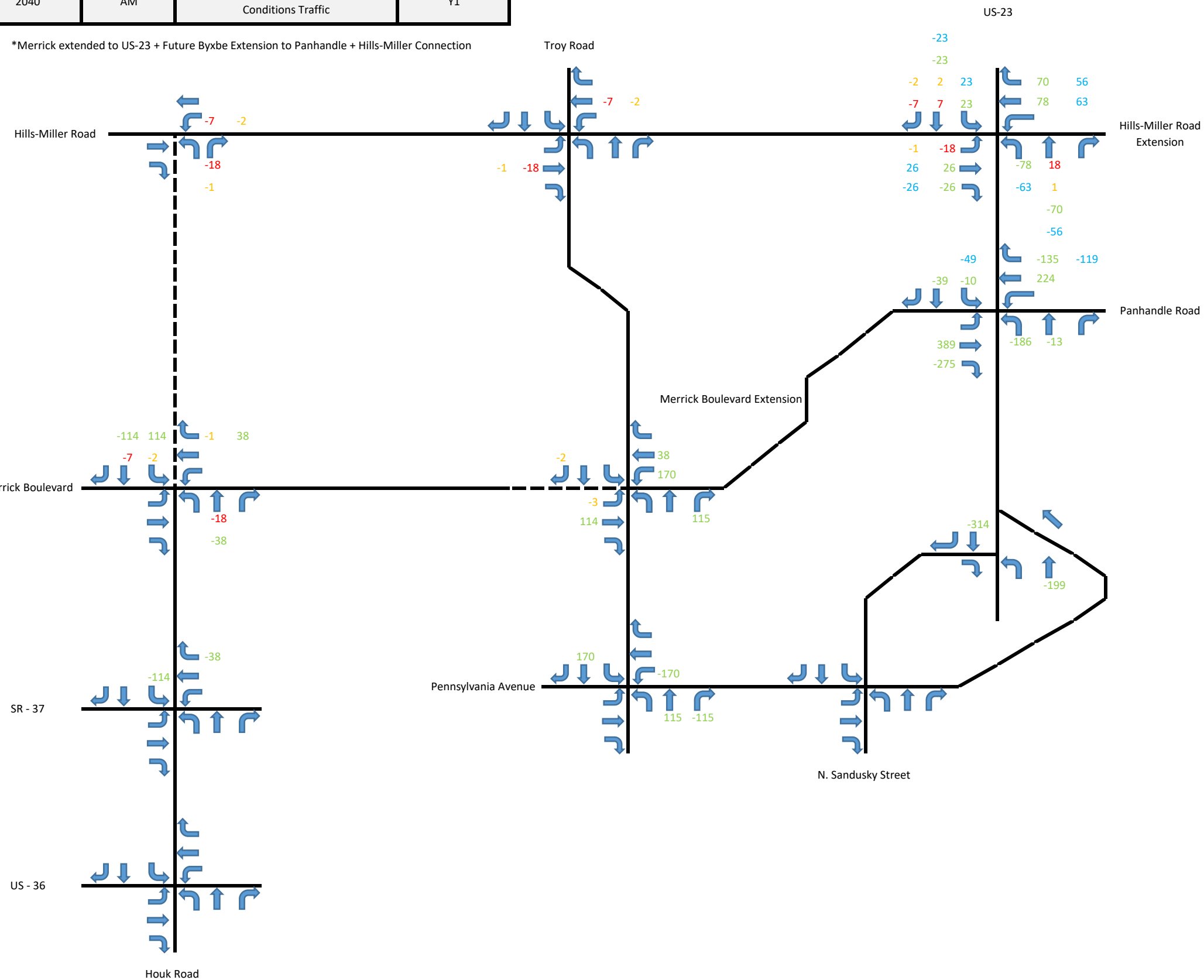
Year	Period	Scenario	Plate
2040	AM	Scenario E* - Adjustments to Committed Conditions Traffic	Y1

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

- Committed Conditions By-Pass Traffic Adjustments
- Committed Conditions Residential Traffic Adjustments
- Background Development Adjustments
- Existing Conditions Traffic Adjustments

Note the following assumptions used:

1. All traffic turning traveling between Hills-Miller Road and Panhandle Road was assumed to utilize the Future Byxbe Extension.
2. The distribution of Existing Conditions Traffic traveling north from Panhandle Road to Hills-Miller Road/US-23 (north) was assumed to utilize the same distribution used for the Background Development East Residential Traffic (47% to/from Hills-Miller, 53% to/from US-23 (north)).
3. Traffic traveling to/from US-23 (north) was assumed to reroute using the same 80/20 split used throughout these volumes for rerouting traffic.



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

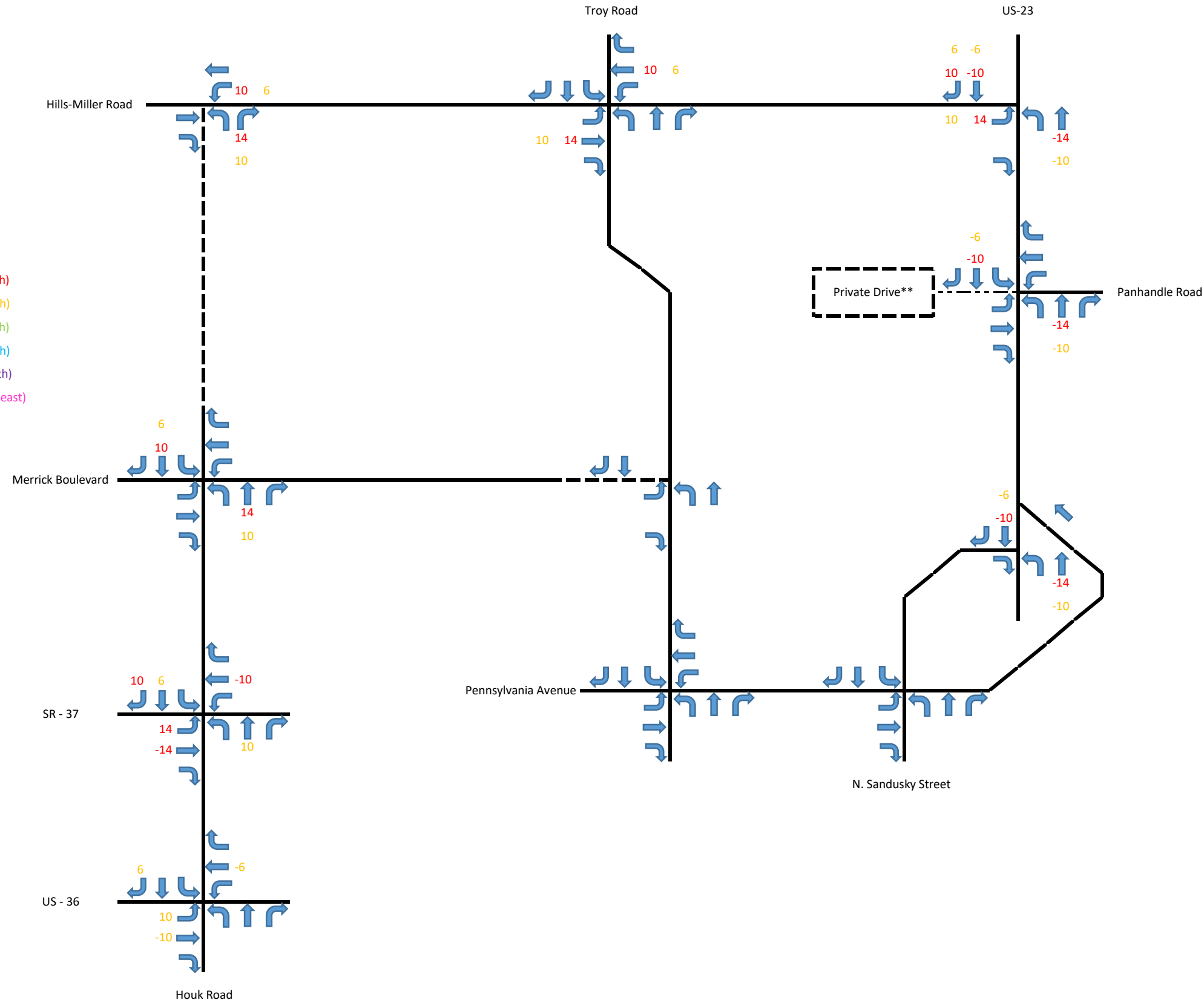


Year	Period	Scenario	Plate
	PM	Adjustments to Existing Traffic for Committed Conditions - By-Pass Traffic	C2

^
N

*It was assumed that 80% of the by-pass traffic would reroute while 20% would continue using the existing travel paths.

- SR-37 (west) and US-23 (north)
- US-36 (west) and US-23 (north)
- SR-37 (west) and US-42 (north)
- US-36 (west) and US-42 (north)
- US-23 (north) and US-42 (north)
- US-23 (north) and US-36/SR-37 (east)



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

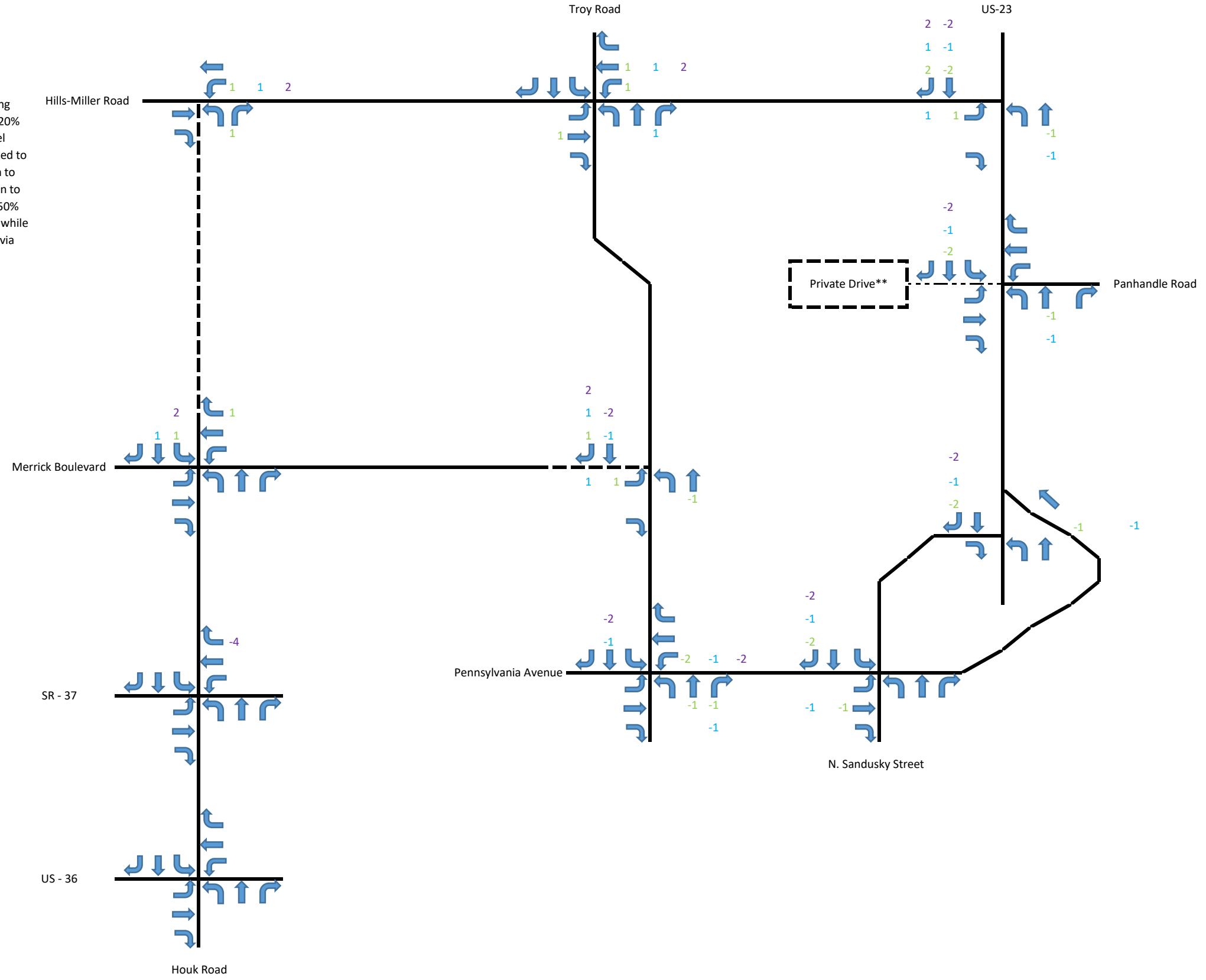


Year	Period	Scenario	Plate
	PM	Adjustments to Existing Residential Traffic for the Committed Conditions	D2

^
N

*It was assumed that 80% of the existing residential traffic would reroute while 20% would continue using the existing travel paths. For those routes that are expected to utilize the Merrick Boulevard extension to Troy Road and the Houk Road extension to Hills-Miller Road, it was assumed that 50% would utilize the Houk Road extension while the other 50% would utilize Troy Road via the Merrick Boulevard Extension.

- Buehler Drive
- Grandview Avenue
- Lexington Boulevard
- Locust Curve
- Residential n/o SR-37 on Houk Rd



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

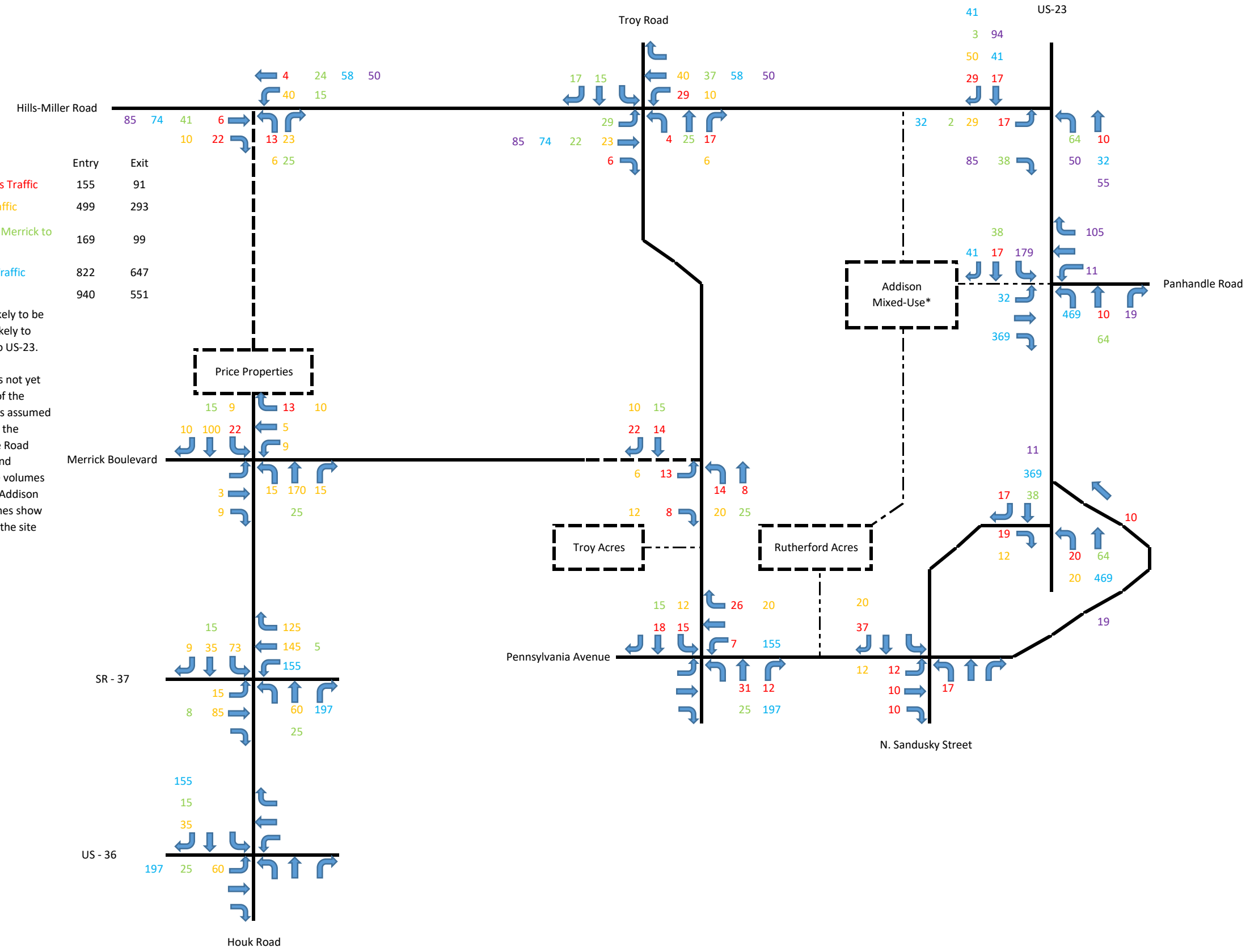


Year	Period	Scenario	Plate
	PM	Committed Conditions - Background Development Traffic*	E2

^
N

- Troy & Rutherford Acres Traffic 155 91
- Price Properties Traffic 499 293
- Rural Residential (north of Merrick to
Buttermilk Hill) 169 99
- Addison Mixed-Use Traffic 822 647
- East Residential 940 551

*The Addison property is likely to be developed by 2040 and is likely to have some type of access to US-23. The location and allowable movements of said access is not yet determined. For purposes of the volume development, it was assumed the access would align with the existing US-23 & Panhandle Road intersection. The location and movements shown in these volumes are not guaranteed for the Addison development access. Volumes show only the traffic demand for the site access.



Northwest Arterial Corridor Analysis
Traffic Volume Calculations



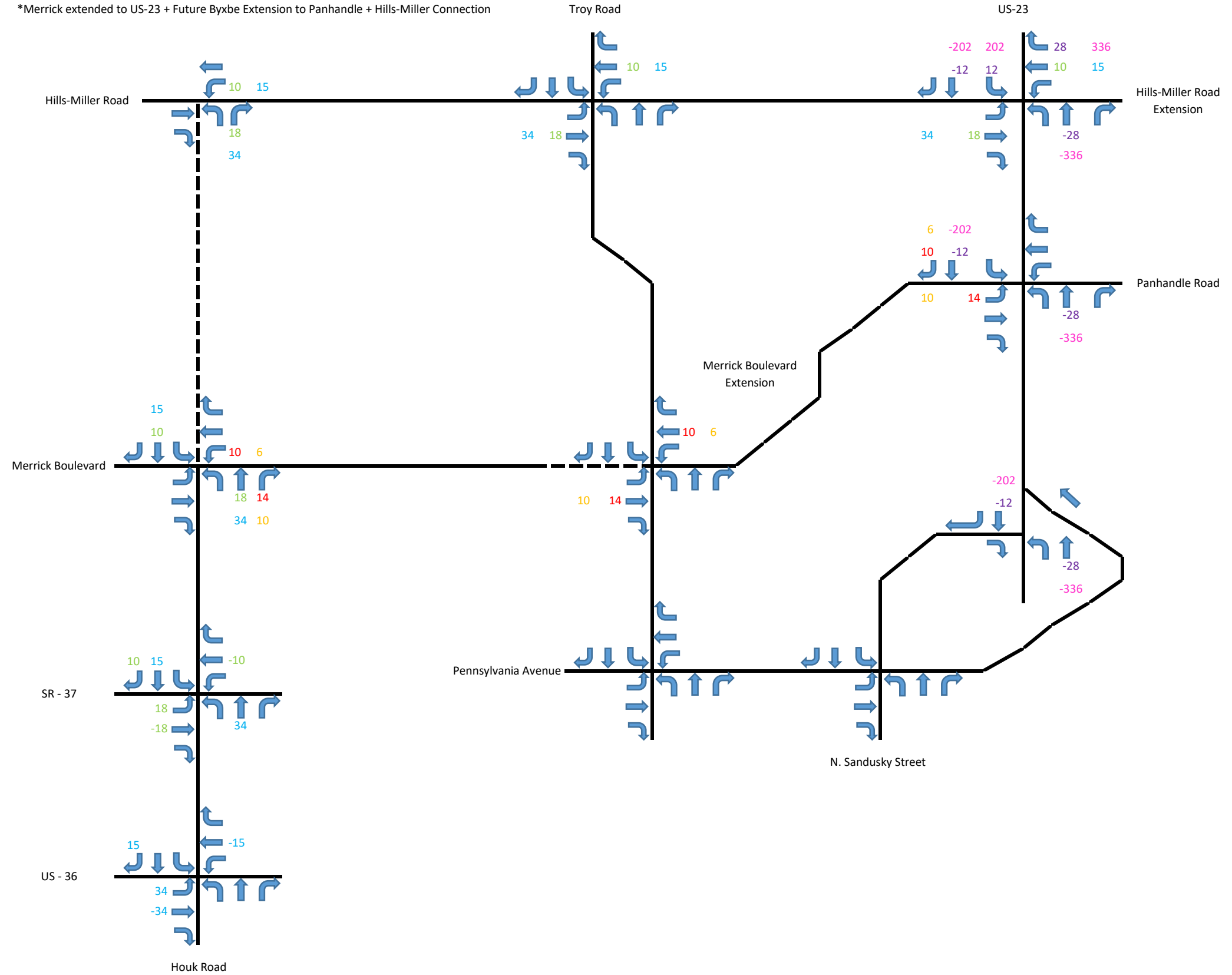
Year	Period	Scenario	Plate
2040	PM	Scenario E* - Adjustments to Existing By-Pass Traffic	W2

^
N

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

It was assumed that 80% of the by-pass traffic would reroute while 20% would continue using the existing travel paths.

- SR-37 (west) and US-23 (north)
- US-36 (west) and US-23 (north)
- SR-37 (west) and US-42 (north)
- US-36 (west) and US-42 (north)
- US-23 (north) and US-42 (north)
- US-23 (north) and US-36/SR-37 (east)



Northwest Arterial Corridor Analysis
Traffic Volume Calculations

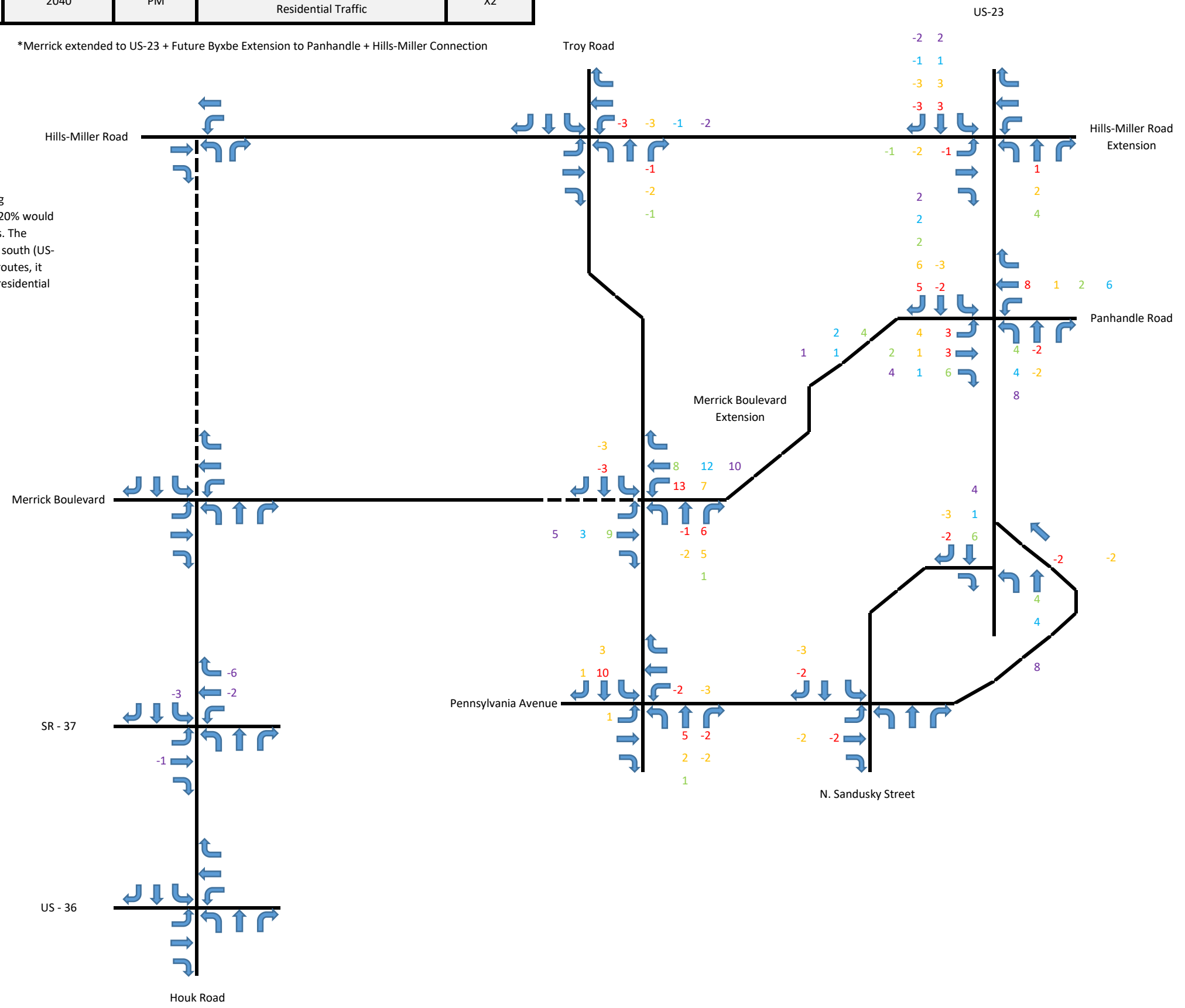


Year	Period	Scenario	Plate
2040	PM	Scenario E* - Adjustments to Existing Residential Traffic	X2

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

It was assumed that 80% of the existing residential traffic would reroute while 20% would continue using the existing travel paths. The exception to this was trips to/from the south (US-23 South and US-42 South). For these routes, it was assumed that 50% of the existing residential traffic would reroute.

- Buehler Drive
- Grandview Avenue
- Lexington Boulevard
- Locust Curve
- Residential n/o SR-37 on Houk Rd



Northwest Arterial Corridor Analysis
Traffic Volume Calculations



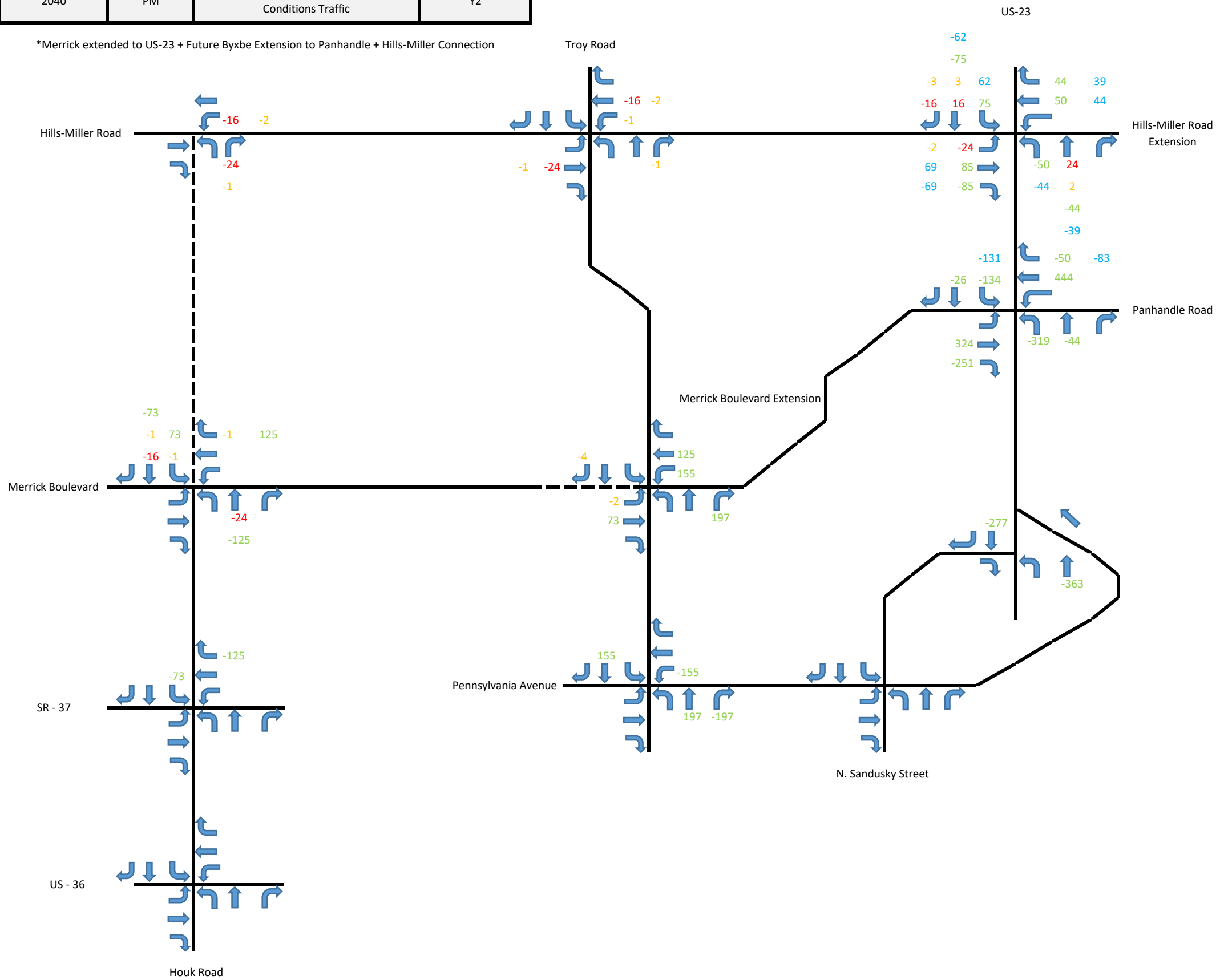
Year	Period	Scenario	Plate
2040	PM	Scenario E* - Adjustments to Committed Conditions Traffic	Y2

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

- Committed Conditions By-Pass Traffic Adjustments
- Committed Conditions Residential Traffic Adjustments
- Background Development Adjustments
- Existing Conditions Traffic Adjustments

Note the following assumptions used:

1. All traffic turning traveling between Hills-Miller Road and Panhandle Road was assumed to utilize the Future Byxbe Extension.
2. The distribution of Existing Conditions Traffic traveling north from Panhandle Road to Hills-Miller Road/US-23 (north) was assumed to utilize the same distribution used for the Background Development East Residential Traffic (47% to/from Hills-Miller, 53% to/from US-23 (north)).
3. Traffic traveling to/from US-23 (north) was assumed to reroute using the same 80/20 split used throughout these volumes for rereouting traffic.



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N

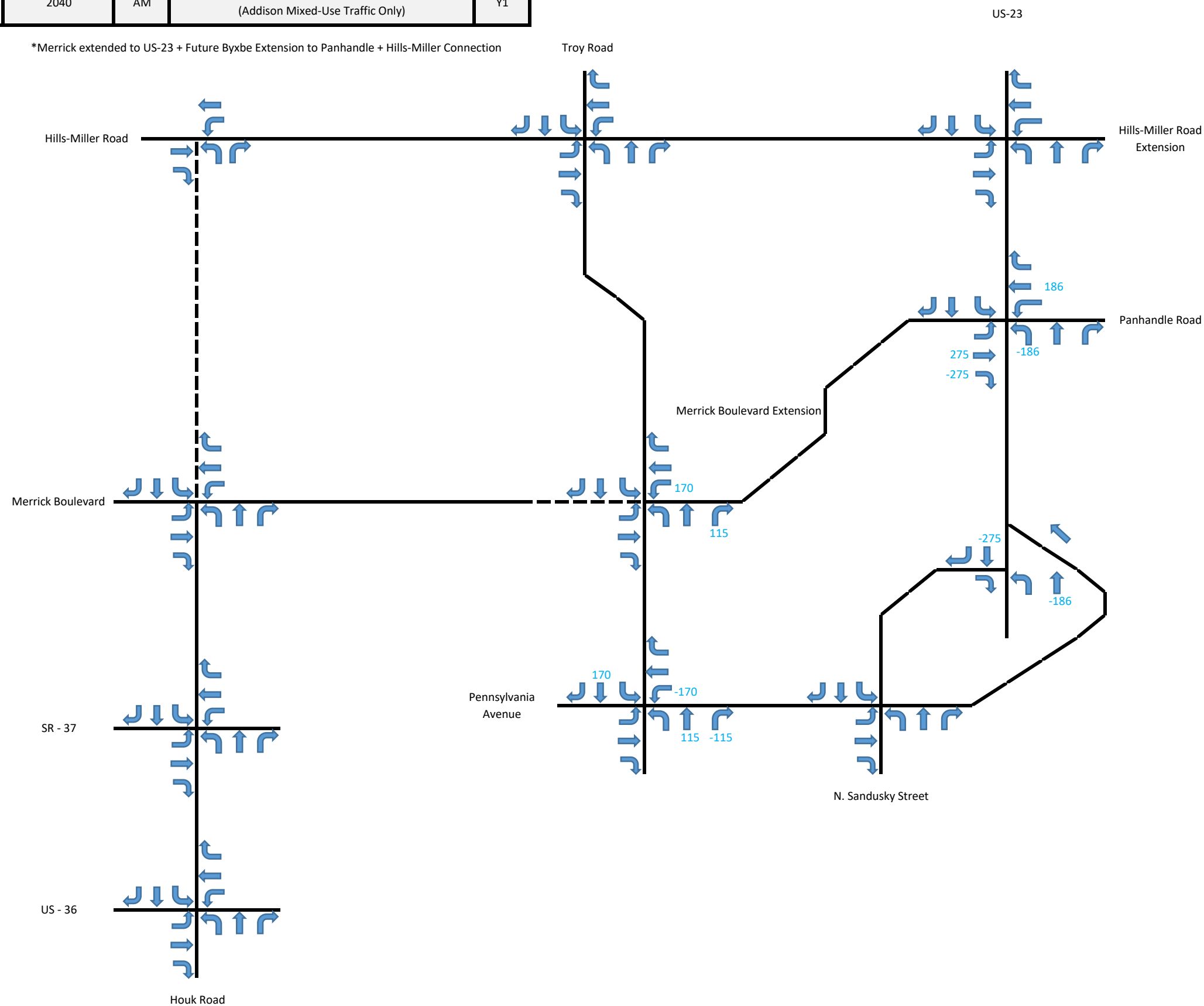
Northwest Arterial Corridor Analysis
Traffic Volume Calculations



Year	Period	Scenario	Plate
2040	AM	Scenario E* - Adjustments to Committed Conditions Traffic (Addison Mixed-Use Traffic Only)	Y1

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

Background Development
Adjustments - Addison Mixed-
Use Traffic Only



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N

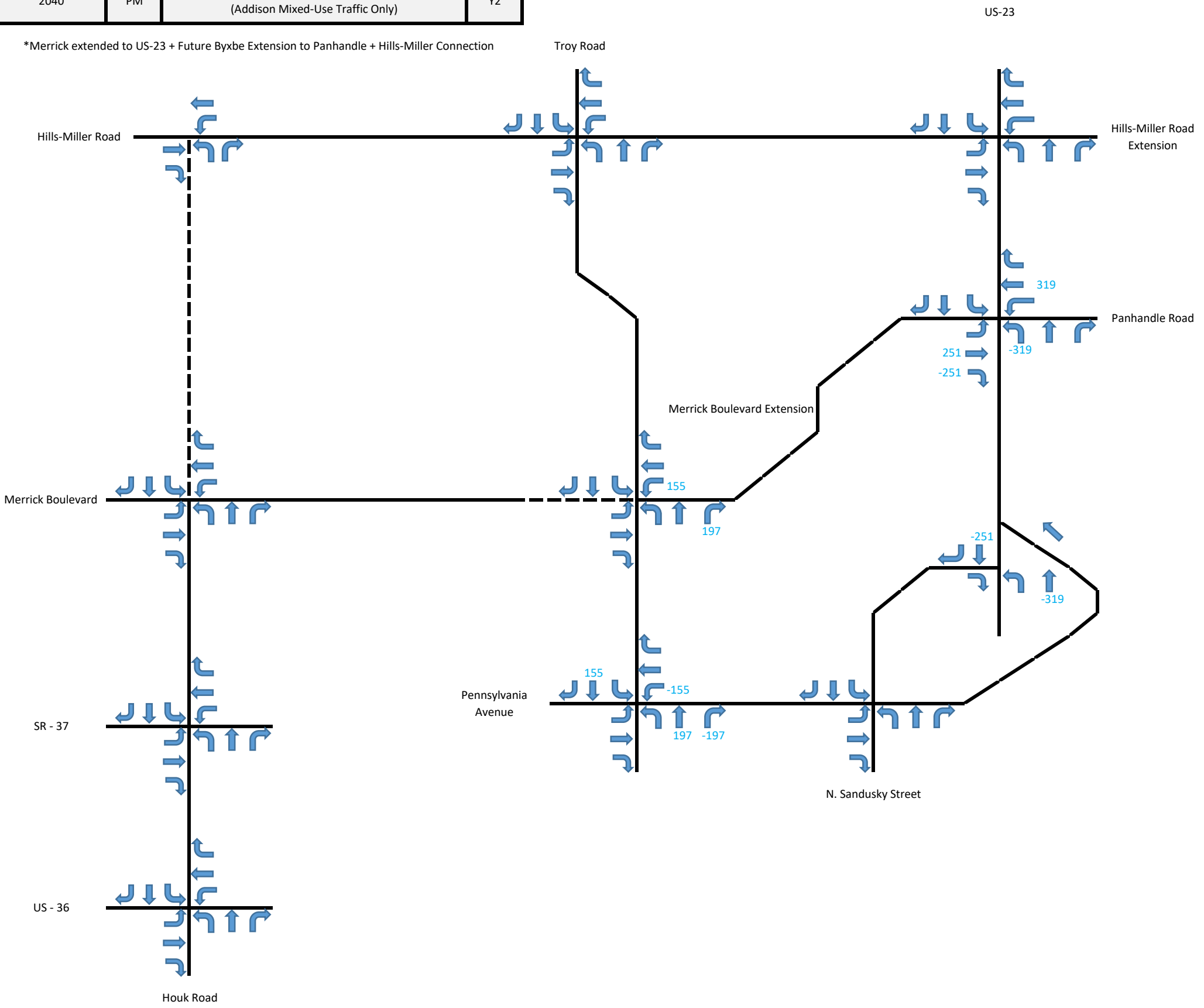
Northwest Arterial Corridor Analysis
Traffic Volume Calculations



Year	Period	Scenario	Plate
2040	PM	Scenario E* - Adjustments to Committed Conditions Traffic (Addison Mixed-Use Traffic Only)	Y2

*Merrick extended to US-23 + Future Byxbe Extension to Panhandle + Hills-Miller Connection

Background Development
Adjustments - Addison Mixed-
Use Traffic Only

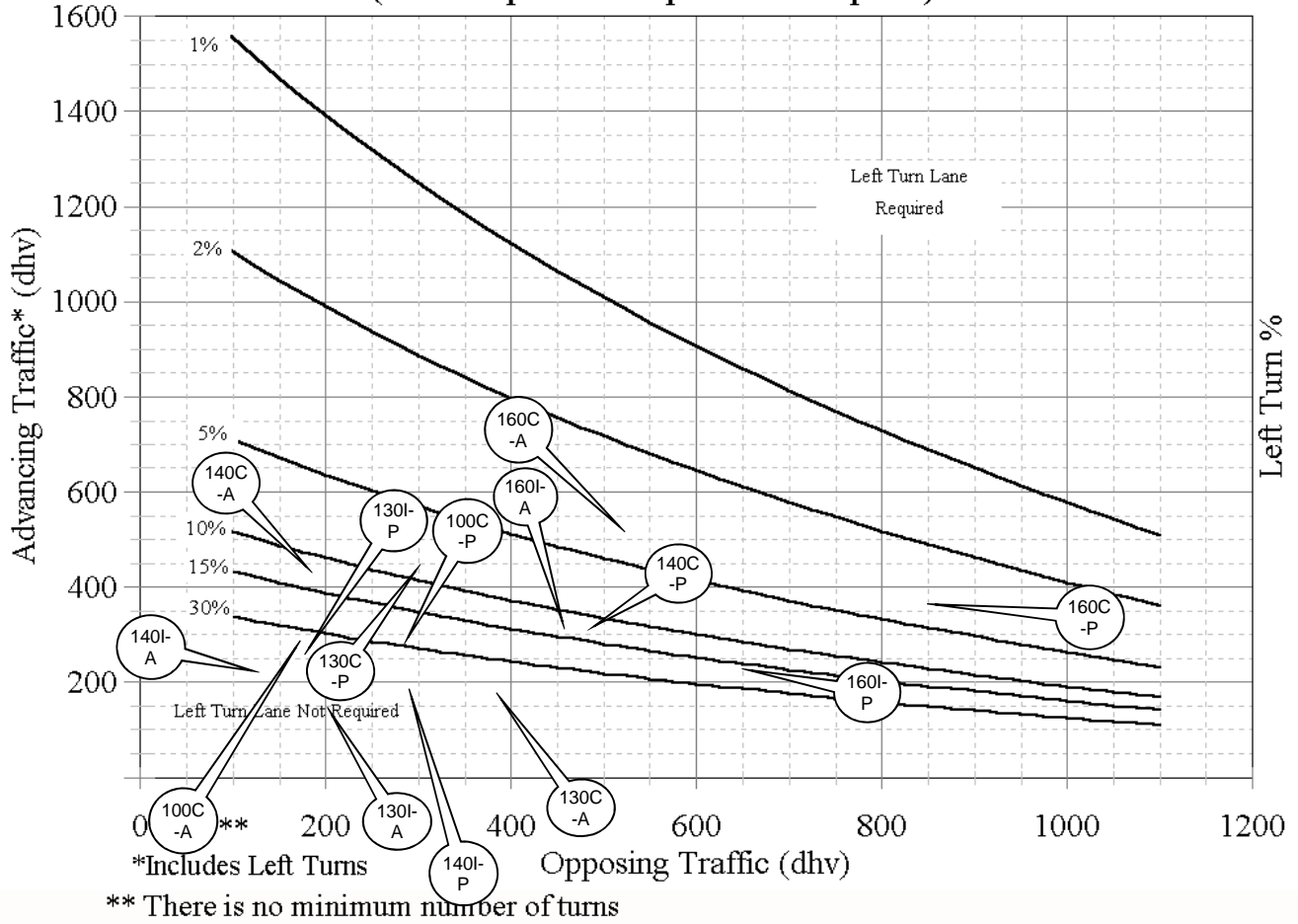


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APPENDIX F

Non-US 23 Intersections Analyses

2-Lane Highway Left Turn Lane Warrant (=<40 mph or 70 kph Posted Speed)

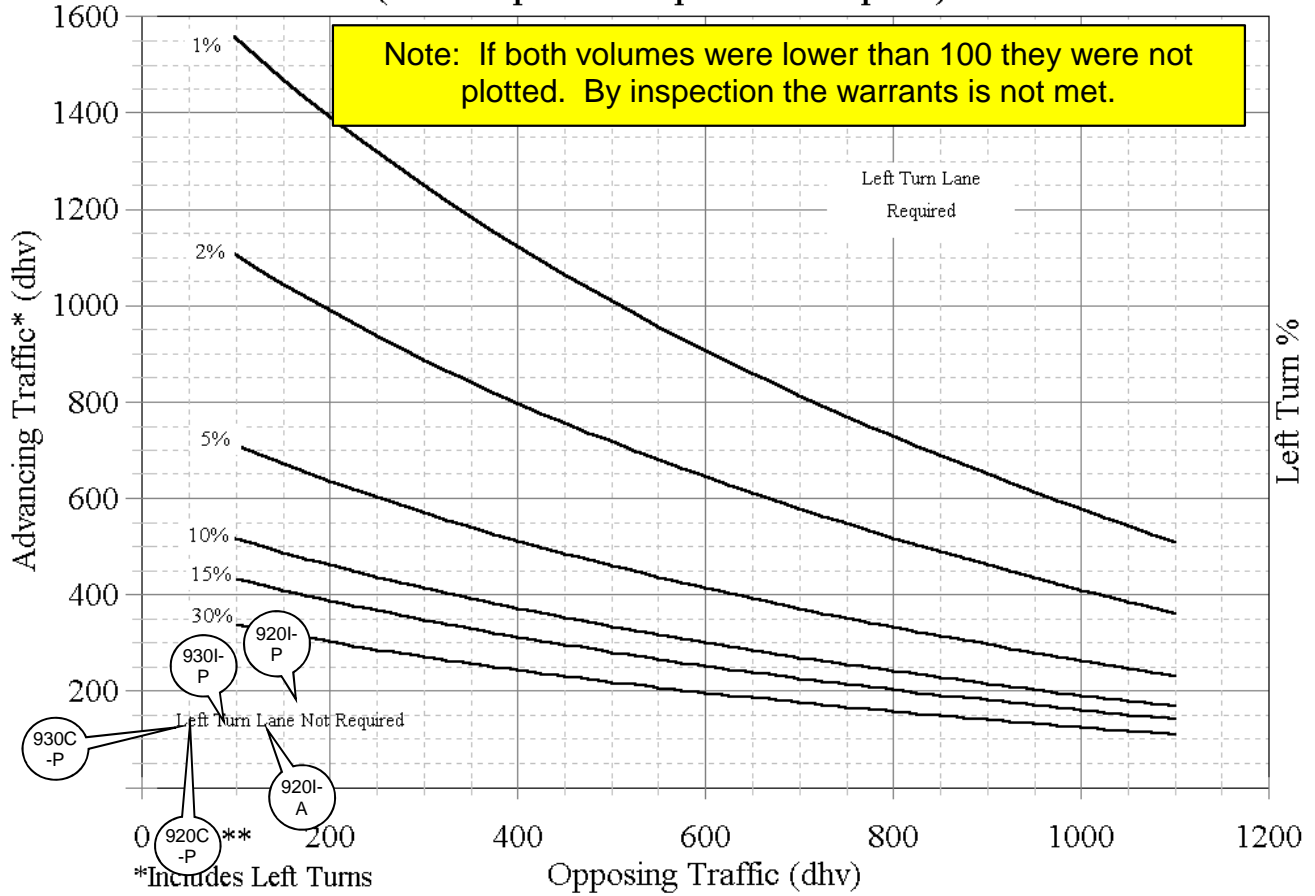


WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)		RESULT
160I-	Merrick Parkway & Commercial Access Road [EB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(457,673 / 10.5%)	(659,541 / 11.5%)		MET
160C-	Merrick Parkway & Commercial Access Road [EB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(523,858 / 8.3%)	(850,670 / 9.3%)		MET
140I-	Merrick Parkway & Subarea E Access [EB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(126,225 / 1.8%)	(288,187 / 7%)		NOT MET
140C-	Merrick Parkway & Subarea E Access [EB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(192,410 / 1%)	(479,316 / 4.1%)		NOT MET
130I-	Merrick Parkway & Subarea C Street B [WB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(202,127 / 6.3%)	(172,258 / 10.5%)		NOT MET
130C-	Merrick Parkway & Subarea C Street B [WB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(387,193 / 4.1%)	(301,449 / 6%)		NOT MET
100C-	Merrick Parkway & Subarea B Access [EB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(169,266 / 1.5%)	(297,281 / 4.6%)		NOT MET

2-Lane Highway Left Turn Lane Warrant

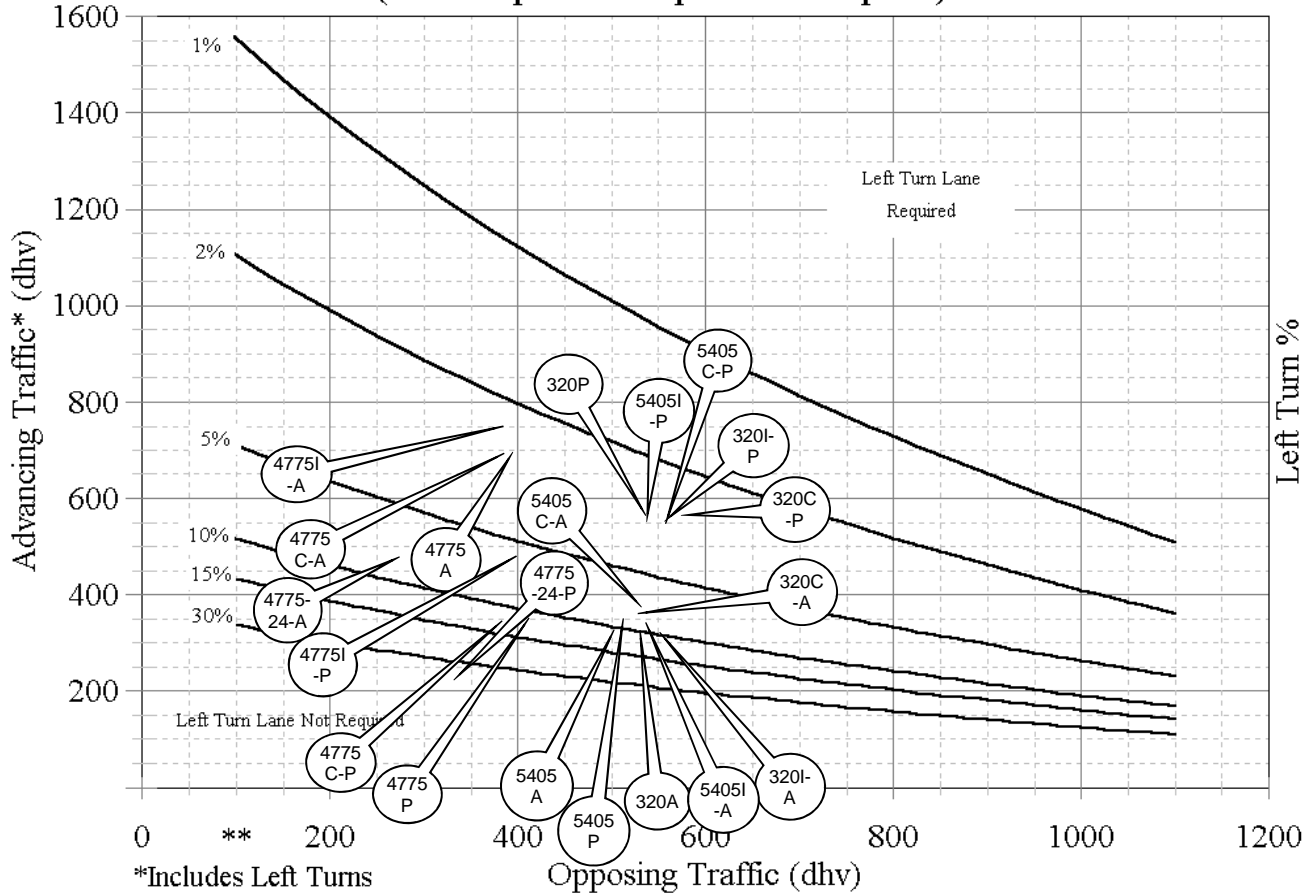
(= \leq 40 mph or 70 kph Posted Speed)



WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)	RESULT
210NB-I	Subarea F Access/Subarea E Access (NE) & Bruce Road [NB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(44,23 / 17.4%)	(42,67 / 17.9%)	NOT MET
210NB-C	Subarea F Access/Subarea E Access (NE) & Bruce Road [NB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(44,23 / 17.4%)	(42,67 / 17.9%)	NOT MET
210SB-I	Subarea F Access/Subarea E Access (NE) & Bruce Road [SB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(23,44 / 20.5%)	(67,42 / 21.4%)	NOT MET
210SB-C	Subarea F Access/Subarea E Access (NE) & Bruce Road [SB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(23,44 / 20.5%)	(67,42 / 21.4%)	NOT MET
930I-	Subarea E Access (NW)/Subarea A Street E & Heritage Boulevard [NB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(49,80 / 23.8%)	(84,144 / 44.4%)	NOT MET
930C-	Subarea E Access (NW)/Subarea A Street E & Heritage Boulevard [NB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(36,45 / 42.2%)	(47,117 / 54.7%)	NOT MET
920I-	Subarea C Street A/Subarea D Street D & Heritage Boulevard [SB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(123,136 / 0%)	(162,192 / 0.5%)	NOT MET
920C-	Subarea C Street A/Subarea D Street D & Heritage Boulevard [SB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(62,74 / 0%)	(55,150 / 0.7%)	NOT MET

2-Lane Highway Left Turn Lane Warrant (= \leq 40 mph or 70 kph Posted Speed)



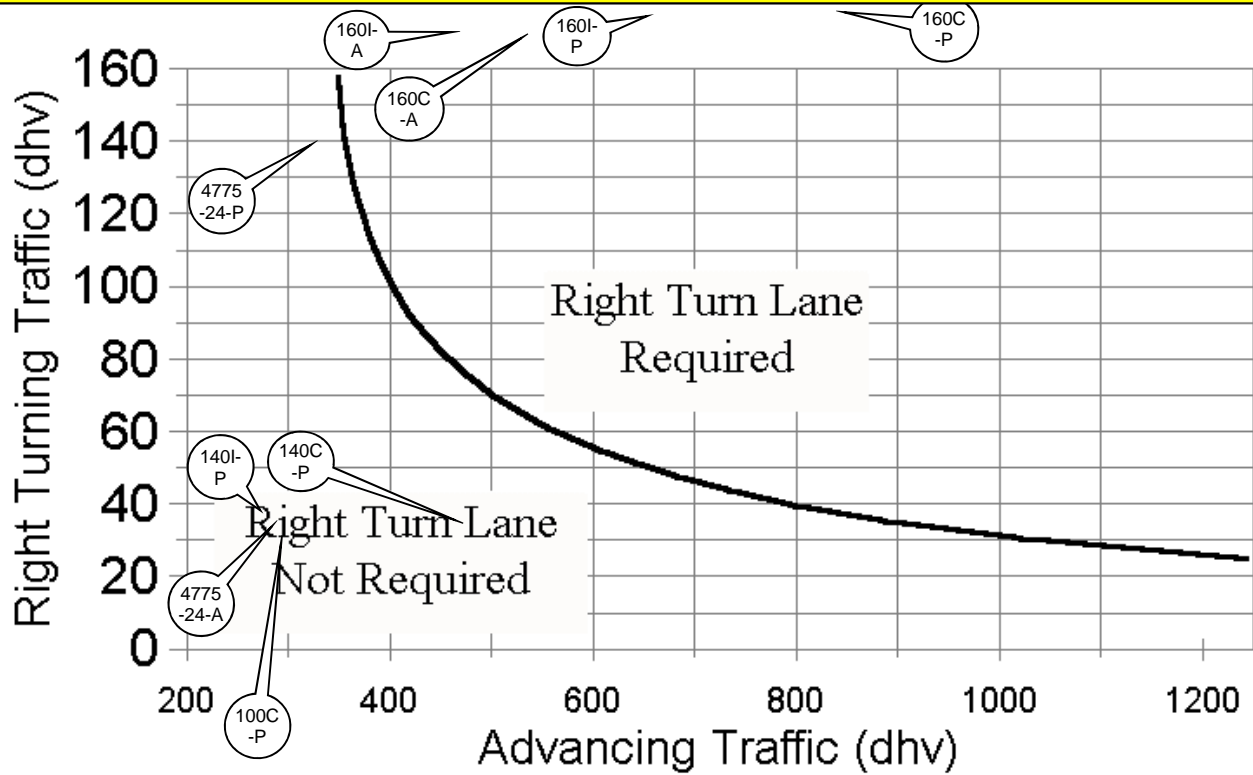
WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)	RESULT
320	Hills Miller Road & Bruce Road [WB LT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(529,314 / 4.5%)	(536,575 / 9.2%)	MET
320I-	Hills Miller Road & Bruce Road [WB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(564,313 / 2.2%)	(566,562 / 3.4%)	MET
320C-	Hills Miller Road & Bruce Road [WB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(547,358 / 2%)	(588,559 / 3.4%)	MET
4775	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [EB LT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(390,684 / 2.5%)	(405,354 / 16.1%)	MET
4775I-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [EB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(378,748 / 11.5%)	(394,468 / 38.2%)	MET
4775C-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [EB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(375,679 / 2.8%)	(389,348 / 18.1%)	MET
5405	Hills Miller Road & Oakhurst Drive [WB LT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(507,313 / 1.3%)	(517,532 / 2.6%)	NOT MET
5405I-	Hills Miller Road & Oakhurst Drive [WB LT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(542,337 / 0.9%)	(541,569 / 1.2%)	NOT MET
5405C-	Hills Miller Road & Oakhurst Drive [WB LT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(525,382 / 0.8%)	(563,566 / 1.2%)	NOT MET
4775-24-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [EB LT] - 2024 SUBAREA C & D 'BUILD' W/ DIVERTED	(279,468 / 4.1%)	(324,235 / 27.7%)	NOT MET

2-Lane Highway Right Turn Lane Warrant

=< 40 mph or 70 kph Posted Speed

Note: Only critical right turn volumes above 20 were plotted. All others are not met.



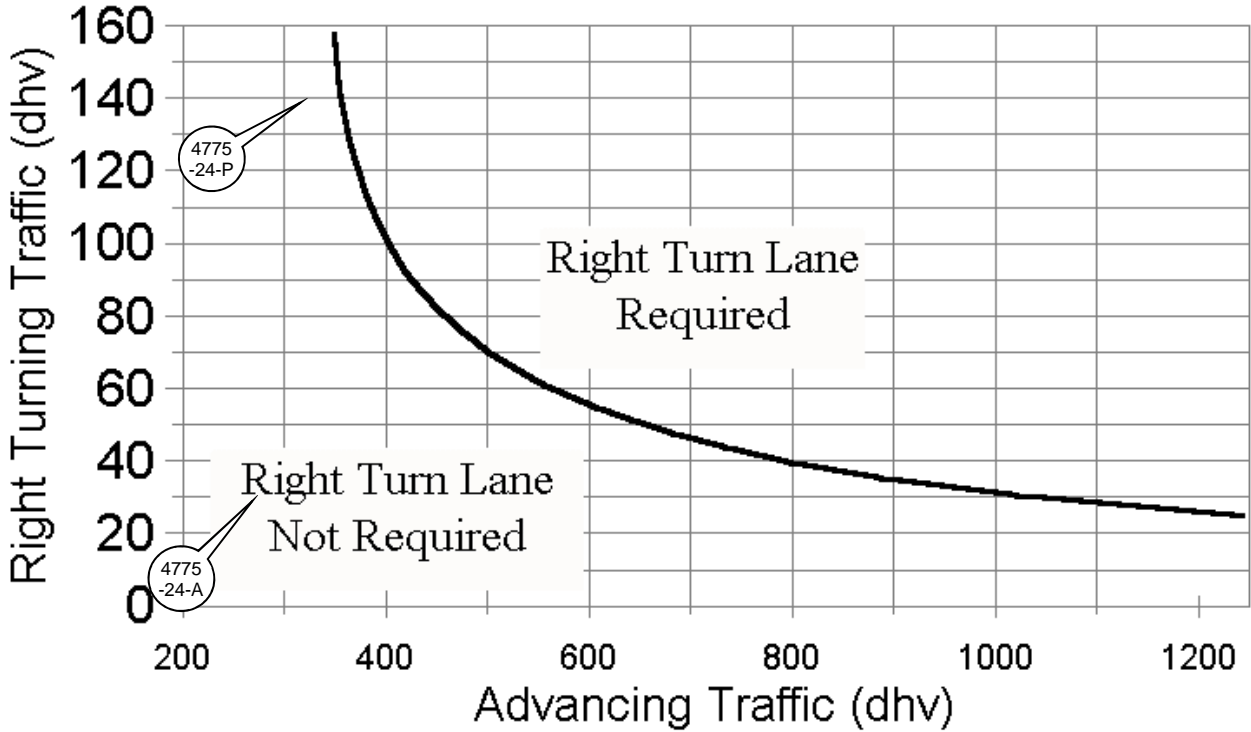
WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)	RESULT
160I-	Merrick Parkway & Commercial Access Road [WB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(457,355)	(659,320)	MET
160C-	Merrick Parkway & Commercial Access Road [WB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(523,355)	(850,320)	MET
155I-	Merrick Parkway & Subarea F Access [WB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(509,5)	(710,19)	NOT MET
155C-	Merrick Parkway & Subarea F Access [WB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(575,5)	(901,19)	NOT MET
140I-	Merrick Parkway & Subarea E Access [WB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(126,11)	(288,38)	NOT MET
140C-	Merrick Parkway & Subarea E Access [WB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(192,11)	(479,38)	NOT MET
130I-	Merrick Parkway & Subarea C Street B [EB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(202,0)	(172,0)	NOT MET
130C-	Merrick Parkway & Subarea C Street B [EB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(387,0)	(301,0)	NOT MET
100I-	Merrick Parkway & Subarea B Access [WB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(12,12)	(43,43)	NOT MET
100C-	Merrick Parkway & Subarea B Access [WB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(169,8)	(297,30)	NOT MET
210NB-I-	Subarea F Access/Subarea E Access (NE) & Bruce Road [NB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(23,4)	(67,12)	NOT MET
210NB-C-	Subarea F Access/Subarea E Access (NE) & Bruce Road [NB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(23,4)	(67,12)	NOT MET
210SB-I-	Subarea F Access/Subarea E Access (NE) & Bruce Road [SB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(44,1)	(42,3)	NOT MET
210SB-C-	Subarea F Access/Subarea E Access (NE) & Bruce Road [SB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(44,1)	(42,3)	NOT MET

2-Lane Highway Right Turn Lane Warrant

=< 40 mph or 70 kph Posted Speed

Note: Only critical right turn volumes above 20 were plotted. All others are not met.



WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)	RESULT
4775-24-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [WB RT] - 2024 SUBAREA C & D 'BUILD' W/ DIVERTED	(279,35)	(324,140)	NOT MET

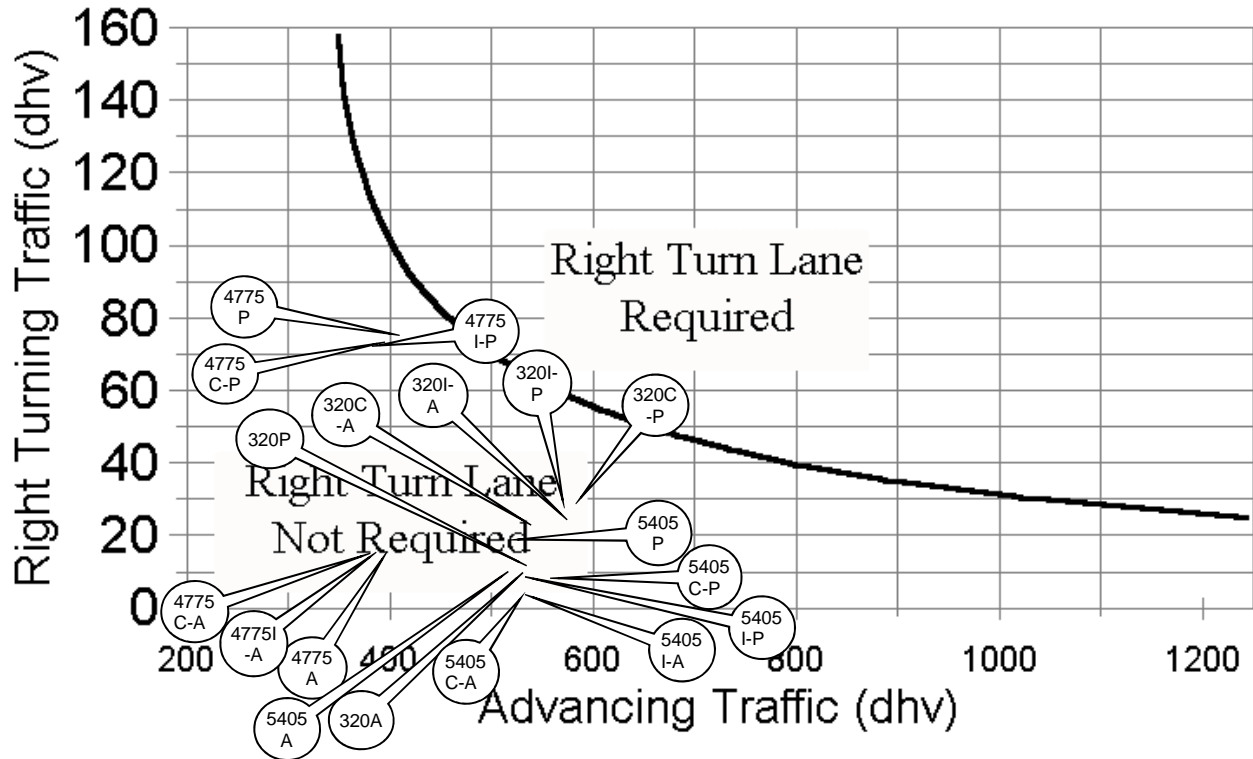
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PREPARED BY: **SMART SERVICES**

4/2023

APPENDIX
2 LANE HIGHWAY RIGHT TURN LANE WARRANT (=< 40 MPH)

2-Lane Highway Right Turn Lane Warrant

=< 40 mph or 70 kph Posted Speed

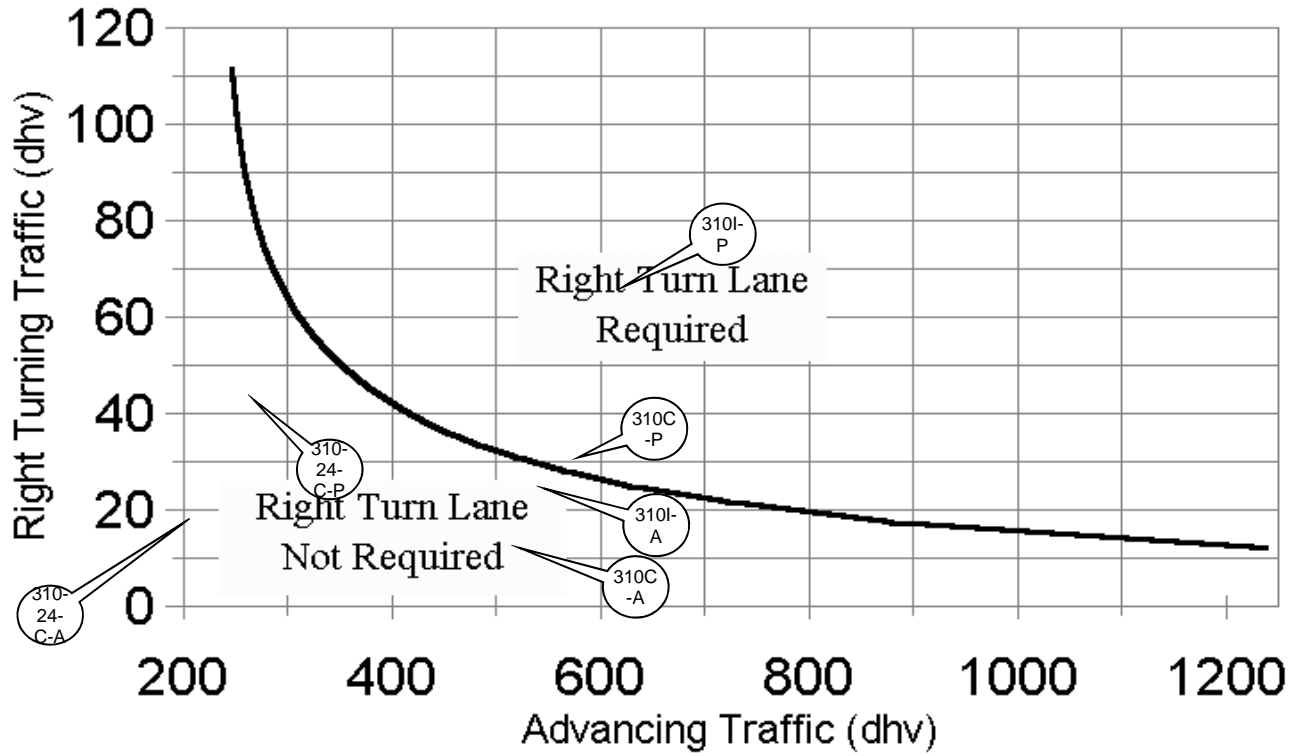


WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)		RESULT
320	Hills Miller Road & Bruce Road [EB RT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(529,9)	(536,12)		NOT MET
320I-	Hills Miller Road & Bruce Road [EB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(564,26)	(566,30)		NOT MET
320C-	Hills Miller Road & Bruce Road [EB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(547,26)	(588,30)		NOT MET
4775	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [WB RT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(390,16)	(405,76)		NOT MET
4775I-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [WB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(378,15)	(394,73)		NOT MET
4775C-	Pennsylvania Avenue & Heritage Boulevard/Oakwood Drive [WB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(375,15)	(389,73)		NOT MET
5405	Hills Miller Road & Oakhurst Drive [EB RT] - 2044 'NO BUILD' (INCOMPLETE NETWORK)	(507,9)	(517,19)		NOT MET
5405I-	Hills Miller Road & Oakhurst Drive [EB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(542,4)	(541,9)		NOT MET
5405C-	Hills Miller Road & Oakhurst Drive [EB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(525,4)	(563,9)		NOT MET

2-Lane Highway Right Turn Lane Warrant

> 40 mph or 70 kph Posted Speed



WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)	RESULT
310-24-C	Hills Miller Road & Heritage Boulevard [EB RT] - 2024 SUBAREA C & D 'BUILD' W/ DIVERTED	(230,18)	(258,44)	NOT MET
310I-	Hills Miller Road & Heritage Boulevard [EB RT] - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(537,25)	(603,68)	MET
310C-	Hills Miller Road & Heritage Boulevard [EB RT] - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED	(506,11)	(588,31)	MET

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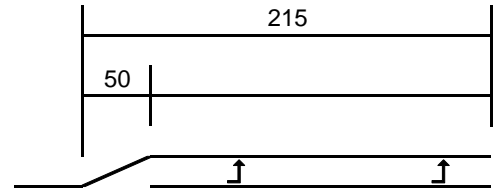
4/2023

APPENDIX
2 LANE HIGHWAY RIGHT TURN LANE WARRANT (> 40 MPH)

(160I-) MERRICK PARKWAY & COMMERCIAL ACCESS ROAD - EB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type =	Unsignalized Through Road	Storage Length (Adj) =	100 feet
Speed =	40 MPH	Deceleration/Div. Taper =	115 feet
Cycle Length =	60 seconds	Turn Lane Length =	215 feet
Turning Volume =	71 VPH		
# of Turning Lanes =	1		
Advancing Volume =	324 VPH		
Turning % (>10% HIGH)	21.9% HIGH		
Design Condition =	C		
Vehicles per Cycle =	1.2		
Storage Length (Calc) =	100 feet		

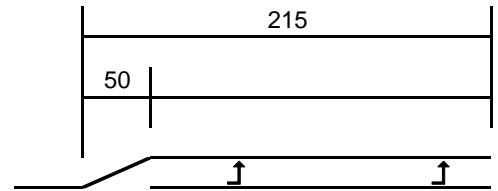


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(160C-) MERRICK PARKWAY & COMMERCIAL ACCESS ROAD - EB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type =	Unsignalized Through Road	Storage Length (Adj) =	100 feet
Speed =	40 MPH	Deceleration/Div. Taper =	115 feet
Cycle Length =	60 seconds	Turn Lane Length =	215 feet
Turning Volume =	71 VPH		
# of Turning Lanes =	1		
Advancing Volume =	509 VPH		
Turning % (>10% HIGH)	13.9% HIGH		
Design Condition =	C		
Vehicles per Cycle =	1.2		
Storage Length (Calc) =	100 feet		



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(310-24-) HILLS MILLER ROAD & HERITAGE BOULEVARD - WB LT - 2024 SUBAREA C & D 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road

Speed = 55 MPH

Cycle Length = 60 seconds

Turning Volume = 21 VPH

of Turning Lanes = 1

Advancing Volume = 229 VPH

Turning % (>10% HIGH) 9.2% LOW

Design Condition = B

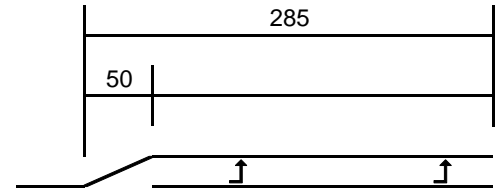
Vehicles per Cycle = 0.4

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 285 feet

Turn Lane Length = 285 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(310I-) HILLS MILLER ROAD & HERITAGE BOULEVARD - WB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road

Speed = 55 MPH

Cycle Length = 60 seconds

Turning Volume = 28 VPH

of Turning Lanes = 1

Advancing Volume = 570 VPH

Turning % (>10% HIGH) 4.9% LOW

Design Condition = B

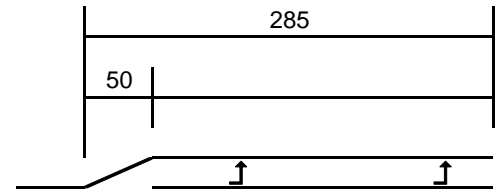
Vehicles per Cycle = 0.5

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 285 feet

Turn Lane Length = 285 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(310C-) HILLS MILLER ROAD & HERITAGE BOULEVARD - WB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type = Unsignalized Through Road

Speed = 55 MPH

Cycle Length = 60 seconds

Turning Volume = 7 VPH

of Turning Lanes = 1

Advancing Volume = 391 VPH

Turning % (>10% HIGH) 1.8% LOW

Design Condition = B

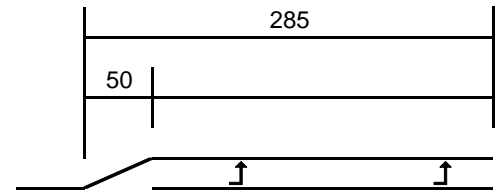
Vehicles per Cycle = 0.1

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 285 feet

Turn Lane Length = 285 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

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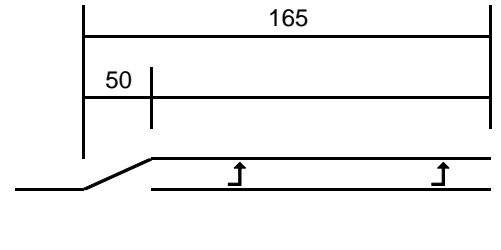
APPENDIX

LEFT TURN LANE CALCULATIONS

(4775-24-) PENNSYLVANIA AVENUE & HERITAGE BOULEVARD/OAKWOOD DRIVE - EB LT - 2024 SUBAREA C & D 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
 Speed = 40 MPH Storage Length (Adj) = 50 feet
 Cycle Length = 60 seconds Deceleration/Div. Taper = 115 feet
 Turning Volume = 65 VPH Turn Lane Length = 165 feet
 # of Turning Lanes = 0
 Advancing Volume = 235 VPH
 Turning % (>10% HIGH) 27.7% HIGH
 Design Condition = C
 Vehicles per Cycle = 1.1
 Storage Length (Calc) = 50 feet

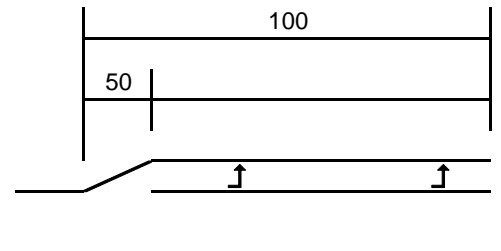


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(4775) PENNSYLVANIA AVENUE & HERITAGE BOULEVARD/OAKWOOD DRIVE - EB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
 Speed = 30 MPH Storage Length (Adj) = 50 feet
 Cycle Length = 60 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 57 VPH Turn Lane Length = 100 feet
 # of Turning Lanes = 0
 Advancing Volume = 354 VPH
 Turning % (>10% HIGH) 16.1% HIGH
 Design Condition = A
 Vehicles per Cycle = 1.0
 Storage Length (Calc) = 50 feet

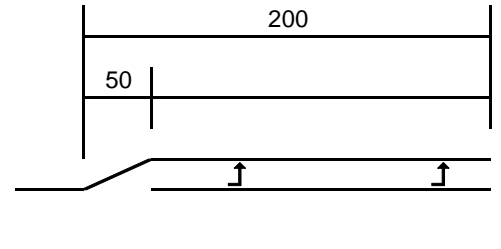


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(4775I-) PENNSYLVANIA AVENUE & HERITAGE BOULEVARD/OAKWOOD DRIVE - EB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
 Speed = 30 MPH Storage Length (Adj) = 150 feet
 Cycle Length = 60 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 179 VPH Turn Lane Length = 200 feet
 # of Turning Lanes = 0
 Advancing Volume = 468 VPH
 Turning % (>10% HIGH) 38.2% HIGH
 Design Condition = A
 Vehicles per Cycle = 3.0
 Storage Length (Calc) = 150 feet

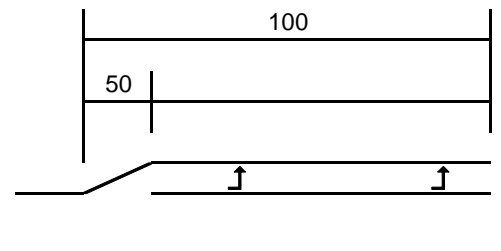


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(4775C-) PENNSYLVANIA AVENUE & HERITAGE BOULEVARD/OAKWOOD DRIVE - EB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
 Speed = 30 MPH Storage Length (Adj) = 50 feet
 Cycle Length = 60 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 63 VPH Turn Lane Length = 100 feet
 # of Turning Lanes = 0
 Advancing Volume = 348 VPH
 Turning % (>10% HIGH) 18.1% HIGH
 Design Condition = A
 Vehicles per Cycle = 1.1
 Storage Length (Calc) = 50 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(160I-) MERRICK PARKWAY & COMMERCIAL ACCESS ROAD - WB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM Peak

Type = Unsignalized Through Road

Speed = 40 MPH

Cycle Length = 60 seconds

Turning Volume = 355 VPH

of Turning Lanes = 1

Advancing Volume = 457 VPH

Turning % (>10% HIGH) 77.7% HIGH

Design Condition = C

Vehicles per Cycle = 5.92

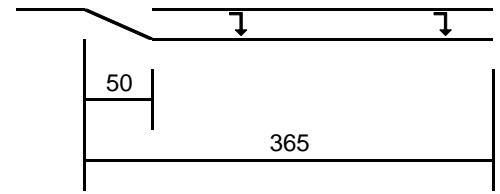
Storage Length (Calc) = 250 feet

Storage Length (Adj) = 250 feet

Deceleration/Div. Taper = 115 feet

Turn Lane Length = 365 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(160C-) MERRICK PARKWAY & COMMERCIAL ACCESS ROAD - WB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM Peak

Type = Unsignalized Through Road

Speed = 40 MPH

Cycle Length = 60 seconds

Turning Volume = 355 VPH

of Turning Lanes = 1

Advancing Volume = 523 VPH

Turning % (>10% HIGH) 67.9% HIGH

Design Condition = C

Vehicles per Cycle = 5.92

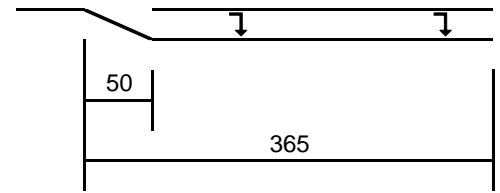
Storage Length (Calc) = 250 feet

Storage Length (Adj) = 250 feet

Deceleration/Div. Taper = 115 feet

Turn Lane Length = 365 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(310I-) HILLS MILLER ROAD & HERITAGE BOULEVARD - EB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type = Unsignalized Through Road

Speed = 55 MPH

Cycle Length = 60 seconds

Turning Volume = 68 VPH

of Turning Lanes = 1

Advancing Volume = 603 VPH

Turning % (>10% HIGH) 11.3% HIGH

Design Condition = B or C

Vehicles per Cycle = 1.13

Storage Length (Calc) = 100 feet

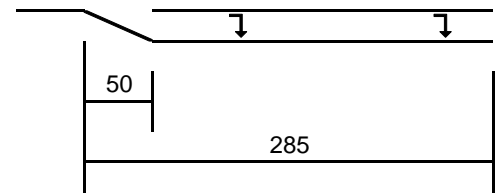
Design Condition (Rev) = B

Storage Length (Adj) = NA

Deceleration/Div. Taper = 285 feet

Turn Lane Length = 285 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(310C-) HILLS MILLER ROAD & HERITAGE BOULEVARD - EB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type = Unsignalized Through Road

Speed = 55 MPH

Cycle Length = 60 seconds

Turning Volume = 31 VPH

of Turning Lanes = 1

Advancing Volume = 588 VPH

Turning % (>10% HIGH) 5.3% LOW

Design Condition = B

Vehicles per Cycle = 0.52

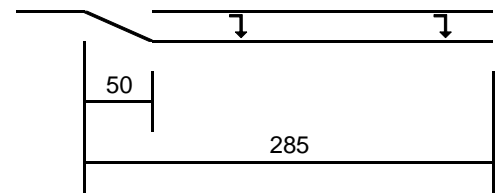
Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 285 feet

Turn Lane Length = 285 feet

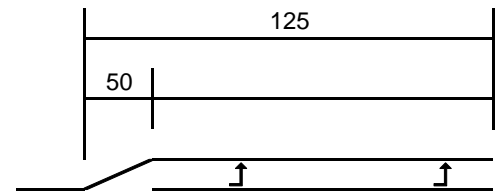
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(140I-) MERRICK PARKWAY & SUBAREA E ACCESS - EB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 40 MPH Storage Length (Adj) = NA
Cycle Length = 60 seconds Deceleration/Div. Taper = 125 feet
Turning Volume = 13 VPH Turn Lane Length = 125 feet
of Turning Lanes = 1
Advancing Volume = 187 VPH
Turning % (>10% HIGH) 7.0% LOW
Design Condition = B
Vehicles per Cycle = 0.2
Storage Length (Calc) = 50 feet

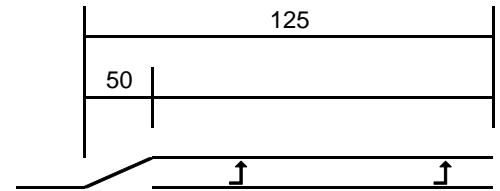


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(140C-) MERRICK PARKWAY & SUBAREA E ACCESS - EB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 40 MPH Storage Length (Adj) = NA
Cycle Length = 60 seconds Deceleration/Div. Taper = 125 feet
Turning Volume = 13 VPH Turn Lane Length = 125 feet
of Turning Lanes = 1
Advancing Volume = 316 VPH
Turning % (>10% HIGH) 4.1% LOW
Design Condition = B
Vehicles per Cycle = 0.2
Storage Length (Calc) = 50 feet

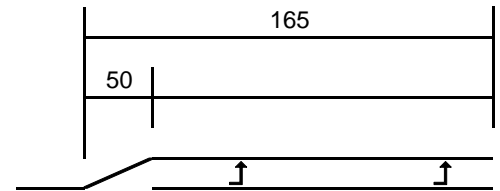


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(130I-) MERRICK PARKWAY & SUBAREA C STREET B - WB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 40 MPH Storage Length (Adj) = 50 feet
Cycle Length = 60 seconds Deceleration/Div. Taper = 115 feet
Turning Volume = 27 VPH Turn Lane Length = 165 feet
of Turning Lanes = 1
Advancing Volume = 258 VPH
Turning % (>10% HIGH) 10.5% HIGH
Design Condition = C
Vehicles per Cycle = 0.5
Storage Length (Calc) = 50 feet

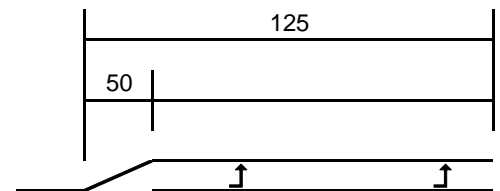


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(130C-) MERRICK PARKWAY & SUBAREA C STREET B - WB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 40 MPH Storage Length (Adj) = NA
Cycle Length = 60 seconds Deceleration/Div. Taper = 125 feet
Turning Volume = 27 VPH Turn Lane Length = 125 feet
of Turning Lanes = 1
Advancing Volume = 449 VPH
Turning % (>10% HIGH) 6.0% LOW
Design Condition = B
Vehicles per Cycle = 0.5
Storage Length (Calc) = 50 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(320) HILLS MILLER ROAD & BRUCE ROAD - WB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road

Speed = 40 MPH

Cycle Length = 60 seconds

Turning Volume = 53 VPH

of Turning Lanes = 1

Advancing Volume = 575 VPH

Turning % (>10% HIGH) 9.2% LOW

Design Condition = B

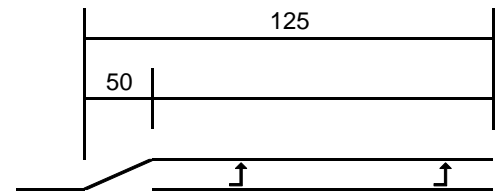
Vehicles per Cycle = 0.9

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 125 feet

Turn Lane Length = 125 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(320I-) HILLS MILLER ROAD & BRUCE ROAD - WB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road

Speed = 40 MPH

Cycle Length = 60 seconds

Turning Volume = 19 VPH

of Turning Lanes = 1

Advancing Volume = 562 VPH

Turning % (>10% HIGH) 3.4% LOW

Design Condition = B

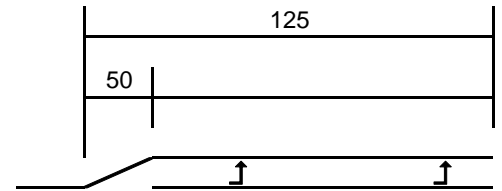
Vehicles per Cycle = 0.3

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 125 feet

Turn Lane Length = 125 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(320C-) HILLS MILLER ROAD & BRUCE ROAD - WB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road

Speed = 40 MPH

Cycle Length = 60 seconds

Turning Volume = 19 VPH

of Turning Lanes = 0

Advancing Volume = 559 VPH

Turning % (>10% HIGH) 3.4% LOW

Design Condition = B

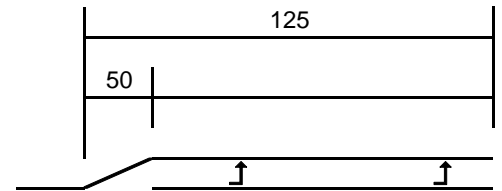
Vehicles per Cycle = 0.3

Storage Length (Calc) = 50 feet

Storage Length (Adj) = NA

Deceleration/Div. Taper = 125 feet

Turn Lane Length = 125 feet



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

ADDISON FARMS
TRAFFIC IMPACT STUDY

PREPARED BY:  SMART
SERVICES

4/2023

APPENDIX

LEFT TURN LANE CALCULATIONS

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	520	9	14	300	8	37
Future Vol, veh/h	520	9	14	300	8	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	565	10	15	326	9	40

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	575	0	926	570
Stage 1	-	-	-	-	570	-
Stage 2	-	-	-	-	356	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	998	-	298	521
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	998	-	293	521
Mov Cap-2 Maneuver	-	-	-	-	293	-
Stage 1	-	-	-	-	566	-
Stage 2	-	-	-	-	696	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	458	-	-	998	-
HCM Lane V/C Ratio	0.107	-	-	0.015	-
HCM Control Delay (s)	13.8	-	-	8.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	70.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	196	269	4	89	168	24	6	79	96	36	94	75
Future Vol, veh/h	196	269	4	89	168	24	6	79	96	36	94	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	213	292	4	97	183	26	7	86	104	39	102	82

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	478	425	143	521	414	138	184	0	0	190	0	0
Stage 1	221	221	-	152	152	-	-	-	-	-	-	-
Stage 2	257	204	-	369	262	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	498	521	905	466	529	910	1391	-	-	1384	-	-
Stage 1	781	720	-	850	772	-	-	-	-	-	-	-
Stage 2	748	733	-	651	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	340	501	905	242	509	910	1391	-	-	1384	-	-
Mov Cap-2 Maneuver	340	501	-	242	509	-	-	-	-	-	-	-
Stage 1	776	697	-	845	767	-	-	-	-	-	-	-
Stage 2	550	729	-	364	669	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	145.3		41.1		0.3		1.3	
HCM LOS	F		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	420	388	1384	-
HCM Lane V/C Ratio	0.005	-	-	1.214	0.787	0.028	-
HCM Control Delay (s)	7.6	0	-	145.3	41.1	7.7	0
HCM Lane LOS	A	A	-	F	E	A	A
HCM 95th %tile Q(veh)	0	-	-	20.5	6.7	0.1	-

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	667	0	2	372	16	1	0	1	66	0	45
Future Vol, veh/h	17	667	0	2	372	16	1	0	1	66	0	45
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	725	0	2	404	17	1	0	1	72	0	49

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	421	0	0	725	0	0	1202	1186	725	1179	1178	413
Stage 1	-	-	-	-	-	-	761	761	-	417	417	-
Stage 2	-	-	-	-	-	-	441	425	-	762	761	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1138	-	-	878	-	-	161	189	425	167	191	639
Stage 1	-	-	-	-	-	-	398	414	-	613	591	-
Stage 2	-	-	-	-	-	-	595	586	-	397	414	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1138	-	-	878	-	-	147	185	425	164	187	639
Mov Cap-2 Maneuver	-	-	-	-	-	-	147	185	-	164	187	-
Stage 1	-	-	-	-	-	-	392	407	-	603	589	-
Stage 2	-	-	-	-	-	-	548	584	-	390	407	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			21.7			35.4		
HCM LOS							C			E		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	
Capacity (veh/h)	218	1138	-	-	878	-	-	235	
HCM Lane V/C Ratio	0.01	0.016	-	-	0.002	-	-	0.513	
HCM Control Delay (s)	21.7	8.2	-	-	9.1	0	-	35.4	
HCM Lane LOS		C	A	-	-	A	A	-	E
HCM 95th %tile Q(veh)		0	0	-	-	0	-	-	2.7

Intersection

Int Delay, s/veh 3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	27	724	4	1	320	15	1	0	0	58	0	51
Future Vol, veh/h	27	724	4	1	320	15	1	0	0	58	0	51
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	787	4	1	348	16	1	0	0	63	0	55

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	364	0	0	791
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1195	-	-	829
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1195	-	-	829
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.3	0	31.5	32.9
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	137	1195	-	-	829	-	-	244
HCM Lane V/C Ratio	0.008	0.025	-	-	0.001	-	-	0.486
HCM Control Delay (s)	31.5	8.1	0	-	9.3	0	-	32.9
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	2.4

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	9	4	309	12	21
Future Vol, veh/h	498	9	4	309	12	21
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	541	10	4	336	13	23

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	551	0	890
Stage 1	-	-	-	-	546
Stage 2	-	-	-	-	344
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1019	-	313
Stage 1	-	-	-	-	580
Stage 2	-	-	-	-	718
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1019	-	311
Mov Cap-2 Maneuver	-	-	-	-	311
Stage 1	-	-	-	-	580
Stage 2	-	-	-	-	714

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	425	-	-	1019	-
HCM Lane V/C Ratio	0.084	-	-	0.004	-
HCM Control Delay (s)	14.3	-	-	8.5	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	524	12	53	522	9	33
Future Vol, veh/h	524	12	53	522	9	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	570	13	58	567	10	36

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	583	0	1260 577
Stage 1	-	-	-	-	577 -
Stage 2	-	-	-	-	683 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	991	-	188 516
Stage 1	-	-	-	-	562 -
Stage 2	-	-	-	-	502 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	991	-	172 516
Mov Cap-2 Maneuver	-	-	-	-	172 -
Stage 1	-	-	-	-	562 -
Stage 2	-	-	-	-	459 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	-	-	991	-
HCM Lane V/C Ratio	0.126	-	-	0.058	-
HCM Control Delay (s)	16.4	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	80.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	279	9	119	295	49	6	132	76	11	119	71
Future Vol, veh/h	65	279	9	119	295	49	6	132	76	11	119	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	303	10	129	321	53	7	143	83	12	129	77

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	578	432	168	547	429	185	206	0	0	226	0	0
Stage 1	192	192	-	199	199	-	-	-	-	-	-	-
Stage 2	386	240	-	348	230	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	427	516	876	448	518	857	1365	-	-	1342	-	-
Stage 1	810	742	-	803	736	-	-	-	-	-	-	-
Stage 2	637	707	-	668	714	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	197	508	876	230	510	857	1365	-	-	1342	-	-
Mov Cap-2 Maneuver	197	508	-	230	510	-	-	-	-	-	-	-
Stage 1	805	735	-	798	732	-	-	-	-	-	-	-
Stage 2	334	703	-	384	707	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	69.8		161.5		0.2		0.4	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1365	-	-	397	402	1342	-
HCM Lane V/C Ratio	0.005	-	-	0.966	1.252	0.009	-
HCM Control Delay (s)	7.7	0	-	69.8	161.5	7.7	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	11.2	21.5	0	-

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	290	7	4	325	76	2	1	5	44	3	42
Future Vol, veh/h	57	290	7	4	325	76	2	1	5	44	3	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	62	315	8	4	353	83	2	1	5	48	3	46

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	436	0	0	323	0	0	870	887	319	849	850	395
Stage 1	-	-	-	-	-	-	443	443	-	403	403	-
Stage 2	-	-	-	-	-	-	427	444	-	446	447	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1124	-	-	1237	-	-	272	283	722	281	298	654
Stage 1	-	-	-	-	-	-	594	576	-	624	600	-
Stage 2	-	-	-	-	-	-	606	575	-	591	573	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1124	-	-	1237	-	-	239	266	722	266	280	654
Mov Cap-2 Maneuver	-	-	-	-	-	-	239	266	-	266	280	-
Stage 1	-	-	-	-	-	-	561	544	-	590	598	-
Stage 2	-	-	-	-	-	-	558	573	-	553	541	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.4			0.1			13.8			18.1		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	420	1124	-	-	1237	-	-	370
HCM Lane V/C Ratio	0.021	0.055	-	-	0.004	-	-	0.261
HCM Control Delay (s)	13.8	8.4	-	-	7.9	0	-	18.1
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	39	285	5	0	412	50	1	0	0	21	0	41
Future Vol, veh/h	39	285	5	0	412	50	1	0	0	21	0	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	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	42	310	5	0	448	54	1	0	0	23	0	45

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	502	0	0	315	0	0	895	899	313	872	874	475
Stage 1	-	-	-	-	-	-	397	397	-	475	475	-
Stage 2	-	-	-	-	-	-	498	502	-	397	399	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1062	-	-	1245	-	-	261	279	727	271	288	590
Stage 1	-	-	-	-	-	-	629	603	-	570	557	-
Stage 2	-	-	-	-	-	-	554	542	-	629	602	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1062	-	-	1245	-	-	233	266	727	261	274	590
Mov Cap-2 Maneuver	-	-	-	-	-	-	233	266	-	261	274	-
Stage 1	-	-	-	-	-	-	599	574	-	543	557	-
Stage 2	-	-	-	-	-	-	512	542	-	599	573	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0			20.5			15.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	233	1062	-	-	1245	-	-	413
HCM Lane V/C Ratio	0.005	0.04	-	-	-	-	-	0.163
HCM Control Delay (s)	20.5	8.5	0	-	0	-	-	15.4
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.6

Intersection						
Int Delay, s/veh	0.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	498	19	14	518	8	26
Future Vol, veh/h	498	19	14	518	8	26
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	541	21	15	563	9	28

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	562	0	1145
Stage 1	-	-	-	-	552
Stage 2	-	-	-	-	593
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1009	-	221
Stage 1	-	-	-	-	577
Stage 2	-	-	-	-	552
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1009	-	216
Mov Cap-2 Maneuver	-	-	-	-	216
Stage 1	-	-	-	-	577
Stage 2	-	-	-	-	540

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	396	-	-	1009	-
HCM Lane V/C Ratio	0.093	-	-	0.015	-
HCM Control Delay (s)	15	-	-	8.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.3	-	-	0	-

HCM 6th TWSC
 100: Merrick Parkway & Subarea B Access

04/17/2023

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	0	0	12	39	0
Future Vol, veh/h	0	0	0	12	39	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	13	42	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	13	0	-	0	7
Stage 1	-	-	-	-	7
Stage 2	-	-	-	-	0
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1606	-	-	-	1014
Stage 1	-	-	-	-	1016
Stage 2	-	-	-	-	-
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1606	-	-	-	1014
Mov Cap-2 Maneuver	-	-	-	-	1014
Stage 1	-	-	-	-	1016
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1606	-	-	-	1014
HCM Lane V/C Ratio	-	-	-	-	0.042
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
 130: Subarea C Street B & Merrick Parkway

04/17/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	202	0	8	119	0	22
Future Vol, veh/h	202	0	8	119	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	220	0	9	129	0	24

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	220	0	367 220
Stage 1	-	-	-	-	220 -
Stage 2	-	-	-	-	147 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1349	-	633 820
Stage 1	-	-	-	-	817 -
Stage 2	-	-	-	-	880 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1349	-	629 820
Mov Cap-2 Maneuver	-	-	-	-	629 -
Stage 1	-	-	-	-	817 -
Stage 2	-	-	-	-	874 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	820	-	-	1349	-
HCM Lane V/C Ratio	0.029	-	-	0.006	-
HCM Control Delay (s)	9.5	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
 140: Merrick Parkway & Subarea E Access

04/17/2023

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	4	221	115	11	35	12
Future Vol, veh/h	4	221	115	11	35	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	240	125	12	38	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	137	0	-	0	379 131
Stage 1	-	-	-	-	131 -
Stage 2	-	-	-	-	248 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1447	-	-	-	623 919
Stage 1	-	-	-	-	895 -
Stage 2	-	-	-	-	793 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1447	-	-	-	621 919
Mov Cap-2 Maneuver	-	-	-	-	621 -
Stage 1	-	-	-	-	892 -
Stage 2	-	-	-	-	793 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1447	-	-	-	677
HCM Lane V/C Ratio	0.003	-	-	-	0.075
HCM Control Delay (s)	7.5	0	-	-	10.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
 155: Merrick Parkway & Subarea F Access

04/17/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	673	504	5	0	4
Future Vol, veh/h	0	673	504	5	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	732	548	5	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 551
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.22
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.318
Pot Cap-1 Maneuver	0	-	- 0 534
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 534
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	534
HCM Lane V/C Ratio	-	-	-	0.008
HCM Control Delay (s)	-	-	-	11.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 160: Merrick Parkway & Commercial Access Road

04/17/2023

Intersection						
Int Delay, s/veh	3.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	71	602	102	355	0	408
Future Vol, veh/h	71	602	102	355	0	408
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	215	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	654	111	386	0	443

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	497	0	-	0	- 111
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	4.12	-	-	-	- 6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	2.218	-	-	-	- 3.318
Pot Cap-1 Maneuver	1067	-	-	-	0 942
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1067	-	-	-	- 942
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1067	-	-	-	942
HCM Lane V/C Ratio	0.072	-	-	-	0.471
HCM Control Delay (s)	8.6	-	-	-	12.2
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	2.6

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	11	25	0	9	4	15	4	9	34	1
Future Vol, veh/h	3	0	11	25	0	9	4	15	4	9	34	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	12	27	0	10	4	16	4	10	37	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	89	86	38	90	84	18	38	0	0	20	0	0
Stage 1	58	58	-	26	26	-	-	-	-	-	-	-
Stage 2	31	28	-	64	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	896	804	1034	895	806	1061	1572	-	-	1596	-	-
Stage 1	954	847	-	992	874	-	-	-	-	-	-	-
Stage 2	986	872	-	947	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	882	797	1034	879	799	1061	1572	-	-	1596	-	-
Mov Cap-2 Maneuver	882	797	-	879	799	-	-	-	-	-	-	-
Stage 1	951	842	-	989	871	-	-	-	-	-	-	-
Stage 2	974	869	-	930	842	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.7		9.1		1.3		1.5	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1572	-	-	997	921	1596	-
HCM Lane V/C Ratio	0.003	-	-	0.015	0.04	0.006	-
HCM Control Delay (s)	7.3	0	-	8.7	9.1	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
 310: Heritage Boulevard & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	1.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↙
Traffic Vol, veh/h	512	25	7	339	59	23
Future Vol, veh/h	512	25	7	339	59	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	285	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	557	27	8	368	64	25

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	584	0	941
Stage 1	-	-	-	-	557
Stage 2	-	-	-	-	384
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	991	-	292
Stage 1	-	-	-	-	574
Stage 2	-	-	-	-	688
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	991	-	290
Mov Cap-2 Maneuver	-	-	-	-	290
Stage 1	-	-	-	-	574
Stage 2	-	-	-	-	682

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	19.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	332	-	-	991	-
HCM Lane V/C Ratio	0.268	-	-	0.008	-
HCM Control Delay (s)	19.8	-	-	8.7	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0	-

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	538	26	7	306	26	13
Future Vol, veh/h	538	26	7	306	26	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	585	28	8	333	28	14

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	613	0	948 599
Stage 1	-	-	-	-	599 -
Stage 2	-	-	-	-	349 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	966	-	289 502
Stage 1	-	-	-	-	549 -
Stage 2	-	-	-	-	714 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	966	-	286 502
Mov Cap-2 Maneuver	-	-	-	-	286 -
Stage 1	-	-	-	-	549 -
Stage 2	-	-	-	-	707 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	334	-	-	966	-
HCM Lane V/C Ratio	0.127	-	-	0.008	-
HCM Control Delay (s)	17.3	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	135.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	196	306	10	89	238	24	10	79	96	36	94	75
Future Vol, veh/h	196	306	10	89	238	24	10	79	96	36	94	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	213	333	11	97	259	26	11	86	104	39	102	82

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	524	433	143	553	422	138	184	0	0	190	0	0
Stage 1	221	221	-	160	160	-	-	-	-	-	-	-
Stage 2	303	212	-	393	262	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	464	516	905	444	523	910	1391	-	-	1384	-	-
Stage 1	781	720	-	842	766	-	-	-	-	-	-	-
Stage 2	706	727	-	632	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	260	495	905	196	502	910	1391	-	-	1384	-	-
Mov Cap-2 Maneuver	260	495	-	196	502	-	-	-	-	-	-	-
Stage 1	774	697	-	834	759	-	-	-	-	-	-	-
Stage 2	448	720	-	316	669	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	267.6		91.1		0.4		1.3	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	370	368	1384	-
HCM Lane V/C Ratio	0.008	-	-	1.504	1.037	0.028	-
HCM Control Delay (s)	7.6	0	-	267.6	91.1	7.7	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	30.2	12.8	0.1	-

Intersection												
Int Delay, s/veh	9.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕			↕			↕	
Traffic Vol, veh/h	86	662	0	2	361	15	1	0	1	64	0	158
Future Vol, veh/h	86	662	0	2	361	15	1	0	1	64	0	158
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	93	720	0	2	392	16	1	0	1	70	0	172

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	408	0	0	720	0	0	1396	1318	720	1311	1310	400
Stage 1	-	-	-	-	-	-	906	906	-	404	404	-
Stage 2	-	-	-	-	-	-	490	412	-	907	906	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1151	-	-	882	-	-	119	157	428	136	159	650
Stage 1	-	-	-	-	-	-	331	355	-	623	599	-
Stage 2	-	-	-	-	-	-	560	594	-	330	355	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1151	-	-	882	-	-	82	144	428	127	146	650
Mov Cap-2 Maneuver	-	-	-	-	-	-	82	144	-	127	146	-
Stage 1	-	-	-	-	-	-	304	326	-	573	597	-
Stage 2	-	-	-	-	-	-	411	592	-	303	326	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1			0			31.5			53.7		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1	
Capacity (veh/h)	138	1151	-	-	882	-	-	297	
HCM Lane V/C Ratio	0.016	0.081	-	-	0.002	-	-	0.812	
HCM Control Delay (s)	31.5	8.4	-	-	9.1	0	-	53.7	
HCM Lane LOS		D	A	-	-	A	A	-	F
HCM 95th %tile Q(veh)		0	0.3	-	-	0	-	-	6.6

HCM 6th TWSC
 4832: Colonial Lanes/Executive Boulevard & Pennsylvania Avenue

04/17/2023

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	722	4	1	319	15	1	0	0	58	0	40
Future Vol, veh/h	22	722	4	1	319	15	1	0	0	58	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	785	4	1	347	16	1	0	0	63	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	363	0	0	789	0	0	1214	1200	787	1192	1194	355
Stage 1	-	-	-	-	-	-	835	835	-	357	357	-
Stage 2	-	-	-	-	-	-	379	365	-	835	837	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1196	-	-	831	-	-	158	185	392	164	187	689
Stage 1	-	-	-	-	-	-	362	383	-	661	628	-
Stage 2	-	-	-	-	-	-	643	623	-	362	382	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1196	-	-	831	-	-	144	178	392	159	180	689
Mov Cap-2 Maneuver	-	-	-	-	-	-	144	178	-	159	180	-
Stage 1	-	-	-	-	-	-	349	369	-	637	627	-
Stage 2	-	-	-	-	-	-	601	622	-	349	368	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			30.2			33		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	144	1196	-	-	831	-	-	232
HCM Lane V/C Ratio	0.008	0.02	-	-	0.001	-	-	0.459
HCM Control Delay (s)	30.2	8.1	0	-	9.3	0	-	33
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	2.2

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	538	4	3	334	5	16
Future Vol, veh/h	538	4	3	334	5	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	585	4	3	363	5	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	589	0	956
Stage 1	-	-	-	-	587
Stage 2	-	-	-	-	369
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	986	-	286
Stage 1	-	-	-	-	556
Stage 2	-	-	-	-	699
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	986	-	285
Mov Cap-2 Maneuver	-	-	-	-	285
Stage 1	-	-	-	-	556
Stage 2	-	-	-	-	696

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	429	-	-	986	-
HCM Lane V/C Ratio	0.053	-	-	0.003	-
HCM Control Delay (s)	13.9	-	-	8.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
 100: Merrick Parkway & Subarea B Access

04/17/2023

Intersection						
Int Delay, s/veh	3.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	
Traffic Vol, veh/h	0	0	0	43	25	0
Future Vol, veh/h	0	0	0	43	25	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	47	27	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	47	0	-	0	24
Stage 1	-	-	-	-	24
Stage 2	-	-	-	-	0
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1560	-	-	-	992
Stage 1	-	-	-	-	999
Stage 2	-	-	-	-	-
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1560	-	-	-	992
Mov Cap-2 Maneuver	-	-	-	-	992
Stage 1	-	-	-	-	999
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	992
HCM Lane V/C Ratio	-	-	-	-	0.027
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

HCM 6th TWSC
 130: Subarea C Street B & Merrick Parkway

04/17/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	172	0	27	231	0	15
Future Vol, veh/h	172	0	27	231	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	187	0	29	251	0	16

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	187	0	496
Stage 1	-	-	-	-	187
Stage 2	-	-	-	-	309
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1387	-	533
Stage 1	-	-	-	-	845
Stage 2	-	-	-	-	745
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1387	-	520
Mov Cap-2 Maneuver	-	-	-	-	520
Stage 1	-	-	-	-	845
Stage 2	-	-	-	-	727

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	855	-	-	1387	-
HCM Lane V/C Ratio	0.019	-	-	0.021	-
HCM Control Delay (s)	9.3	-	-	7.7	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

HCM 6th TWSC
 140: Merrick Parkway & Subarea E Access

04/17/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	13	174	250	38	23	8
Future Vol, veh/h	13	174	250	38	23	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	189	272	41	25	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	313	0	-	0	510 293
Stage 1	-	-	-	-	293 -
Stage 2	-	-	-	-	217 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1247	-	-	-	523 746
Stage 1	-	-	-	-	757 -
Stage 2	-	-	-	-	819 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1247	-	-	-	516 746
Mov Cap-2 Maneuver	-	-	-	-	516 -
Stage 1	-	-	-	-	747 -
Stage 2	-	-	-	-	819 -

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1247	-	-	-	561
HCM Lane V/C Ratio	0.011	-	-	-	0.06
HCM Control Delay (s)	7.9	0	-	-	11.8
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
 155: Merrick Parkway & Subarea F Access

04/17/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	542	691	19	0	3
Future Vol, veh/h	0	542	691	19	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	589	751	21	0	3

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

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	405
HCM Lane V/C Ratio	-	-	-	0.008
HCM Control Delay (s)	-	-	-	14
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 160: Merrick Parkway & Commercial Access Road

04/17/2023

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	62	479	339	320	0	371
Future Vol, veh/h	62	479	339	320	0	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	215	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	521	368	348	0	403

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	716	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	885	-	677
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	885	-	677
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	17.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	885	-	-	-	677
HCM Lane V/C Ratio	0.076	-	-	-	0.596
HCM Control Delay (s)	9.4	-	-	-	17.8
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.2	-	-	-	4

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	7	16	0	8	12	43	12	9	30	3
Future Vol, veh/h	2	0	7	16	0	8	12	43	12	9	30	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	8	17	0	9	13	47	13	10	33	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	139	141	35	139	136	54	36	0	0	60	0	0
Stage 1	55	55	-	80	80	-	-	-	-	-	-	-
Stage 2	84	86	-	59	56	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	831	750	1038	831	755	1013	1575	-	-	1544	-	-
Stage 1	957	849	-	929	828	-	-	-	-	-	-	-
Stage 2	924	824	-	953	848	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	814	738	1038	815	743	1013	1575	-	-	1544	-	-
Mov Cap-2 Maneuver	814	738	-	815	743	-	-	-	-	-	-	-
Stage 1	948	843	-	921	821	-	-	-	-	-	-	-
Stage 2	908	817	-	939	842	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	8.7		9.3		1.3		1.6			
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	978	872	1544	-
HCM Lane V/C Ratio	0.008	-	-	0.01	0.03	0.006	-
HCM Control Delay (s)	7.3	0	-	8.7	9.3	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
310: Heritage Boulevard & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↙
Traffic Vol, veh/h	535	68	28	542	43	16
Future Vol, veh/h	535	68	28	542	43	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	285	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	582	74	30	589	47	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	656	0	1231
Stage 1	-	-	-	-	582
Stage 2	-	-	-	-	649
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	931	-	196
Stage 1	-	-	-	-	559
Stage 2	-	-	-	-	520
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	931	-	190
Mov Cap-2 Maneuver	-	-	-	-	190
Stage 1	-	-	-	-	559
Stage 2	-	-	-	-	503

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	26.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	229	-	-	931	-
HCM Lane V/C Ratio	0.28	-	-	0.033	-
HCM Control Delay (s)	26.7	-	-	9	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	1.1	-	-	0.1	-

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	536	30	19	543	25	11
Future Vol, veh/h	536	30	19	543	25	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	583	33	21	590	27	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	616	0	1232
Stage 1	-	-	-	-	600
Stage 2	-	-	-	-	632
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	964	-	196
Stage 1	-	-	-	-	548
Stage 2	-	-	-	-	530
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	964	-	190
Mov Cap-2 Maneuver	-	-	-	-	190
Stage 1	-	-	-	-	548
Stage 2	-	-	-	-	513

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	23.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	234	-	-	964	-
HCM Lane V/C Ratio	0.167	-	-	0.021	-
HCM Control Delay (s)	23.4	-	-	8.8	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	187.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	354	10	119	350	49	10	132	76	11	119	71
Future Vol, veh/h	65	354	10	119	350	49	10	132	76	11	119	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	385	11	129	380	53	11	143	83	12	129	77

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	615	440	168	597	437	185	206	0	0	226	0	0
Stage 1	192	192	-	207	207	-	-	-	-	-	-	-
Stage 2	423	248	-	390	230	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	403	511	876	415	513	857	1365	-	-	1342	-	-
Stage 1	810	742	-	795	731	-	-	-	-	-	-	-
Stage 2	609	701	-	634	714	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	142	501	876	149	503	857	1365	-	-	1342	-	-
Mov Cap-2 Maneuver	142	501	-	149	503	-	-	-	-	-	-	-
Stage 1	803	735	-	788	724	-	-	-	-	-	-	-
Stage 2	269	695	-	295	707	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	175.1		\$ 348.9		0.4		0.4	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1365	-	-	365	334	1342	-
HCM Lane V/C Ratio	0.008	-	-	1.278	1.686	0.009	-
HCM Control Delay (s)	7.7	0	-	175.1	\$ 348.9	7.7	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	21	34.7	0	-

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

HCM 6th TWSC
 4775: Oakwood Street/Heritage Boulevard & Pennsylvania Avenue

04/17/2023

Intersection												
Int Delay, s/veh	5.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	179	282	7	4	317	73	2	1	5	42	3	126
Future Vol, veh/h	179	282	7	4	317	73	2	1	5	42	3	126
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	195	307	8	4	345	79	2	1	5	46	3	137

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	424	0	0	315	0	0	1164	1133	311	1097	1098	385
Stage 1	-	-	-	-	-	-	701	701	-	393	393	-
Stage 2	-	-	-	-	-	-	463	432	-	704	705	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1135	-	-	1245	-	-	171	203	729	191	213	663
Stage 1	-	-	-	-	-	-	429	441	-	632	606	-
Stage 2	-	-	-	-	-	-	579	582	-	428	439	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1135	-	-	1245	-	-	116	167	729	163	176	663
Mov Cap-2 Maneuver	-	-	-	-	-	-	116	167	-	163	176	-
Stage 1	-	-	-	-	-	-	355	365	-	523	604	-
Stage 2	-	-	-	-	-	-	455	580	-	351	363	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	3.4			0.1			19			24.4		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	266	1135	-	-	1245	-	-	368
HCM Lane V/C Ratio	0.033	0.171	-	-	0.003	-	-	0.505
HCM Control Delay (s)	19	8.8	-	-	7.9	0	-	24.4
HCM Lane LOS	C	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.6	-	-	0	-	-	2.7

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	283	5	0	409	50	1	0	0	21	0	33
Future Vol, veh/h	31	283	5	0	409	50	1	0	0	21	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	308	5	0	445	54	1	0	0	23	0	36

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	499	0	0	313
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	4.12	-	-	4.12
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	2.218	-	-	2.218
Pot Cap-1 Maneuver	1065	-	-	1247
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	1065	-	-	1247
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0	19.6	15.4
HCM LOS			C	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	248	1065	-	-	1247	-	-	406
HCM Lane V/C Ratio	0.004	0.032	-	-	-	-	-	0.145
HCM Control Delay (s)	19.6	8.5	0	-	0	-	-	15.4
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	532	9	7	562	4	22
Future Vol, veh/h	532	9	7	562	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	578	10	8	611	4	24

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	588	0	1210
Stage 1	-	-	-	-	583
Stage 2	-	-	-	-	627
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	987	-	202
Stage 1	-	-	-	-	558
Stage 2	-	-	-	-	532
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	987	-	200
Mov Cap-2 Maneuver	-	-	-	-	200
Stage 1	-	-	-	-	558
Stage 2	-	-	-	-	526

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	413	-	-	987	-
HCM Lane V/C Ratio	0.068	-	-	0.008	-
HCM Control Delay (s)	14.4	-	-	8.7	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
 100: Merrick Parkway & Subarea B Access

04/17/2023

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	4	262	161	8	27	12
Future Vol, veh/h	4	262	161	8	27	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	285	175	9	29	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	184	0	-	0	473 180
Stage 1	-	-	-	-	180 -
Stage 2	-	-	-	-	293 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1391	-	-	-	550 863
Stage 1	-	-	-	-	851 -
Stage 2	-	-	-	-	757 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1391	-	-	-	548 863
Mov Cap-2 Maneuver	-	-	-	-	548 -
Stage 1	-	-	-	-	848 -
Stage 2	-	-	-	-	757 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	11.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1391	-	-	-	617
HCM Lane V/C Ratio	0.003	-	-	-	0.069
HCM Control Delay (s)	7.6	0	-	-	11.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
 130: Subarea C Street B & Merrick Parkway

04/17/2023

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	387	0	8	185	0	22
Future Vol, veh/h	387	0	8	185	0	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	421	0	9	201	0	24

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	421	0	640
Stage 1	-	-	-	-	421
Stage 2	-	-	-	-	219
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1138	-	440
Stage 1	-	-	-	-	662
Stage 2	-	-	-	-	817
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1138	-	436
Mov Cap-2 Maneuver	-	-	-	-	436
Stage 1	-	-	-	-	662
Stage 2	-	-	-	-	810

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	10.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	632	-	-	1138	-
HCM Lane V/C Ratio	0.038	-	-	0.008	-
HCM Control Delay (s)	10.9	-	-	8.2	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 6th TWSC
140: Merrick Parkway & Subarea E Access

04/17/2023

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	4	406	181	11	35	12
Future Vol, veh/h	4	406	181	11	35	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	441	197	12	38	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	209	0	-	0	652 203
Stage 1	-	-	-	-	203 -
Stage 2	-	-	-	-	449 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1362	-	-	-	433 838
Stage 1	-	-	-	-	831 -
Stage 2	-	-	-	-	643 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1362	-	-	-	431 838
Mov Cap-2 Maneuver	-	-	-	-	431 -
Stage 1	-	-	-	-	828 -
Stage 2	-	-	-	-	643 -

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

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1362	-	-	-	492
HCM Lane V/C Ratio	0.003	-	-	-	0.104
HCM Control Delay (s)	7.7	0	-	-	13.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 6th TWSC
 155: Merrick Parkway & Subarea F Access

04/17/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	858	570	5	0	4
Future Vol, veh/h	0	858	570	5	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	933	620	5	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 623
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.22
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.318
Pot Cap-1 Maneuver	0	-	- 0 486
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 486
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	486
HCM Lane V/C Ratio	-	-	-	0.009
HCM Control Delay (s)	-	-	-	12.5
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 160: Merrick Parkway & Commercial Access Road

04/17/2023

Intersection						
Int Delay, s/veh	3.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	71	767	168	355	0	408
Future Vol, veh/h	71	767	168	355	0	408
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	215	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	77	834	183	386	0	443

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	569	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	1003	-	859
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1003	-	859
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1003	-	-	-	859
HCM Lane V/C Ratio	0.077	-	-	-	0.516
HCM Control Delay (s)	8.9	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	3

HCM 6th TWSC
 210: Bruce Road & Subarea E Access (NW)/Subarea F Access

04/17/2023

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	0	11	25	0	9	4	15	4	9	34	1
Future Vol, veh/h	3	0	11	25	0	9	4	15	4	9	34	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	3	0	12	27	0	10	4	16	4	10	37	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	89	86	38	90	84	18	38	0	0	20	0	0
Stage 1	58	58	-	26	26	-	-	-	-	-	-	-
Stage 2	31	28	-	64	58	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	896	804	1034	895	806	1061	1572	-	-	1596	-	-
Stage 1	954	847	-	992	874	-	-	-	-	-	-	-
Stage 2	986	872	-	947	847	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	882	797	1034	879	799	1061	1572	-	-	1596	-	-
Mov Cap-2 Maneuver	882	797	-	879	799	-	-	-	-	-	-	-
Stage 1	951	842	-	989	871	-	-	-	-	-	-	-
Stage 2	974	869	-	930	842	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	8.7		9.1		1.3		1.5	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1572	-	-	997	921	1596	-
HCM Lane V/C Ratio	0.003	-	-	0.015	0.04	0.006	-
HCM Control Delay (s)	7.3	0	-	8.7	9.1	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
 310: Heritage Boulevard & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↙
Traffic Vol, veh/h	495	11	7	384	25	23
Future Vol, veh/h	495	11	7	384	25	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	285	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	538	12	8	417	27	25

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	550	0	971
Stage 1	-	-	-	-	538
Stage 2	-	-	-	-	433
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1020	-	280
Stage 1	-	-	-	-	585
Stage 2	-	-	-	-	654
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1020	-	278
Mov Cap-2 Maneuver	-	-	-	-	278
Stage 1	-	-	-	-	585
Stage 2	-	-	-	-	649

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	363	-	-	1020	-
HCM Lane V/C Ratio	0.144	-	-	0.007	-
HCM Control Delay (s)	16.6	-	-	8.6	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.5	-	-	0	-

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	521	26	7	351	26	13
Future Vol, veh/h	521	26	7	351	26	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	566	28	8	382	28	14

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	594	0	978
Stage 1	-	-	-	-	580
Stage 2	-	-	-	-	398
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	982	-	278
Stage 1	-	-	-	-	560
Stage 2	-	-	-	-	678
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	982	-	275
Mov Cap-2 Maneuver	-	-	-	-	275
Stage 1	-	-	-	-	560
Stage 2	-	-	-	-	671

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	325	-	-	982	-
HCM Lane V/C Ratio	0.13	-	-	0.008	-
HCM Control Delay (s)	17.7	-	-	8.7	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	134.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	196	286	7	86	252	24	16	79	85	36	94	75
Future Vol, veh/h	196	286	7	86	252	24	16	79	85	36	94	75
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	213	311	8	93	274	26	17	86	92	39	102	82

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	537	433	143	547	428	132	184	0	0	178	0	0
Stage 1	221	221	-	166	166	-	-	-	-	-	-	-
Stage 2	316	212	-	381	262	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	455	516	905	448	519	917	1391	-	-	1398	-	-
Stage 1	781	720	-	836	761	-	-	-	-	-	-	-
Stage 2	695	727	-	641	691	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	241	493	905	214	496	917	1391	-	-	1398	-	-
Mov Cap-2 Maneuver	241	493	-	214	496	-	-	-	-	-	-	-
Stage 1	770	698	-	824	750	-	-	-	-	-	-	-
Stage 2	423	717	-	342	670	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	277.6	83.4	0.7	1.3
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1391	-	-	349	387	1398	-
HCM Lane V/C Ratio	0.013	-	-	1.523	1.017	0.028	-
HCM Control Delay (s)	7.6	0	-	277.6	83.4	7.6	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	29.6	12.6	0.1	-

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	660	0	2	358	15	1	0	1	64	0	87
Future Vol, veh/h	19	660	0	2	358	15	1	0	1	64	0	87
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	717	0	2	389	16	1	0	1	70	0	95

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	405	0	0	717	0	0	1208	1168	717	1161	1160	397
Stage 1	-	-	-	-	-	-	759	759	-	401	401	-
Stage 2	-	-	-	-	-	-	449	409	-	760	759	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1154	-	-	884	-	-	160	193	430	172	195	652
Stage 1	-	-	-	-	-	-	399	415	-	626	601	-
Stage 2	-	-	-	-	-	-	589	596	-	398	415	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1154	-	-	884	-	-	135	189	430	169	191	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	135	189	-	169	191	-
Stage 1	-	-	-	-	-	-	392	408	-	615	599	-
Stage 2	-	-	-	-	-	-	502	594	-	390	408	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.2	0	22.7	31.5
HCM LOS			C	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	205	1154	-	-	884	-	-	295
HCM Lane V/C Ratio	0.011	0.018	-	-	0.002	-	-	0.556
HCM Control Delay (s)	22.7	8.2	-	-	9.1	0	-	31.5
HCM Lane LOS		C	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	3.2

HCM 6th TWSC
 4832: Colonial Lanes/Executive Boulevard & Pennsylvania Avenue

04/17/2023

Intersection												
Int Delay, s/veh	2.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	720	4	1	316	15	1	0	0	58	0	40
Future Vol, veh/h	22	720	4	1	316	15	1	0	0	58	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	783	4	1	343	16	1	0	0	63	0	43

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	359	0	0	787	0	0	1208	1194	785	1186	1188	351
Stage 1	-	-	-	-	-	-	833	833	-	353	353	-
Stage 2	-	-	-	-	-	-	375	361	-	833	835	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1200	-	-	832	-	-	160	187	393	166	188	692
Stage 1	-	-	-	-	-	-	363	384	-	664	631	-
Stage 2	-	-	-	-	-	-	646	626	-	363	383	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1200	-	-	832	-	-	146	180	393	161	181	692
Mov Cap-2 Maneuver	-	-	-	-	-	-	146	180	-	161	181	-
Stage 1	-	-	-	-	-	-	350	370	-	640	630	-
Stage 2	-	-	-	-	-	-	604	625	-	350	369	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.2			0			29.8			32.6		
HCM LOS							D			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	146	1200	-	-	832	-	-	234
HCM Lane V/C Ratio	0.007	0.02	-	-	0.001	-	-	0.455
HCM Control Delay (s)	29.8	8.1	0	-	9.3	0	-	32.6
HCM Lane LOS	D	A	A	-	A	A	-	D
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	2.2

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	521	4	3	379	5	16
Future Vol, veh/h	521	4	3	379	5	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	566	4	3	412	5	17

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	570	0	986 568
Stage 1	-	-	-	-	568 -
Stage 2	-	-	-	-	418 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1002	-	275 522
Stage 1	-	-	-	-	567 -
Stage 2	-	-	-	-	664 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1002	-	274 522
Mov Cap-2 Maneuver	-	-	-	-	274 -
Stage 1	-	-	-	-	567 -
Stage 2	-	-	-	-	661 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	429	-	-	1002	-
HCM Lane V/C Ratio	0.053	-	-	0.003	-
HCM Control Delay (s)	13.9	-	-	8.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCM 6th TWSC
 100: Merrick Parkway & Subarea B Access

04/17/2023

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	13	268	267	30	18	8
Future Vol, veh/h	13	268	267	30	18	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	291	290	33	20	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	323	0	-	0	626 307
Stage 1	-	-	-	-	307 -
Stage 2	-	-	-	-	319 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1237	-	-	-	448 733
Stage 1	-	-	-	-	746 -
Stage 2	-	-	-	-	737 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1237	-	-	-	442 733
Mov Cap-2 Maneuver	-	-	-	-	442 -
Stage 1	-	-	-	-	736 -
Stage 2	-	-	-	-	737 -

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1237	-	-	-	504
HCM Lane V/C Ratio	0.011	-	-	-	0.056
HCM Control Delay (s)	7.9	0	-	-	12.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.2

HCM 6th TWSC
 130: Subarea C Street B & Merrick Parkway

04/17/2023

Intersection						
Int Delay, s/veh	0.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	301	0	27	422	0	15
Future Vol, veh/h	301	0	27	422	0	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	327	0	29	459	0	16

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	327	0	844 327
Stage 1	-	-	-	-	327 -
Stage 2	-	-	-	-	517 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1233	-	334 714
Stage 1	-	-	-	-	731 -
Stage 2	-	-	-	-	598 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1233	-	323 714
Mov Cap-2 Maneuver	-	-	-	-	323 -
Stage 1	-	-	-	-	731 -
Stage 2	-	-	-	-	579 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	10.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	714	-	-	1233	-
HCM Lane V/C Ratio	0.023	-	-	0.024	-
HCM Control Delay (s)	10.2	-	-	8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	-

HCM 6th TWSC
 140: Merrick Parkway & Subarea E Access

04/17/2023

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	13	303	441	38	23	8
Future Vol, veh/h	13	303	441	38	23	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	14	329	479	41	25	9

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	520	0	-	0	857 500
Stage 1	-	-	-	-	500 -
Stage 2	-	-	-	-	357 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1046	-	-	-	328 571
Stage 1	-	-	-	-	609 -
Stage 2	-	-	-	-	708 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1046	-	-	-	323 571
Mov Cap-2 Maneuver	-	-	-	-	323 -
Stage 1	-	-	-	-	599 -
Stage 2	-	-	-	-	708 -

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1046	-	-	-	364
HCM Lane V/C Ratio	0.014	-	-	-	0.093
HCM Control Delay (s)	8.5	0	-	-	15.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.3

HCM 6th TWSC
 155: Merrick Parkway & Subarea F Access

04/17/2023

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑			↑
Traffic Vol, veh/h	0	671	882	19	0	3
Future Vol, veh/h	0	671	882	19	0	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	729	959	21	0	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 970
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 6.22
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.318
Pot Cap-1 Maneuver	0	-	- 0 307
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 307
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	307
HCM Lane V/C Ratio	-	-	-	0.011
HCM Control Delay (s)	-	-	-	16.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0

HCM 6th TWSC
 160: Merrick Parkway & Commercial Access Road

04/17/2023

Intersection						
Int Delay, s/veh	6.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘		↘
Traffic Vol, veh/h	62	608	530	320	0	371
Future Vol, veh/h	62	608	530	320	0	371
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	215	-	-	0	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	67	661	576	348	0	403

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	924	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.12	-	6.22
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.218	-	3.318
Pot Cap-1 Maneuver	739	-	0
Stage 1	-	-	0
Stage 2	-	-	0
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	739	-	517
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	32.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	739	-	-	-	517
HCM Lane V/C Ratio	0.091	-	-	-	0.78
HCM Control Delay (s)	10.4	-	-	-	32.4
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	7.1

Intersection												
Int Delay, s/veh	3.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	2	0	7	16	0	8	12	43	12	9	30	3
Future Vol, veh/h	2	0	7	16	0	8	12	43	12	9	30	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	8	17	0	9	13	47	13	10	33	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	139	141	35	139	136	54	36	0	0	60	0	0
Stage 1	55	55	-	80	80	-	-	-	-	-	-	-
Stage 2	84	86	-	59	56	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	831	750	1038	831	755	1013	1575	-	-	1544	-	-
Stage 1	957	849	-	929	828	-	-	-	-	-	-	-
Stage 2	924	824	-	953	848	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	814	738	1038	815	743	1013	1575	-	-	1544	-	-
Mov Cap-2 Maneuver	814	738	-	815	743	-	-	-	-	-	-	-
Stage 1	948	843	-	921	821	-	-	-	-	-	-	-
Stage 2	908	817	-	939	842	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	8.7		9.3		1.3		1.6			
HCM LOS	A		A							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1575	-	-	978	872	1544	-
HCM Lane V/C Ratio	0.008	-	-	0.01	0.03	0.006	-
HCM Control Delay (s)	7.3	0	-	8.7	9.3	7.3	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.1	0	-

HCM 6th TWSC
310: Heritage Boulevard & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↖	↑	↘	↙
Traffic Vol, veh/h	557	31	28	539	16	16
Future Vol, veh/h	557	31	28	539	16	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	285	285	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	605	34	30	586	17	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	639	0	1251
Stage 1	-	-	-	-	605
Stage 2	-	-	-	-	646
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	945	-	190
Stage 1	-	-	-	-	545
Stage 2	-	-	-	-	522
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	945	-	184
Mov Cap-2 Maneuver	-	-	-	-	184
Stage 1	-	-	-	-	545
Stage 2	-	-	-	-	505

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	269	-	-	945	-
HCM Lane V/C Ratio	0.129	-	-	0.032	-
HCM Control Delay (s)	20.4	-	-	8.9	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

HCM 6th TWSC
320: Bruce Road & Hills Miller Road

04/17/2023

Intersection						
Int Delay, s/veh	0.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	558	30	19	540	25	11
Future Vol, veh/h	558	30	19	540	25	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	607	33	21	587	27	12

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	640	0	1253
Stage 1	-	-	-	-	624
Stage 2	-	-	-	-	629
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	944	-	190
Stage 1	-	-	-	-	534
Stage 2	-	-	-	-	531
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	944	-	184
Mov Cap-2 Maneuver	-	-	-	-	184
Stage 1	-	-	-	-	534
Stage 2	-	-	-	-	513

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	24.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	227	-	-	944	-
HCM Lane V/C Ratio	0.172	-	-	0.022	-
HCM Control Delay (s)	24.1	-	-	8.9	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

HCM 6th TWSC
4757: Troy Road & Hills Miller Road

04/17/2023

Intersection												
Int Delay, s/veh	157.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	65	345	21	109	330	49	13	132	71	11	119	71
Future Vol, veh/h	65	345	21	109	330	49	13	132	71	11	119	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	71	375	23	118	359	53	14	143	77	12	129	77

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	608	440	168	601	440	182	206	0	0	220	0	0
Stage 1	192	192	-	210	210	-	-	-	-	-	-	-
Stage 2	416	248	-	391	230	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	408	511	876	412	511	861	1365	-	-	1349	-	-
Stage 1	810	742	-	792	728	-	-	-	-	-	-	-
Stage 2	614	701	-	633	714	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	157	500	876	152	500	861	1365	-	-	1349	-	-
Mov Cap-2 Maneuver	157	500	-	152	500	-	-	-	-	-	-	-
Stage 1	800	735	-	782	719	-	-	-	-	-	-	-
Stage 2	285	693	-	299	707	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	153.7		294.3		0.5		0.4	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1365	-	-	382	340	1349	-
HCM Lane V/C Ratio	0.01	-	-	1.226	1.56	0.009	-
HCM Control Delay (s)	7.7	0	-	153.7	294.3	7.7	0
HCM Lane LOS	A	A	-	F	F	A	A
HCM 95th %tile Q(veh)	0	-	-	19.7	30.4	0	-

HCM 6th TWSC
 4775: Oakwood Street/Heritage Boulevard & Pennsylvania Avenue

04/17/2023

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	63	278	7	4	312	73	2	1	5	42	3	70
Future Vol, veh/h	63	278	7	4	312	73	2	1	5	42	3	70
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	165	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	68	302	8	4	339	79	2	1	5	46	3	76

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	418	0	0	310	0	0	868	868	306	832	833	379
Stage 1	-	-	-	-	-	-	442	442	-	387	387	-
Stage 2	-	-	-	-	-	-	426	426	-	445	446	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1141	-	-	1250	-	-	273	290	734	288	304	668
Stage 1	-	-	-	-	-	-	594	576	-	637	610	-
Stage 2	-	-	-	-	-	-	606	586	-	592	574	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1141	-	-	1250	-	-	228	271	734	271	285	668
Mov Cap-2 Maneuver	-	-	-	-	-	-	228	271	-	271	285	-
Stage 1	-	-	-	-	-	-	558	541	-	599	608	-
Stage 2	-	-	-	-	-	-	532	584	-	551	540	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.1			13.9			17		
HCM LOS							B			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	415	1141	-	-	1250	-	-	425
HCM Lane V/C Ratio	0.021	0.06	-	-	0.003	-	-	0.294
HCM Control Delay (s)	13.9	8.4	-	-	7.9	0	-	17
HCM Lane LOS	B	A	-	-	A	A	-	C
HCM 95th %tile Q(veh)	0.1	0.2	-	-	0	-	-	1.2

HCM 6th TWSC
 4832: Colonial Lanes/Executive Boulevard & Pennsylvania Avenue

04/17/2023

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	279	5	0	404	50	1	0	0	21	0	33
Future Vol, veh/h	31	279	5	0	404	50	1	0	0	21	0	33
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	303	5	0	439	54	1	0	0	23	0	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	493	0	0	308	0	0	858	867	306	840	842	466
Stage 1	-	-	-	-	-	-	374	374	-	466	466	-
Stage 2	-	-	-	-	-	-	484	493	-	374	376	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.218	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1071	-	-	1253	-	-	277	291	734	285	301	597
Stage 1	-	-	-	-	-	-	647	618	-	577	562	-
Stage 2	-	-	-	-	-	-	564	547	-	647	616	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1071	-	-	1253	-	-	253	280	734	277	290	597
Mov Cap-2 Maneuver	-	-	-	-	-	-	253	280	-	277	290	-
Stage 1	-	-	-	-	-	-	622	595	-	555	562	-
Stage 2	-	-	-	-	-	-	530	547	-	622	593	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.8			0			19.3			15.2		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	253	1071	-	-	1253	-	-	412
HCM Lane V/C Ratio	0.004	0.031	-	-	-	-	-	0.142
HCM Control Delay (s)	19.3	8.5	0	-	0	-	-	15.2
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0	0.1	-	-	0	-	-	0.5


Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	554	9	7	559	4	22
Future Vol, veh/h	554	9	7	559	4	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	602	10	8	608	4	24

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	612	0	1231
Stage 1	-	-	-	-	607
Stage 2	-	-	-	-	624
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	967	-	196
Stage 1	-	-	-	-	544
Stage 2	-	-	-	-	534
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	967	-	194
Mov Cap-2 Maneuver	-	-	-	-	194
Stage 1	-	-	-	-	544
Stage 2	-	-	-	-	528

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	967	-
HCM Lane V/C Ratio	0.071	-	-	0.008	-
HCM Control Delay (s)	14.7	-	-	8.8	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.2	-	-	0	-

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	150-Merrick Parkway & Bruc...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/12/2023				N/S Street Name	Bruce Road & Woodhaul		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network Build AM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	4	252	0	349	21	119	19	0	0	0	9	0	63	0	7
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCE}), pc/h	0	4	282	0	391	24	133	21	0	0	0	10	0	71	0	8
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	


Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		286			569			10			79	
Entry Volume, veh/h		278			552			10			77	
Circulating Flow (v _c), pc/h	486			4			748			548		
Exiting Flow (v _{ex}), pc/h	754			141			25			24		
Capacity (C _{PCE}), pc/h		841			1374			643			789	
Capacity (c), veh/h		816			1334			625			766	
v/c Ratio (x)		0.34			0.41			0.02			0.10	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.4			6.7			5.9			5.7	
Lane LOS		A			A			A			A	
95% Queue, veh		1.5			2.1			0.0			0.3	
Approach Delay, s/veh LOS	8.4	A		6.7	A		5.9	A		5.7	A	
Intersection Delay, s/veh LOS	7.1						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	150-Merrick Parkway & Bruc...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/12/2023				N/S Street Name	Bruce Road & Woodhaul		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network Build PM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	12	185	0	304	51	284	55	0	0	0	4	0	49	0	5
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCE}), pc/h	0	13	207	0	340	57	318	62	0	0	0	4	0	55	0	6
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	


Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		220			777			4			61	
Entry Volume, veh/h		214			754			4			59	
Circulating Flow (v _c), pc/h	452			13			615			715		
Exiting Flow (v _{ex}), pc/h	606			324			75			57		
Capacity (C _{PCE}), pc/h		870			1362			737			666	
Capacity (c), veh/h		845			1322			716			646	
v/c Ratio (x)		0.25			0.57			0.01			0.09	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		7.0			9.1			5.1			6.6	
Lane LOS		A			A			A			A	
95% Queue, veh		1.0			3.8			0.0			0.3	
Approach Delay, s/veh LOS	7.0	A		9.1	A		5.1	A		6.6	A	
Intersection Delay, s/veh LOS	8.5						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	150-Merrick Parkway & Bruc...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/12/2023				N/S Street Name	Bruce Road & Woodhaul		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak				Peak Hour Factor	0.92		
Project Description	2044 Complete Network Build AM Peak				Jurisdiction	City of Delaware		


Volume Adjustments and Site Characteristics																
Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	4	437	0	349	21	185	19	0	0	0	9	0	63	0	7
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{pcu}), pc/h	0	4	489	0	391	24	207	21	0	0	0	10	0	71	0	8
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		493			643			10			79	
Entry Volume, veh/h		479			624			10			77	
Circulating Flow (v _c), pc/h	486			4			955			622		
Exiting Flow (v _{ex}), pc/h	961			215			25			24		
Capacity (C _{pcu}), pc/h		841			1374			521			732	
Capacity (c), veh/h		816			1334			506			710	
v/c Ratio (x)		0.59			0.47			0.02			0.11	

Delay and Level of Service												
Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		13.4			7.4			7.4			6.2	
Lane LOS		B			A			A			A	
95% Queue, veh		3.9			2.6			0.1			0.4	
Approach Delay, s/veh LOS	13.4		B	7.4		A	7.4		A	6.2		A
Intersection Delay, s/veh LOS	9.7						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	150-Merrick Parkway & Bruc...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/12/2023				N/S Street Name	Bruce Road & Woodhaul		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Complete Network Build PM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	12	314	0	304	51	475	55	0	0	0	4	0	49	0	5
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCE}), pc/h	0	13	352	0	340	57	532	62	0	0	0	4	0	55	0	6
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

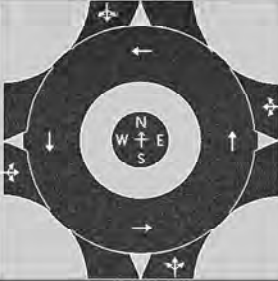
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		365			991			4			61	
Entry Volume, veh/h		354			962			4			59	
Circulating Flow (v _c), pc/h	452			13			760			929		
Exiting Flow (v _{ex}), pc/h	751			538			75			57		
Capacity (C _{PCE}), pc/h		870			1362			636			535	
Capacity (c), veh/h		845			1322			617			519	
v/c Ratio (x)		0.42			0.73			0.01			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		9.4			13.3			5.9			8.4	
Lane LOS		A			B			A			A	
95% Queue, veh		2.1			6.9			0.0			0.4	
Approach Delay, s/veh LOS	9.4	A		13.3	B		5.9	A		8.4	A	
Intersection Delay, s/veh LOS	12.0						B					

HCS Roundabouts Report

General Information				Site Information				
Analyst	TJS				Intersection	110-Merrick Parkway & Heri...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/18/23				N/S Street Name	Heritage Boulevard		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	Incnp Nwk Build w Div-AM				Peak Hour Factor	0.92		
Project Description	Addison Farms TIS				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	5	25	9	0	86	8	26	0	3	49	112	0	66	42	2
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCE}), pc/h	0	6	28	10	0	96	9	29	0	3	55	125	0	74	47	2
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

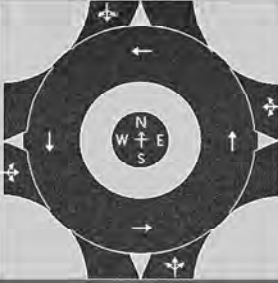
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		44			134			183			123	
Entry Volume, veh/h		43			130			178			119	
Circulating Flow (v _c), pc/h	217			64			108			108		
Exiting Flow (v _{ex}), pc/h	227			14			90			153		
Capacity (C _{PCE}), pc/h		1106			1293			1236			1236	
Capacity (c), veh/h		1074			1255			1200			1200	
v/c Ratio (x)		0.04			0.10			0.15			0.10	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.7			3.7			4.3			3.8	
Lane LOS		A			A			A			A	
95% Queue, veh		0.1			0.3			0.5			0.3	
Approach Delay, s/veh LOS	3.7	A		3.7	A		4.3	A		3.8	A	
Intersection Delay, s/veh LOS	3.9						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	TJS				Intersection	110-Merrick Parkway & Heri...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/18/23				N/S Street Name	Heritage Boulevard		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	Incmp Nwk Build w Div-PM				Peak Hour Factor	0.92		
Project Description	Addison Farms TIS				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	3	16	6	0	124	28	79	0	9	62	108	0	48	62	6
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v _{PCE}), pc/h	0	3	18	7	0	139	31	88	0	10	69	121	0	54	69	7
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

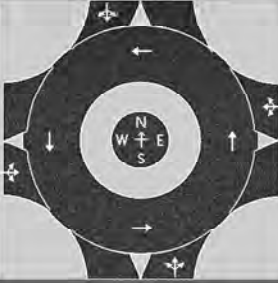
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		28			258			200			130	
Entry Volume, veh/h		27			250			194			126	
Circulating Flow (v _c), pc/h	262			82			75			180		
Exiting Flow (v _{ex}), pc/h	193			48			160			215		
Capacity (C _{PCE}), pc/h		1056			1269			1278			1149	
Capacity (c), veh/h		1026			1232			1241			1115	
v/c Ratio (x)		0.03			0.20			0.16			0.11	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.7			4.7			4.2			4.2	
Lane LOS		A			A			A			A	
95% Queue, veh		0.1			0.8			0.6			0.4	
Approach Delay, s/veh LOS	3.7	A		4.7	A		4.2	A		4.2	A	
Intersection Delay, s/veh LOS	4.4						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	TJS				Intersection	110-Merrick Parkway & Heri...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/18/23				N/S Street Name	Heritage Boulevard		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	Comp Ntwk Build w Div-AM				Peak Hour Factor	0.92		
Project Description	Addison Farms TIS				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	11	263	14	0	56	106	24	0	36	11	59	0	65	4	27
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v _{PCE}), pc/h	0	12	294	16	0	63	119	27	0	40	12	66	0	73	4	30
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

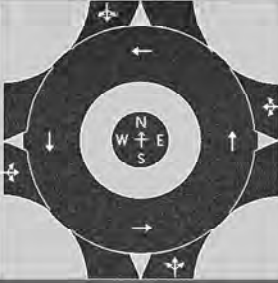
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		322			209			118			107	
Entry Volume, veh/h		313			203			115			104	
Circulating Flow (v _c), pc/h	140			64			379			222		
Exiting Flow (v _e), pc/h	433			189			51			83		
Capacity (C _{PCE}), pc/h		1196			1293			938			1100	
Capacity (c), veh/h		1162			1255			910			1068	
v/c Ratio (x)		0.27			0.16			0.13			0.10	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.6			4.2			5.2			4.2	
Lane LOS		A			A			A			A	
95% Queue, veh		1.1			0.6			0.4			0.3	
Approach Delay, s/veh LOS	5.6	A		4.2	A		5.2	A		4.2	A	
Intersection Delay, s/veh LOS	4.9						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	TJS				Intersection	110-Merrick Parkway & Heri...		
Agency or Co.	Smart Services, Inc				E/W Street Name	Merrick Parkway		
Date Performed	4/18/23				N/S Street Name	Heritage Boulevard		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	Comp Ntwk Build w Div-PM				Peak Hour Factor	0.92		
Project Description	Addison Farms TIS				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	32	214	40	0	97	248	77	0	29	8	42	0	46	13	20
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCE}), pc/h	0	36	240	45	0	109	278	86	0	32	9	47	0	52	15	22
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

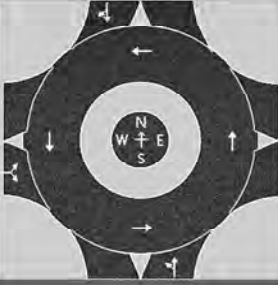
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		321			473			88			89	
Entry Volume, veh/h		312			459			85			86	
Circulating Flow (v _c), pc/h	176			77			328			419		
Exiting Flow (v _e), pc/h	339			332			131			169		
Capacity (C _{PCE}), pc/h		1153			1276			988			900	
Capacity (c), veh/h		1120			1239			959			874	
v/c Ratio (x)		0.28			0.37			0.09			0.10	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.8			6.5			4.6			5.1	
Lane LOS		A			A			A			A	
95% Queue, veh		1.1			1.7			0.3			0.3	
Approach Delay, s/veh LOS	5.8	A		6.5	A		4.6	A		5.1	A	
Intersection Delay, s/veh LOS	6.0						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network No Build AM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
Lane Assignment	LR								LT				TR			
Volume (V), veh/h	0	31		30					0	10	147		0		212	11
Percent Heavy Vehicles, %	3	3		3					3	3	3		3		3	3
Flow Rate (V _{PCE}), pc/h	0	35		34					0	11	165		0		237	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763						4.9763			4.9763	
Follow-Up Headway, s		2.6087						2.6087			2.6087	

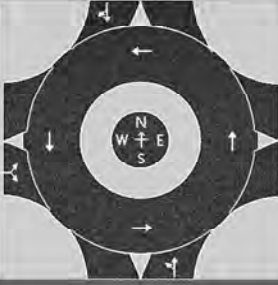
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		69						176			249	
Entry Volume, veh/h		67						171			242	
Circulating Flow (v _c), pc/h	237			211			35			11		
Exiting Flow (v _{ex}), pc/h	0			23			200			271		
Capacity (C _{PCE}), pc/h		1084						1332			1365	
Capacity (c), veh/h		1052						1293			1325	
v/c Ratio (x)		0.06						0.13			0.18	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.0						3.9			4.2	
Lane LOS		A						A			A	
95% Queue, veh		0.2						0.5			0.7	
Approach Delay, s/veh LOS	4.0 A						3.9 A			4.2 A		
Intersection Delay, s/veh LOS	4.1						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network No Build PM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
Lane Assignment	LR								LT				TR			
Volume (V), veh/h	0	21		20					0	34	339		0		252	36
Percent Heavy Vehicles, %	3	3		3					3	3	3		3		3	3
Flow Rate (V _{PCE}), pc/h	0	24		22					0	38	380		0		282	40
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763						4.9763			4.9763	
Follow-Up Headway, s		2.6087						2.6087			2.6087	

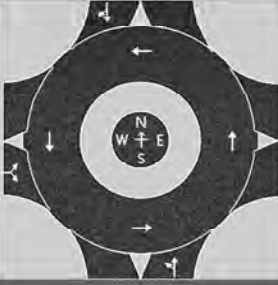
Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		46						418			322	
Entry Volume, veh/h		45						406			313	
Circulating Flow (v _c), pc/h	282			442			24			38		
Exiting Flow (v _{ex}), pc/h	0			78			404			304		
Capacity (C _{PCE}), pc/h		1035						1347			1328	
Capacity (c), veh/h		1005						1307			1289	
v/c Ratio (x)		0.04						0.31			0.24	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.0						5.5			4.9	
Lane LOS		A						A			A	
95% Queue, veh		0.1						1.3			1.0	
Approach Delay, s/veh LOS	4.0 A						5.5 A			4.9 A		
Intersection Delay, s/veh LOS	5.2						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network Build AM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
Lane Assignment	LR								LT				TR			
Volume (V), veh/h	0	31		30					0	10	123		0		202	11
Percent Heavy Vehicles, %	3	3		3					3	3	3		3		3	3
Flow Rate (V _{PCE}), pc/h	0	35		34					0	11	138		0		226	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763						4.9763			4.9763	
Follow-Up Headway, s		2.6087						2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		69						149			238	
Entry Volume, veh/h		67						145			231	
Circulating Flow (v _c), pc/h	226			184			35			11		
Exiting Flow (v _{ex}), pc/h	0			23			173			260		
Capacity (C _{PCE}), pc/h		1096						1332			1365	
Capacity (c), veh/h		1064						1293			1325	
v/c Ratio (x)		0.06						0.11			0.17	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9						3.7			4.2	
Lane LOS		A						A			A	
95% Queue, veh		0.2						0.4			0.6	
Approach Delay, s/veh LOS	3.9	A					3.7	A		4.2	A	
Intersection Delay, s/veh LOS	4.0						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Incomplete Network Build PM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0
Lane Assignment	LR								LT				TR			
Volume (V), veh/h	0	21		20					0	34	319		0		227	36
Percent Heavy Vehicles, %	3	3		3					3	3	3		3		3	3
Flow Rate (V _{PCE}), pc/h	0	24		22					0	38	357		0		254	40
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1								1				1			
Pedestrians Crossing, p/h	0								0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763						4.9763			4.9763	
Follow-Up Headway, s		2.6087						2.6087			2.6087	


Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		46						395			294	
Entry Volume, veh/h		45						383			285	
Circulating Flow (v _c), pc/h	254			419			24			38		
Exiting Flow (v _{ex}), pc/h	0			78			381			276		
Capacity (C _{PCE}), pc/h		1065						1347			1328	
Capacity (c), veh/h		1034						1307			1289	
v/c Ratio (x)		0.04						0.29			0.22	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9						5.4			4.7	
Lane LOS		A						A			A	
95% Queue, veh		0.1						1.2			0.8	
Approach Delay, s/veh LOS	3.9 A						5.4 A			4.7 A		
Intersection Delay, s/veh LOS	5.0						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	AM Peak				Peak Hour Factor	0.92		
Project Description	2044 Complete Network Build AM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	28	170	30	0	78	60	34	0	10	115	82	0	13	201	9
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{PCU}), pc/h	0	31	190	34	0	87	67	38	0	11	129	92	0	15	225	10
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	


Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		255			192			232			250	
Entry Volume, veh/h		248			186			225			243	
Circulating Flow (v _c), pc/h	327			171			236			165		
Exiting Flow (v _{ex}), pc/h	297			88			198			346		
Capacity (C _{PCU}), pc/h		989			1159			1085			1166	
Capacity (c), veh/h		960			1125			1053			1132	
v/c Ratio (x)		0.26			0.17			0.21			0.21	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.3			4.7			5.4			5.1	
Lane LOS		A			A			A			A	
95% Queue, veh		1.0			0.6			0.8			0.8	
Approach Delay, s/veh LOS	6.3	A		4.7	A		5.4	A		5.1	A	
Intersection Delay, s/veh LOS	5.4						A					

HCS Roundabouts Report

General Information				Site Information				
Analyst	PBW				Intersection	9000-Troy Rd & Merrick Pkwy		
Agency or Co.	Smart Services Inc.				E/W Street Name	Merrick Pkwy		
Date Performed	4/11/2023				N/S Street Name	Troy Rd		
Analysis Year	2044				Analysis Time Period, hrs	0.25		
Time Analyzed	PM Peak				Peak Hour Factor	0.92		
Project Description	2044 Complete Network Build PM Peak				Jurisdiction	City of Delaware		

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment	LTR				LTR				LTR				LTR			
Volume (V), veh/h	0	21	114	20	0	76	171	27	0	34	316	127	0	37	221	36
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (V _{pcu}), pc/h	0	24	128	22	0	85	191	30	0	38	354	142	0	41	247	40
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			
Proportion of CAVs	0															

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway, s		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway, s		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v _e), pc/h		174			306			534			328	
Entry Volume, veh/h		169			297			518			318	
Circulating Flow (v _c), pc/h	373			416			193			314		
Exiting Flow (v _{ex}), pc/h	311			269			408			354		
Capacity (C _{pcu}), pc/h		943			903			1133			1002	
Capacity (c), veh/h		916			877			1100			973	
v/c Ratio (x)		0.18			0.34			0.47			0.33	

Delay and Level of Service

Approach	EB			WB			NB			SB		
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.7			7.9			8.5			7.1	
Lane LOS		A			A			A			A	
95% Queue, veh		0.7			1.5			2.6			1.4	
Approach Delay, s/veh LOS	5.7	A		7.9	A		8.5	A		7.1	A	
Intersection Delay, s/veh LOS	7.7						A					

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

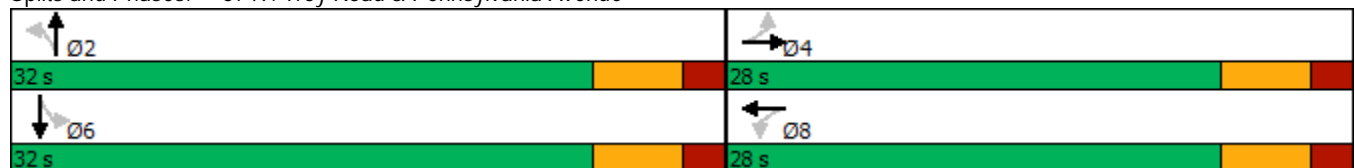
03/06/2023



Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	32	28	32	28
Maximum Split (%)	53.3%	46.7%	53.3%	46.7%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	32	0	32
End Time (s)	32	0	32	0
Yield/Force Off (s)	26	54	26	54
Yield/Force Off 170(s)	26	43	26	43
Local Start Time (s)	0	32	0	32
Local Yield (s)	26	54	26	54
Local Yield 170(s)	26	43	26	43

Intersection Summary	
Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	50

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
 6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	6	56	0	180	27	43	3	110	267	91	189	5
Future Volume (veh/h)	6	56	0	180	27	43	3	110	267	91	189	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	61	0	196	29	47	3	120	290	99	205	5
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	432	0	391	50	62	87	233	551	295	559	12
Arrive On Green	0.24	0.24	0.00	0.24	0.24	0.24	0.47	0.47	0.47	0.47	0.47	0.47
Sat Flow, veh/h	67	1780	0	1006	208	254	2	492	1165	387	1182	26
Grp Volume(v), veh/h	68	0	0	272	0	0	413	0	0	309	0	0
Grp Sat Flow(s),veh/h/ln	1847	0	0	1468	0	0	1659	0	0	1594	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.2	0.0	0.0	7.2	0.0	0.0	7.4	0.0	0.0	4.4	0.0	0.0
Prop In Lane	0.10		0.00	0.72		0.17	0.01		0.70	0.32		0.02
Lane Grp Cap(c), veh/h	542	0	0	503	0	0	871	0	0	867	0	0
V/C Ratio(X)	0.13	0.00	0.00	0.54	0.00	0.00	0.47	0.00	0.00	0.36	0.00	0.00
Avail Cap(c_a), veh/h	1041	0	0	898	0	0	1106	0	0	1072	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.6	0.0	0.0	14.7	0.0	0.0	7.8	0.0	0.0	7.0	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.9	0.0	0.0	0.4	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	2.1	0.0	0.0	1.9	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.7	0.0	0.0	15.6	0.0	0.0	8.2	0.0	0.0	7.3	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	A	A	A	A	A	A
Approach Vol, veh/h		68			272			413			309	
Approach Delay, s/veh		12.7			15.6			8.2			7.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		16.3		26.0		16.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		26.0		22.0		26.0		22.0				
Max Q Clear Time (g_c+I1), s		9.4		3.2		6.4		9.2				
Green Ext Time (p_c), s		2.5		0.2		2.0		1.3				

Intersection Summary

HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

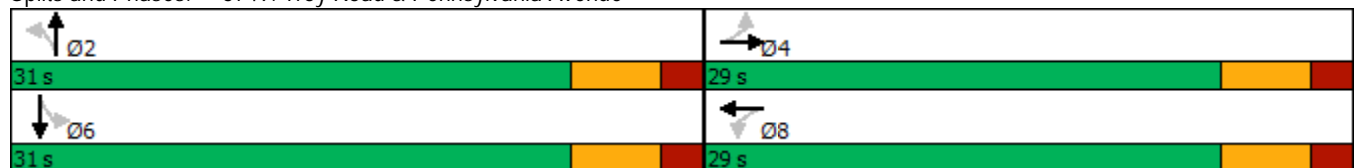
03/06/2023



Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	31	29	31	29
Maximum Split (%)	51.7%	48.3%	51.7%	48.3%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	31	0	31
End Time (s)	31	0	31	0
Yield/Force Off (s)	25	54	25	54
Yield/Force Off 170(s)	25	43	25	43
Local Start Time (s)	0	31	0	31
Local Yield (s)	25	54	25	54
Local Yield 170(s)	25	43	25	43

Intersection Summary	
Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	130

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	8	56	2	566	48	135	3	271	698	91	190	6
Future Volume (veh/h)	8	56	2	566	48	135	3	271	698	91	190	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	61	2	615	52	147	3	295	759	99	207	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	113	637	19	519	35	99	61	194	495	161	301	9
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	118	1661	51	1080	91	258	1	466	1189	197	724	21
Grp Volume(v), veh/h	72	0	0	814	0	0	1057	0	0	313	0	0
Grp Sat Flow(s),veh/h/ln	1829	0	0	1430	0	0	1656	0	0	941	0	0
Q Serve(g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0	23.0	0.0	0.0	25.0	0.0	0.0	14.1	0.0	0.0
Prop In Lane	0.12		0.03	0.76		0.18	0.00		0.72	0.32		0.02
Lane Grp Cap(c), veh/h	769	0	0	653	0	0	750	0	0	471	0	0
V/C Ratio(X)	0.09	0.00	0.00	1.25	0.00	0.00	1.41	0.00	0.00	0.66	0.00	0.00
Avail Cap(c_a), veh/h	769	0	0	653	0	0	750	0	0	471	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	20.2	0.0	0.0	18.5	0.0	0.0	13.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	123.2	0.0	0.0	192.1	0.0	0.0	3.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	31.2	0.0	0.0	49.4	0.0	0.0	3.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.9	0.0	0.0	143.4	0.0	0.0	210.6	0.0	0.0	16.6	0.0	0.0
LnGrp LOS	B	A	A	F	A	A	F	A	A	B	A	A
Approach Vol, veh/h		72			814			1057				313
Approach Delay, s/veh		11.9			143.4			210.6				16.6
Approach LOS		B			F			F				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.0		29.0		31.0		29.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		25.0		23.0		25.0		23.0				
Max Q Clear Time (g_c+I1), s		27.0		3.5		16.1		25.0				
Green Ext Time (p_c), s		0.0		0.3		1.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	153.1
HCM 6th LOS	F

Timing Report, Sorted By Phase

4757: Troy Road & Hills Miller Road

03/06/2023

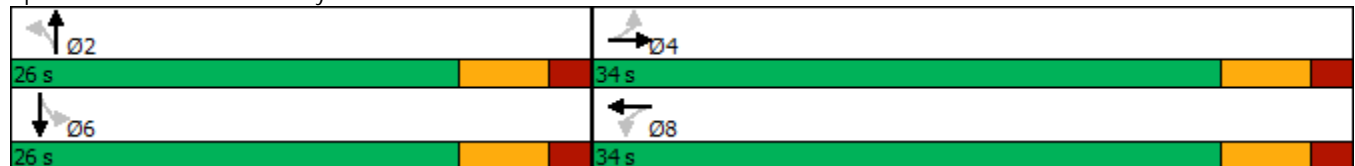


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	26	34	26	34
Maximum Split (%)	43.3%	56.7%	43.3%	56.7%
Minimum Split (s)	26	26	26	26
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	54	20	54
Yield/Force Off 170(s)	20	43	20	43
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	54	20	54
Local Yield 170(s)	20	43	20	43

Intersection Summary

Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary
 4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	196	269	4	89	168	24	6	79	96	36	94	75
Future Volume (veh/h)	196	269	4	89	168	24	6	79	96	36	94	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	292	4	97	183	26	7	86	104	39	102	82
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	325	364	5	231	401	50	78	302	345	146	341	236
Arrive On Green	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	590	948	12	364	1043	131	17	785	897	168	885	612
Grp Volume(v), veh/h	509	0	0	306	0	0	197	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1551	0	0	1538	0	0	1699	0	0	1665	0	0
Q Serve(g_s), s	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	15.4	0.0	0.0	7.1	0.0	0.0	4.2	0.0	0.0	4.7	0.0	0.0
Prop In Lane	0.42		0.01	0.32		0.08	0.04		0.53	0.17		0.37
Lane Grp Cap(c), veh/h	694	0	0	683	0	0	726	0	0	722	0	0
V/C Ratio(X)	0.73	0.00	0.00	0.45	0.00	0.00	0.27	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	925	0	0	914	0	0	726	0	0	722	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.4	0.0	0.0	11.9	0.0	0.0	11.1	0.0	0.0	11.3	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.5	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	0.0	2.3	0.0	0.0	1.4	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.4	0.0	0.0	12.4	0.0	0.0	11.3	0.0	0.0	11.5	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		509			306			197				223
Approach Delay, s/veh		16.4			12.4			11.3				11.5
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		26.0		26.0		26.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		28.0		20.0		28.0				
Max Q Clear Time (g_c+I1), s		6.2		17.4		6.7		9.1				
Green Ext Time (p_c), s		0.9		2.6		1.0		1.9				
Intersection Summary												
HCM 6th Ctrl Delay				13.7								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 4757: Troy Road & Hills Miller Road

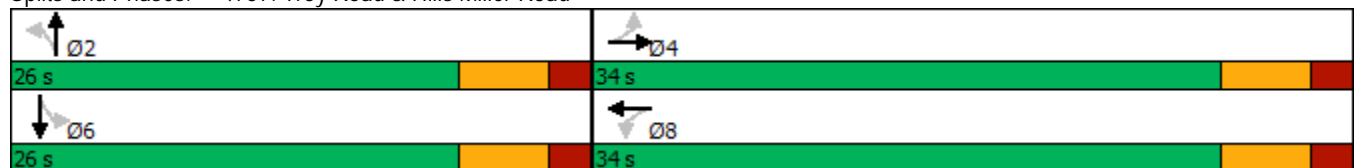
03/06/2023



Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	26	34	26	34
Maximum Split (%)	43.3%	56.7%	43.3%	56.7%
Minimum Split (s)	26	26	26	26
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	54	20	54
Yield/Force Off 170(s)	20	43	20	43
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	54	20	54
Local Yield 170(s)	20	43	20	43

Intersection Summary	
Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary
 4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	65	279	9	119	295	49	6	132	76	11	119	71
Future Volume (veh/h)	65	279	9	119	295	49	6	132	76	11	119	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	303	10	129	321	53	7	143	83	12	129	77
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	530	16	213	415	63	79	439	246	88	432	243
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	204	1442	44	335	1128	172	15	1112	623	32	1093	614
Grp Volume(v), veh/h	384	0	0	503	0	0	233	0	0	218	0	0
Grp Sat Flow(s),veh/h/ln	1689	0	0	1635	0	0	1750	0	0	1740	0	0
Q Serve(g_s), s	0.0	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	8.8	0.0	0.0	13.8	0.0	0.0	4.7	0.0	0.0	4.3	0.0	0.0
Prop In Lane	0.18		0.03	0.26		0.11	0.03		0.36	0.06		0.35
Lane Grp Cap(c), veh/h	706	0	0	691	0	0	765	0	0	763	0	0
V/C Ratio(X)	0.54	0.00	0.00	0.73	0.00	0.00	0.30	0.00	0.00	0.29	0.00	0.00
Avail Cap(c_a), veh/h	1004	0	0	977	0	0	765	0	0	763	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.3	0.0	0.0	10.7	0.0	0.0	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	1.7	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	0.0	4.6	0.0	0.0	1.6	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	0.0	15.9	0.0	0.0	10.9	0.0	0.0	10.8	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		384			503			233				218
Approach Delay, s/veh		13.4			15.9			10.9				10.8
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		24.6		26.0		24.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		28.0		20.0		28.0				
Max Q Clear Time (g_c+I1), s		6.7		10.8		6.3		15.8				
Green Ext Time (p_c), s		1.1		2.3		1.0		2.8				

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

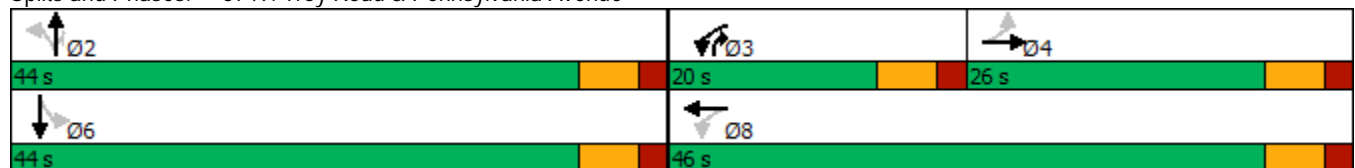


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	44	20	26	44	46
Maximum Split (%)	48.9%	22.2%	28.9%	48.9%	51.1%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	44	64	0	44
End Time (s)	44	64	0	44	0
Yield/Force Off (s)	38	58	84	38	84
Yield/Force Off 170(s)	38	58	73	38	73
Local Start Time (s)	0	44	64	0	44
Local Yield (s)	38	58	84	38	84
Local Yield 170(s)	38	58	73	38	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	65

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary

6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	6	56	0	180	27	43	3	110	267	91	189	5
Future Volume (veh/h)	6	56	0	180	27	43	3	110	267	91	189	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	61	0	196	29	47	3	120	290	99	205	5
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	291	0	657	258	418	72	695	790	226	426	9
Arrive On Green	0.17	0.17	0.00	0.12	0.40	0.40	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	76	1762	0	1781	642	1041	9	1857	1585	366	1139	25
Grp Volume(v), veh/h	68	0	0	196	0	76	123	0	290	309	0	0
Grp Sat Flow(s),veh/h/ln	1839	0	0	1781	0	1683	1865	0	1585	1530	0	0
Q Serve(g_s), s	0.0	0.0	0.0	4.5	0.0	1.5	0.0	0.0	6.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	0.0	4.5	0.0	1.5	2.4	0.0	6.0	7.6	0.0	0.0
Prop In Lane	0.10		0.00	1.00		0.62	0.02		1.00	0.32		0.02
Lane Grp Cap(c), veh/h	378	0	0	657	0	675	767	0	790	662	0	0
V/C Ratio(X)	0.18	0.00	0.00	0.30	0.00	0.11	0.16	0.00	0.37	0.47	0.00	0.00
Avail Cap(c_a), veh/h	753	0	0	903	0	1260	1388	0	1323	1147	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	19.3	0.0	0.0	13.6	0.0	10.0	11.2	0.0	8.2	12.6	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.3	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	1.6	0.0	0.5	0.9	0.0	1.7	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.0	0.0	13.9	0.0	10.1	11.3	0.0	8.5	13.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	B	B	A	A	B	A	A
Approach Vol, veh/h		68			272			413			309	
Approach Delay, s/veh		19.6			12.8			9.3			13.2	
Approach LOS		B			B			A			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		26.0	12.6	14.8		26.0		27.4				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		38.0	14.0	20.0		38.0		40.0				
Max Q Clear Time (g_c+I1), s		8.0	6.5	3.7		9.6		3.5				
Green Ext Time (p_c), s		1.8	0.3	0.2		2.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				12.0								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

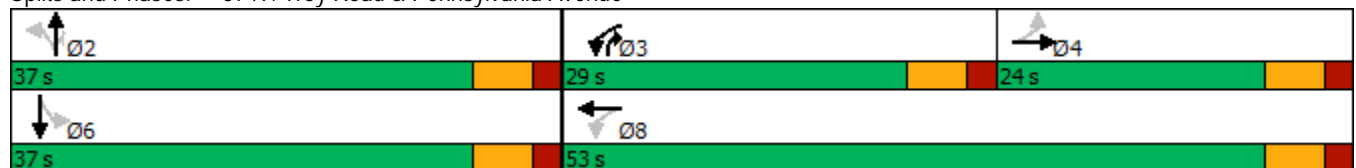


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	37	29	24	37	53
Maximum Split (%)	41.1%	32.2%	26.7%	41.1%	58.9%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	37	66	0	37
End Time (s)	37	66	0	37	0
Yield/Force Off (s)	31	60	84	31	84
Yield/Force Off 170(s)	31	60	73	31	73
Local Start Time (s)	0	37	66	0	37
Local Yield (s)	31	60	84	31	84
Local Yield 170(s)	31	60	73	31	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	70

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	8	56	2	566	48	135	3	271	698	91	190	6
Future Volume (veh/h)	8	56	2	566	48	135	3	271	698	91	190	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	61	2	615	52	147	3	295	759	99	207	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	205	6	804	209	591	47	682	1033	140	267	8
Arrive On Green	0.12	0.12	0.12	0.29	0.49	0.49	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	102	1650	50	1781	431	1219	4	1865	1585	221	730	22
Grp Volume(v), veh/h	72	0	0	615	0	199	298	0	759	313	0	0
Grp Sat Flow(s),veh/h/ln	1802	0	0	1781	0	1651	1869	0	1585	973	0	0
Q Serve(g_s), s	0.0	0.0	0.0	23.0	0.0	5.7	0.0	0.0	25.7	15.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	23.0	0.0	5.7	9.7	0.0	25.7	24.7	0.0	0.0
Prop In Lane	0.12		0.03	1.00		0.74	0.01		1.00	0.32		0.02
Lane Grp Cap(c), veh/h	274	0	0	804	0	801	728	0	1033	415	0	0
V/C Ratio(X)	0.26	0.00	0.00	0.76	0.00	0.25	0.41	0.00	0.73	0.75	0.00	0.00
Avail Cap(c_a), veh/h	447	0	0	804	0	966	766	0	1065	436	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.1	0.0	0.0	19.6	0.0	12.1	19.2	0.0	9.3	23.8	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	4.4	0.0	0.2	0.4	0.0	2.6	7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	10.1	0.0	2.0	4.1	0.0	7.8	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	0.0	0.0	24.0	0.0	12.3	19.6	0.0	11.9	30.7	0.0	0.0
LnGrp LOS	C	A	A	C	A	B	B	A	B	C	A	A
Approach Vol, veh/h		72			814			1057				313
Approach Delay, s/veh		32.6			21.1			14.1				30.7
Approach LOS		C			C			B				C
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		35.4	29.0	16.0		35.4		45.0				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		31.0	23.0	18.0		31.0		47.0				
Max Q Clear Time (g_c+I1), s		27.7	25.0	4.8		26.7		7.7				
Green Ext Time (p_c), s		1.7	0.0	0.2		1.0		1.3				
Intersection Summary												
HCM 6th Ctrl Delay				19.5								
HCM 6th LOS				B								

Timing Report, Sorted By Phase

4757: Troy Road & Hills Miller Road

03/06/2023

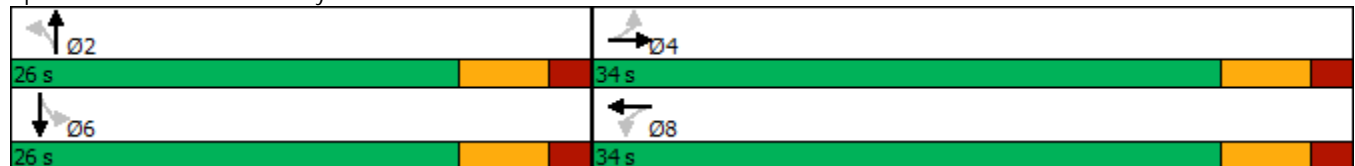


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	26	34	26	34
Maximum Split (%)	43.3%	56.7%	43.3%	56.7%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	54	20	54
Yield/Force Off 170(s)	20	43	20	43
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	54	20	54
Local Yield 170(s)	20	43	20	43

Intersection Summary

Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary
 4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	196	306	10	89	238	24	10	79	96	36	94	75
Future Volume (veh/h)	196	306	10	89	238	24	10	79	96	36	94	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	333	11	97	259	26	11	86	104	39	102	82
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	306	398	12	200	493	45	80	284	317	137	320	221
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.36	0.36	0.36	0.36	0.36	0.36
Sat Flow, veh/h	513	943	29	281	1169	106	31	787	877	168	885	612
Grp Volume(v), veh/h	557	0	0	382	0	0	201	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1485	0	0	1556	0	0	1695	0	0	1665	0	0
Q Serve(g_s), s	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	19.1	0.0	0.0	9.4	0.0	0.0	4.7	0.0	0.0	5.1	0.0	0.0
Prop In Lane	0.38		0.02	0.25		0.07	0.05		0.52	0.17		0.37
Lane Grp Cap(c), veh/h	716	0	0	738	0	0	681	0	0	678	0	0
V/C Ratio(X)	0.78	0.00	0.00	0.52	0.00	0.00	0.30	0.00	0.00	0.33	0.00	0.00
Avail Cap(c_a), veh/h	840	0	0	868	0	0	681	0	0	678	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	0.0	0.0	11.8	0.0	0.0	12.8	0.0	0.0	12.9	0.0	0.0
Incr Delay (d2), s/veh	4.0	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	0.0	0.0	3.0	0.0	0.0	1.6	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	0.0	12.3	0.0	0.0	13.0	0.0	0.0	13.2	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		557			382			201				223
Approach Delay, s/veh		18.6			12.3			13.0				13.2
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		29.3		26.0		29.3				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		28.0		20.0		28.0				
Max Q Clear Time (g_c+I1), s		6.7		21.1		7.1		11.4				
Green Ext Time (p_c), s		0.9		2.2		1.0		2.3				
Intersection Summary												
HCM 6th Ctrl Delay				15.1								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

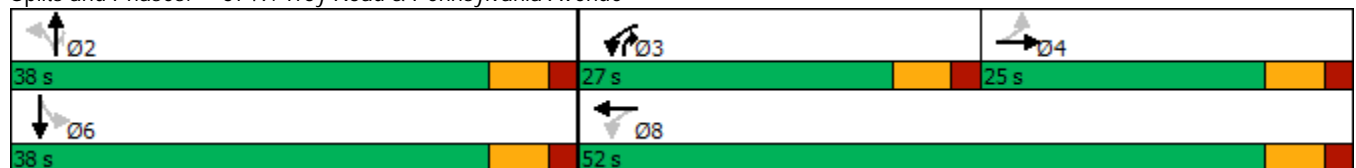


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	38	27	25	38	52
Maximum Split (%)	42.2%	30.0%	27.8%	42.2%	57.8%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	38	65	0	38
End Time (s)	38	65	0	38	0
Yield/Force Off (s)	32	59	84	32	84
Yield/Force Off 170(s)	32	59	73	32	73
Local Start Time (s)	0	38	65	0	38
Local Yield (s)	32	59	84	32	84
Local Yield 170(s)	32	59	73	32	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	65

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	6	56	0	306	27	19	3	110	341	81	189	5
Future Volume (veh/h)	6	56	0	306	27	19	3	110	341	81	189	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	7	61	0	333	29	21	3	120	371	88	205	5
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	81	260	0	738	447	324	67	646	855	193	409	9
Arrive On Green	0.15	0.15	0.00	0.19	0.44	0.44	0.35	0.35	0.35	0.35	0.35	0.35
Sat Flow, veh/h	80	1760	0	1781	1009	730	9	1856	1585	322	1175	26
Grp Volume(v), veh/h	68	0	0	333	0	50	123	0	371	298	0	0
Grp Sat Flow(s),veh/h/ln	1840	0	0	1781	0	1739	1865	0	1585	1523	0	0
Q Serve(g_s), s	0.0	0.0	0.0	8.3	0.0	0.9	0.0	0.0	8.1	3.5	0.0	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	8.3	0.0	0.9	2.6	0.0	8.1	8.1	0.0	0.0
Prop In Lane	0.10		0.00	1.00		0.42	0.02		1.00	0.30		0.02
Lane Grp Cap(c), veh/h	341	0	0	738	0	771	713	0	855	611	0	0
V/C Ratio(X)	0.20	0.00	0.00	0.45	0.00	0.06	0.17	0.00	0.43	0.49	0.00	0.00
Avail Cap(c_a), veh/h	670	0	0	1048	0	1392	1098	0	1186	907	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.7	0.0	0.0	13.9	0.0	9.2	13.1	0.0	8.0	14.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.3	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	3.0	0.0	0.3	1.0	0.0	2.2	2.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	0.0	14.3	0.0	9.2	13.2	0.0	8.3	15.3	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		68			383			494			298	
Approach Delay, s/veh		22.0			13.6			9.5			15.3	
Approach LOS		C			B			A			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		26.0	17.0	14.5		26.0		31.5				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		32.0	21.0	19.0		32.0		46.0				
Max Q Clear Time (g_c+I1), s		10.1	10.3	3.8		10.1		2.9				
Green Ext Time (p_c), s		2.0	0.8	0.2		2.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				12.8								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 4757: Troy Road & Hills Miller Road

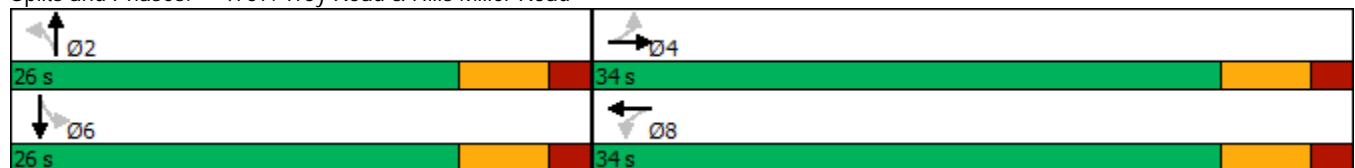
03/06/2023



Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	26	34	26	34
Maximum Split (%)	43.3%	56.7%	43.3%	56.7%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	54	20	54
Yield/Force Off 170(s)	20	43	20	43
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	54	20	54
Local Yield 170(s)	20	43	20	43

Intersection Summary	
Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary
 4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	65	354	10	119	350	49	10	132	76	11	119	71
Future Volume (veh/h)	65	354	10	119	350	49	10	132	76	11	119	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	385	11	129	380	53	11	143	83	12	129	77
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	597	16	199	467	61	80	410	227	83	405	228
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	164	1468	39	288	1149	150	27	1106	611	33	1092	614
Grp Volume(v), veh/h	467	0	0	562	0	0	237	0	0	218	0	0
Grp Sat Flow(s),veh/h/ln	1671	0	0	1586	0	0	1744	0	0	1739	0	0
Q Serve(g_s), s	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	0.0	17.3	0.0	0.0	5.3	0.0	0.0	4.8	0.0	0.0
Prop In Lane	0.15		0.02	0.23		0.09	0.05		0.35	0.06		0.35
Lane Grp Cap(c), veh/h	756	0	0	727	0	0	717	0	0	715	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.77	0.00	0.00	0.33	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	940	0	0	899	0	0	717	0	0	715	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	12.8	0.0	0.0	14.4	0.0	0.0	12.3	0.0	0.0	12.2	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.0	3.4	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	5.8	0.0	0.0	1.8	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	0.0	17.7	0.0	0.0	12.6	0.0	0.0	12.4	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		467			562			237				218
Approach Delay, s/veh		13.6			17.7			12.6				12.4
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		27.9		26.0		27.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		28.0		20.0		28.0				
Max Q Clear Time (g_c+I1), s		7.3		13.7		6.8		19.3				
Green Ext Time (p_c), s		1.1		2.7		1.0		2.6				

Intersection Summary

HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

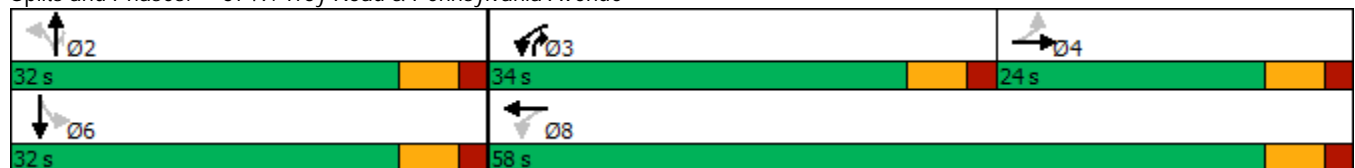


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	32	34	24	32	58
Maximum Split (%)	35.6%	37.8%	26.7%	35.6%	64.4%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	32	66	0	32
End Time (s)	32	66	0	32	0
Yield/Force Off (s)	26	60	84	26	84
Yield/Force Off 170(s)	26	60	73	26	73
Local Start Time (s)	0	32	66	0	32
Local Yield (s)	26	60	84	26	84
Local Yield 170(s)	26	60	73	26	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	80

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
 6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	8	56	2	662	48	115	3	271	837	66	190	6
Future Volume (veh/h)	8	56	2	662	48	115	3	271	837	66	190	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	9	61	2	720	52	125	3	295	910	72	207	7
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	201	6	896	261	629	46	591	1044	105	273	8
Arrive On Green	0.12	0.12	0.12	0.34	0.54	0.54	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	103	1652	50	1781	488	1172	4	1865	1585	158	859	26
Grp Volume(v), veh/h	72	0	0	720	0	177	298	0	910	286	0	0
Grp Sat Flow(s),veh/h/ln	1805	0	0	1781	0	1659	1868	0	1585	1042	0	0
Q Serve(g_s), s	0.0	0.0	0.0	28.0	0.0	4.5	0.0	0.0	26.0	10.7	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	0.0	28.0	0.0	4.5	10.6	0.0	26.0	21.3	0.0	0.0
Prop In Lane	0.12		0.03	1.00		0.71	0.01		1.00	0.25		0.02
Lane Grp Cap(c), veh/h	269	0	0	896	0	890	637	0	1044	386	0	0
V/C Ratio(X)	0.27	0.00	0.00	0.80	0.00	0.20	0.47	0.00	0.87	0.74	0.00	0.00
Avail Cap(c_a), veh/h	440	0	0	896	0	1053	637	0	1044	386	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.9	0.0	0.0	18.1	0.0	9.9	22.7	0.0	11.2	25.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	5.4	0.0	0.1	0.5	0.0	8.2	7.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	11.9	0.0	1.5	4.6	0.0	12.8	5.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	0.0	0.0	23.4	0.0	10.0	23.3	0.0	19.4	32.8	0.0	0.0
LnGrp LOS	C	A	A	C	A	A	C	A	B	C	A	A
Approach Vol, veh/h		72			897			1208				286
Approach Delay, s/veh		33.4			20.8			20.3				32.8
Approach LOS		C			C			C				C
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		32.0	34.0	16.0		32.0		50.0				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		26.0	28.0	18.0		26.0		52.0				
Max Q Clear Time (g_c+I1), s		28.0	30.0	4.9		23.3		6.5				
Green Ext Time (p_c), s		0.0	0.0	0.2		0.6		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				22.3								
HCM 6th LOS				C								

Timing Report, Sorted By Phase

4757: Troy Road & Hills Miller Road

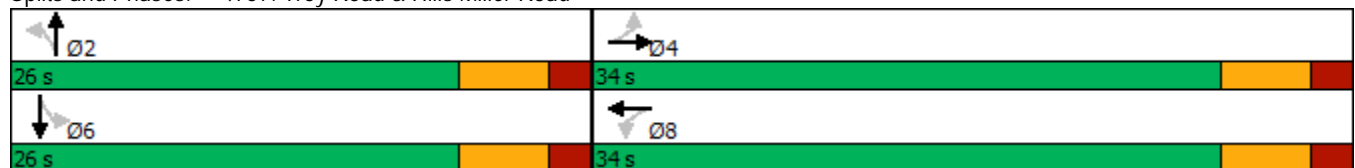
03/06/2023



Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Min	None	Min	None
Maximum Split (s)	26	34	26	34
Maximum Split (%)	43.3%	56.7%	43.3%	56.7%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	54	20	54
Yield/Force Off 170(s)	20	43	20	43
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	54	20	54
Local Yield 170(s)	20	43	20	43

Intersection Summary	
Cycle Length	60
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary
 4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	196	286	7	86	252	24	16	79	85	36	94	75
Future Volume (veh/h)	196	286	7	86	252	24	16	79	85	36	94	75
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	311	8	93	274	26	17	86	92	39	102	82
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	310	376	9	192	507	44	93	306	292	139	324	224
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	525	908	22	266	1224	106	59	836	799	168	886	613
Grp Volume(v), veh/h	532	0	0	393	0	0	195	0	0	223	0	0
Grp Sat Flow(s),veh/h/ln	1455	0	0	1596	0	0	1694	0	0	1667	0	0
Q Serve(g_s), s	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	18.4	0.0	0.0	9.6	0.0	0.0	4.4	0.0	0.0	5.0	0.0	0.0
Prop In Lane	0.40		0.02	0.24		0.07	0.09		0.47	0.17		0.37
Lane Grp Cap(c), veh/h	695	0	0	743	0	0	692	0	0	688	0	0
V/C Ratio(X)	0.77	0.00	0.00	0.53	0.00	0.00	0.28	0.00	0.00	0.32	0.00	0.00
Avail Cap(c_a), veh/h	837	0	0	897	0	0	692	0	0	688	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	14.6	0.0	0.0	12.0	0.0	0.0	12.4	0.0	0.0	12.6	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	0.0	0.6	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	0.0	0.0	3.1	0.0	0.0	1.5	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	0.0	12.6	0.0	0.0	12.6	0.0	0.0	12.9	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		532			393			195				223
Approach Delay, s/veh		18.1			12.6			12.6				12.9
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		28.6		26.0		28.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		28.0		20.0		28.0				
Max Q Clear Time (g_c+I1), s		6.4		20.4		7.0		11.6				
Green Ext Time (p_c), s		0.9		2.3		1.0		2.4				
Intersection Summary												
HCM 6th Ctrl Delay				14.8								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

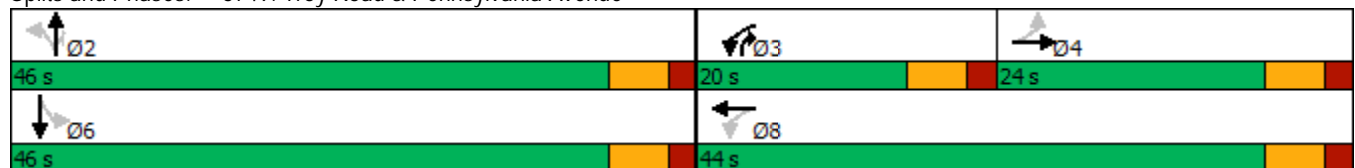


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	46	20	24	46	44
Maximum Split (%)	51.1%	22.2%	26.7%	51.1%	48.9%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	46	66	0	46
End Time (s)	46	66	0	46	0
Yield/Force Off (s)	40	60	84	40	84
Yield/Force Off 170(s)	40	60	73	40	73
Local Start Time (s)	0	46	66	0	46
Local Yield (s)	40	60	84	40	84
Local Yield 170(s)	40	60	73	40	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	65

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
6749: Troy Road & Pennsylvania Avenue

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	7	56	0	234	25	19	3	183	272	81	264	7
Future Volume (veh/h)	7	56	0	234	25	19	3	183	272	81	264	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	8	61	0	254	27	21	3	199	296	88	287	8
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	88	265	0	684	402	313	69	683	820	175	478	12
Arrive On Green	0.15	0.15	0.00	0.15	0.41	0.41	0.37	0.37	0.37	0.37	0.37	0.37
Sat Flow, veh/h	92	1743	0	1781	975	759	5	1861	1585	255	1302	33
Grp Volume(v), veh/h	69	0	0	254	0	48	202	0	296	383	0	0
Grp Sat Flow(s),veh/h/ln	1835	0	0	1781	0	1734	1867	0	1585	1590	0	0
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.9	0.0	0.0	6.0	5.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	6.0	0.0	0.9	4.2	0.0	6.0	10.2	0.0	0.0
Prop In Lane	0.12		0.00	1.00		0.44	0.01		1.00	0.23		0.02
Lane Grp Cap(c), veh/h	353	0	0	684	0	716	752	0	820	665	0	0
V/C Ratio(X)	0.20	0.00	0.00	0.37	0.00	0.07	0.27	0.00	0.36	0.58	0.00	0.00
Avail Cap(c_a), veh/h	672	0	0	874	0	1209	1431	0	1402	1214	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.3	0.0	0.0	13.9	0.0	9.7	12.2	0.0	7.8	13.9	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.3	0.0	0.0	0.2	0.0	0.3	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	2.2	0.0	0.3	1.6	0.0	1.7	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	0.0	0.0	14.2	0.0	9.7	12.4	0.0	8.1	14.7	0.0	0.0
LnGrp LOS	C	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		69			302			498			383	
Approach Delay, s/veh		20.6			13.5			9.8			14.7	
Approach LOS		C			B			A			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		26.0	14.2	14.3		26.0		28.5				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		40.0	14.0	18.0		40.0		38.0				
Max Q Clear Time (g_c+I1), s		8.0	8.0	3.8		12.2		2.9				
Green Ext Time (p_c), s		2.3	0.4	0.2		2.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				12.8								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 4757: Troy Road & Hills Miller Road

03/06/2023

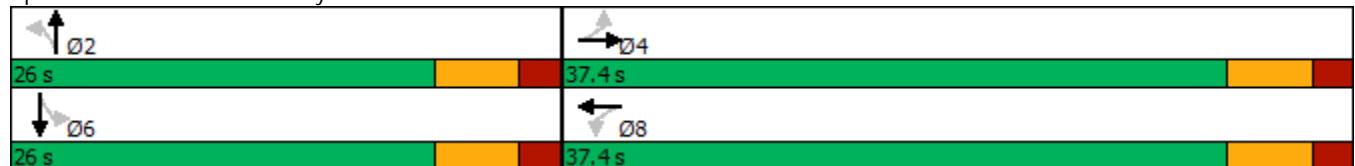


Phase Number	2	4	6	8
Movement	NBTL	EBTL	SBTL	WBTL
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	None
Maximum Split (s)	26	37.4	26	37.4
Maximum Split (%)	41.0%	59.0%	41.0%	59.0%
Minimum Split (s)	26	24	26	24
Yellow Time (s)	4	4	4	4
All-Red Time (s)	2	2	2	2
Minimum Initial (s)	20	10	20	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)	7	7	7	7
Flash Dont Walk (s)	11	11	11	11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	26	0	26
End Time (s)	26	0	26	0
Yield/Force Off (s)	20	57.4	20	57.4
Yield/Force Off 170(s)	9	46.4	9	46.4
Local Start Time (s)	0	26	0	26
Local Yield (s)	20	57.4	20	57.4
Local Yield 170(s)	9	46.4	9	46.4

Intersection Summary

Cycle Length	63.4
Control Type	Semi Act-Uncoord
Natural Cycle	60

Splits and Phases: 4757: Troy Road & Hills Miller Road



HCM 6th Signalized Intersection Summary

4757: Troy Road & Hills Miller Road

03/06/2023



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	65	345	21	109	330	49	13	132	71	11	119	71
Future Volume (veh/h)	65	345	21	109	330	49	13	132	71	11	119	71
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	71	375	23	118	359	53	14	143	77	12	129	77
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	144	567	33	191	459	63	87	430	218	84	414	233
Arrive On Green	0.39	0.39	0.39	0.39	0.39	0.39	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	167	1441	83	274	1167	160	38	1132	574	33	1092	614
Grp Volume(v), veh/h	469	0	0	530	0	0	234	0	0	218	0	0
Grp Sat Flow(s),veh/h/ln	1691	0	0	1601	0	0	1745	0	0	1740	0	0
Q Serve(g_s), s	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	11.8	0.0	0.0	15.5	0.0	0.0	5.0	0.0	0.0	4.6	0.0	0.0
Prop In Lane	0.15		0.05	0.22		0.10	0.06		0.33	0.06		0.35
Lane Grp Cap(c), veh/h	743	0	0	713	0	0	734	0	0	732	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.74	0.00	0.00	0.32	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	1073	0	0	1024	0	0	734	0	0	732	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.1	0.0	0.0	14.2	0.0	0.0	11.7	0.0	0.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.0	1.8	0.0	0.0	1.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	0.0	5.0	0.0	0.0	1.9	0.0	0.0	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	0.0	15.9	0.0	0.0	12.9	0.0	0.0	12.6	0.0	0.0
LnGrp LOS	B	A	A	B	A	A	B	A	A	B	A	A
Approach Vol, veh/h		469			530			234				218
Approach Delay, s/veh		14.0			15.9			12.9				12.6
Approach LOS		B			B			B				B
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		26.0		26.7		26.0		26.7				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		20.0		31.4		20.0		31.4				
Max Q Clear Time (g_c+I1), s		7.0		13.8		6.6		17.5				
Green Ext Time (p_c), s		1.1		3.0		1.0		3.2				
Intersection Summary												
HCM 6th Ctrl Delay				14.3								
HCM 6th LOS				B								

Timing Report, Sorted By Phase
 6749: Troy Road & Pennsylvania Avenue

03/06/2023

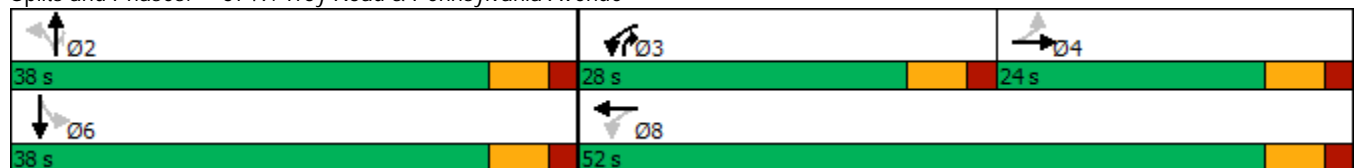


Phase Number	2	3	4	6	8
Movement	NBTL	WBL	EBTL	SBTL	WBTL
Lead/Lag		Lead	Lag		
Lead-Lag Optimize		Yes	Yes		
Recall Mode	Min	None	None	Min	None
Maximum Split (s)	38	28	24	38	52
Maximum Split (%)	42.2%	31.1%	26.7%	42.2%	57.8%
Minimum Split (s)	26	13	24	26	24
Yellow Time (s)	4	4	4	4	4
All-Red Time (s)	2	2	2	2	2
Minimum Initial (s)	20	7	10	20	10
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	7		7	7	7
Flash Dont Walk (s)	11		11	11	11
Dual Entry	Yes	No	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	38	66	0	38
End Time (s)	38	66	0	38	0
Yield/Force Off (s)	32	60	84	32	84
Yield/Force Off 170(s)	32	60	73	32	73
Local Start Time (s)	0	38	66	0	38
Local Yield (s)	32	60	84	32	84
Local Yield 170(s)	32	60	73	32	73

Intersection Summary

Cycle Length	90
Control Type	Semi Act-Uncoord
Natural Cycle	90

Splits and Phases: 6749: Troy Road & Pennsylvania Avenue



HCM 6th Signalized Intersection Summary
6749: Troy Road & Pennsylvania Avenue

03/06/2023



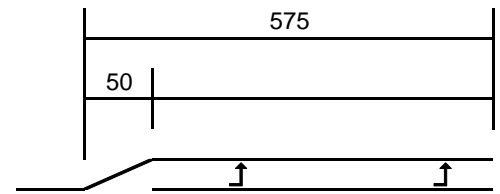
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕	↕		↕	
Traffic Volume (veh/h)	9	56	2	606	48	115	3	394	721	66	259	7
Future Volume (veh/h)	9	56	2	606	48	115	3	394	721	66	259	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	10	61	2	659	52	125	3	428	784	72	282	8
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	65	201	6	776	229	550	46	714	1037	99	351	9
Arrive On Green	0.12	0.12	0.12	0.27	0.47	0.47	0.38	0.38	0.38	0.38	0.38	0.38
Sat Flow, veh/h	115	1634	49	1781	488	1172	2	1867	1585	119	918	23
Grp Volume(v), veh/h	73	0	0	659	0	177	431	0	784	362	0	0
Grp Sat Flow(s),veh/h/ln	1798	0	0	1781	0	1659	1869	0	1585	1061	0	0
Q Serve(g_s), s	0.0	0.0	0.0	22.0	0.0	5.1	0.0	0.0	27.4	11.6	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	0.0	22.0	0.0	5.1	15.0	0.0	27.4	26.5	0.0	0.0
Prop In Lane	0.14		0.03	1.00		0.71	0.01		1.00	0.20		0.02
Lane Grp Cap(c), veh/h	272	0	0	776	0	779	760	0	1037	459	0	0
V/C Ratio(X)	0.27	0.00	0.00	0.85	0.00	0.23	0.57	0.00	0.76	0.79	0.00	0.00
Avail Cap(c_a), veh/h	444	0	0	776	0	943	784	0	1058	474	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.4	0.0	0.0	21.8	0.0	12.8	20.0	0.0	9.6	22.4	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	8.9	0.0	0.1	0.9	0.0	3.1	8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	12.5	0.0	1.8	6.3	0.0	8.4	7.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.9	0.0	0.0	30.7	0.0	12.9	21.0	0.0	12.7	30.9	0.0	0.0
LnGrp LOS	C	A	A	C	A	B	C	A	B	C	A	A
Approach Vol, veh/h		73			836			1215				362
Approach Delay, s/veh		32.9			26.9			15.6				30.9
Approach LOS		C			C			B				C
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		37.0	28.0	16.0		37.0		44.0				
Change Period (Y+Rc), s		6.0	6.0	6.0		6.0		6.0				
Max Green Setting (Gmax), s		32.0	22.0	18.0		32.0		46.0				
Max Q Clear Time (g_c+I1), s		29.4	24.0	4.9		28.5		7.1				
Green Ext Time (p_c), s		1.6	0.0	0.2		0.9		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				22.1								
HCM 6th LOS				C								

(6749) PENNSYLVANIA AVENUE & TROY ROAD - WB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 30 MPH
Cycle Length = 90 seconds
Turning Volume = 566 VPH
of Turning Lanes = 1
Advancing Volume = 749 VPH
Turning % (>10% HIGH) 75.6% HIGH
Design Condition = A
Vehicles per Cycle = 14.2
Storage Length (Calc) = 525 feet

Storage Length (Adj) = 525 feet
Deceleration/Div. Taper = 50 feet
Turn Lane Length = 575 feet



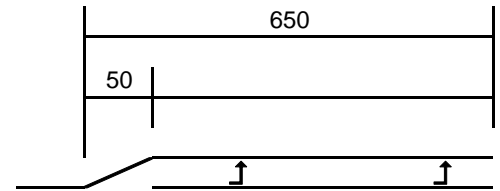
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(6749I-) PENNSYLVANIA AVENUE & TROY ROAD - WB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 30 MPH
Cycle Length = 90 seconds
Turning Volume = 662 VPH
of Turning Lanes = 1
Advancing Volume = 825 VPH
Turning % (>10% HIGH) 80.2% HIGH
Design Condition = A
Vehicles per Cycle = 16.6
Storage Length (Calc) = 600 feet

Storage Length (Adj) = 600 feet
Deceleration/Div. Taper = 50 feet
Turn Lane Length = 650 feet



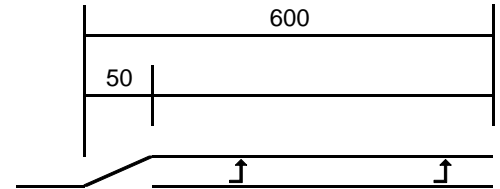
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(6749C-) PENNSYLVANIA AVENUE & TROY ROAD - WB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type = Unsignalized Through Road
Speed = 30 MPH
Cycle Length = 90 seconds
Turning Volume = 606 VPH
of Turning Lanes = 1
Advancing Volume = 769 VPH
Turning % (>10% HIGH) 78.8% HIGH
Design Condition = A
Vehicles per Cycle = 15.2
Storage Length (Calc) = 550 feet

Storage Length (Adj) = 550 feet
Deceleration/Div. Taper = 50 feet
Turn Lane Length = 600 feet



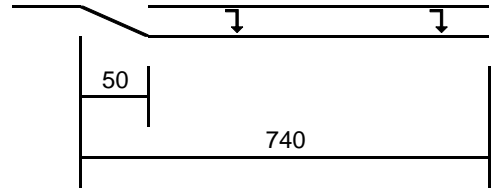
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(6749) PENNSYLVANIA AVENUE & TROY ROAD - NB RT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	625 feet
Cycle Length =	90 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	698 VPH	Turn Lane Length =	740 feet
# of Turning Lanes =	1		
Advancing Volume =	972 VPH		
Turning % (>10% HIGH)	71.8% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	17.45		
Storage Length (Calc) =	625 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

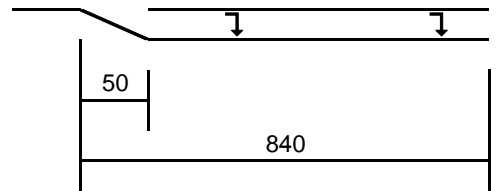


(6749I-) PENNSYLVANIA AVENUE & TROY ROAD - NB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	725 feet
Cycle Length =	90 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	837 VPH	Turn Lane Length =	840 feet
# of Turning Lanes =	1		
Advancing Volume =	1111 VPH		
Turning % (>10% HIGH)	75.3% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	20.93		
Storage Length (Calc) =	725 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

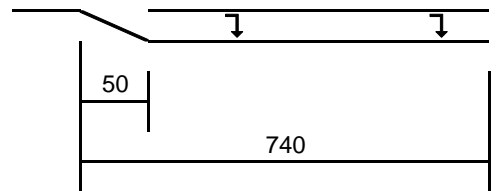


(6749C-) PENNSYLVANIA AVENUE & TROY ROAD - NB RT - 2044 COMPLETE NETWORK FULL 'BUILD'

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	625 feet
Cycle Length =	90 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	721 VPH	Turn Lane Length =	740 feet
# of Turning Lanes =	1		
Advancing Volume =	1118 VPH		
Turning % (>10% HIGH)	64.5% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	18.03		
Storage Length (Calc) =	625 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



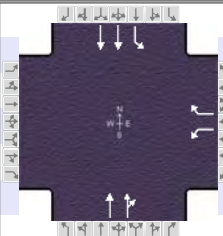
APPENDIX G

US 23 Intersections Analyses

1375 US 23 & Panhandle-Merrick

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Smart Services Inc.			Duration, h	0.250		
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other		
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92		
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45		
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...				
Project Description	1A-2044 Incomplete Network No Build AM Peak						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				189		211		1099	67	96	1505	

Signal Information													
Cycle, s	120.0	Reference Phase	2	Green	6.9	74.7	19.5	0.0	0.0	0.0	0.0	0.0	0.0
Offset, s	0	Reference Point	End	Yellow	4.3	4.3	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Red	2.0	2.4	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On										

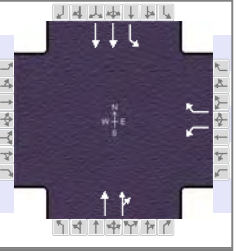
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				189		211		1099	67	96	1505	
Initial Queue (Q _b), veh/h				0		0		0	0	0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900		1900		1900	1900	1900	1900	
Parking (N _m), man/h					None			None			None	
Heavy Vehicles (P _{HV}), %				2		7		14		7	12	
Ped / Bike / RTOR, /h	0	0		0	0		0	0	0	0	0	
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3		3		3	3	3	3	
Upstream Filtering (I)				1.00		1.00		1.00	1.00	0.55	0.55	
Lane Width (W), ft				12.0		12.0		12.0		12.0	12.0	
Turn Bay Length, ft				0		0		0		0	0	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h				45		45		45	45	45	45	

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s			77.0	77.0		29.0	14.0	43.0
Yellow Change Interval (Y), s			3.6	4.0		4.3	4.3	4.3
Red Clearance Interval (R _c), s			2.7	2.0		2.4	2.0	2.4
Minimum Green (G _{min}), s			7	10		20	7	20
Start-Up Lost Time (l _t), s			2.0			2.0	2.0	2.0
Extension of Effective Green (e), s			2.0			2.0	2.0	2.0
Passage (PT), s			2.0	2.0		2.0	2.0	2.0
Recall Mode			Off	Off		Ped	Off	Off
Dual Entry			No	Yes		Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...		
Project Description	1A-2044 Incomplete Network No Build AM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h				189		211		1099	67	96	1505	

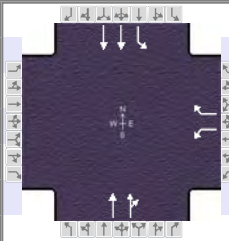
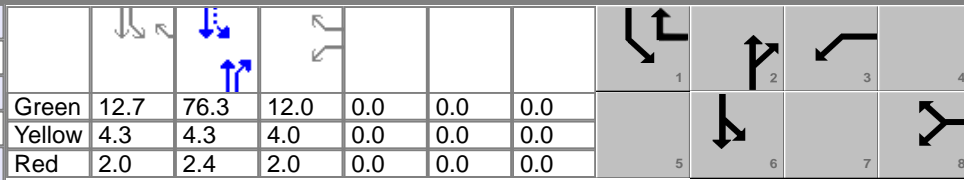
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	6.9	74.7	19.5	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	4.0	0.0	0.0	0.0			
				Red	2.0	2.4	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				25.5		81.4	13.2	94.5
Change Period, ($Y+R_c$), s				6.0		6.7	6.3	6.7
Max Allow Headway (MAH), s				3.1		0.0	3.0	0.0
Queue Clearance Time (g_s), s				18.6			4.7	
Green Extension Time (g_e), s				0.8		0.0	0.2	0.0
Phase Call Probability				1.00			0.98	
Max Out Probability				0.00			0.00	

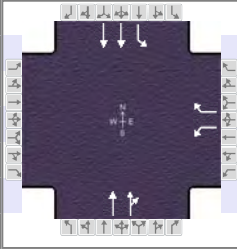
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1		6
Adjusted Flow Rate (v), veh/h				205		229		640	628	117		1837
Adjusted Saturation Flow Rate (s), veh/h/ln				1781		1522		1693	1658	1711		1639
Queue Service Time (g_s), s				13.1		16.6		59.4	27.6	2.7		44.8
Cycle Queue Clearance Time (g_c), s				13.1		16.6		59.4	27.6	2.7		44.8
Green Ratio (g/C)				0.16		0.22		0.62	0.62	0.70		0.73
Capacity (c), veh/h				289		334		1053	1032	211		2400
Volume-to-Capacity Ratio (X)				0.711		0.687		0.607	0.608	0.554		0.765
Back of Queue (Q), ft/ln (95 th percentile)				246		269.8		424.1	382.6	103.2		523.8
Back of Queue (Q), veh/ln (95 th percentile)				9.7		10.2		15.3	15.1	3.9		19.1
Queue Storage Ratio (RQ) (95 th percentile)				0.00		0.00		0.00	0.00	0.00		0.00
Uniform Delay (d_1), s/veh				47.6		43.1		13.8	13.8	27.9		12.3
Incremental Delay (d_2), s/veh				1.2		0.9		2.6	2.7	0.5		1.3
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0		0.0
Control Delay (d), s/veh				48.8		44.0		16.4	16.4	28.4		13.6
Level of Service (LOS)				D		D		B	B	C		B
Approach Delay, s/veh / LOS	0.0			46.3		D		16.4	B	14.5		B
Intersection Delay, s/veh / LOS				18.9						B		

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.32	B	1.88	B	0.66	A
Bicycle LOS Score / LOS				F	1.53	B	1.92	B

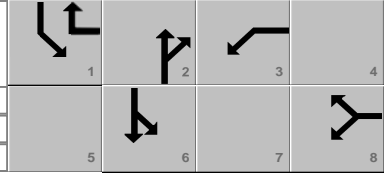
HCS Signalized Intersection Input Data

General Information						Intersection Information														
Agency	Smart Services Inc.					Duration, h	0.250													
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other													
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92													
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30													
Intersection	1375 US 23 & Panhandl...		File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...																
Project Description	1P-2044 Incomplete Network No Build PM Peak																			
Demand Information				EB			WB			NB			SB							
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R					
Demand (v), veh/h							145		177	1762	206	245	1551							
Signal Information										1		2		3		4				
Cycle, s	120.0	Reference Phase	2							Green	12.7	76.3	12.0	0.0	0.0	0.0				
Offset, s	0	Reference Point	End							Yellow	4.3	4.3	4.0	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On							Red	2.0	2.4	2.0	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On																	
Traffic Information				EB			WB			NB			SB							
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R					
Demand (v), veh/h							145		177	1762	206	245	1551							
Initial Queue (Q _b), veh/h							0		0	0	0	0	0							
Base Saturation Flow Rate (s ₀), veh/h							1900		1900	1900	1900	1900	1900							
Parking (N _m), man/h								None		None			None							
Heavy Vehicles (P _{HV}), %							3		3	10		2	13							
Ped / Bike / RTOR, /h				0	0		0	0		0	0	0	0							
Buses (N _b), buses/h							0	0	0	0	0	0	0	0						
Arrival Type (AT)							3		3	3	3	3	3							
Upstream Filtering (I)							1.00		1.00	1.00	1.00	0.53	0.53							
Lane Width (W), ft							12.0		12.0	12.0		12.0	12.0							
Turn Bay Length, ft							0		0	0		0	0							
Grade (P _g), %					0			0		0			0							
Speed Limit, mi/h							45		45	45	45	45	45							
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT									
Maximum Green (G _{max}) or Phase Split, s						18.0	18.0		83.0	19.0	102.0									
Yellow Change Interval (Y), s						3.6	4.0		4.3	4.3	4.3									
Red Clearance Interval (R _c), s						2.7	2.0		2.4	2.0	2.4									
Minimum Green (G _{min}), s						7	10		20	7	20									
Start-Up Lost Time (I _t), s						2.0			2.0	2.0	2.0									
Extension of Effective Green (e), s						2.0			2.0	2.0	2.0									
Passage (P _T), s						2.0	2.0		2.0	2.0	2.0									
Recall Mode						Off	Off		Ped	Off	Off									
Dual Entry						No	Yes		Yes	No	Yes									
Walk (Walk), s					0.0		0.0		0.0											
Pedestrian Clearance Time (P _C), s					0.0		0.0		0.0											
Multimodal Information				EB			WB			NB			SB							
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0								
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0								
Street Width / Island / Curb, ft					0		0.0	0	No	0.0	0	No	0.0		No					
Width Outside / Bike Lane / Shoulder, ft							12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0					
Pedestrian Signal / Occupied Parking				No			No	0.50		No	0.50			0.50						

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	1375 US 23 & Panhandl...	File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...			
Project Description	1P-2044 Incomplete Network No Build PM Peak					

Demand Information	EB			WB			NB			SB			
	L	T	R	L	T	R	L	T	R	L	T	R	
Approach Movement													
Demand (v), veh/h				145		177			1762	206	245	1551	

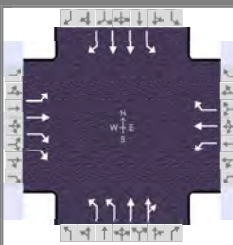
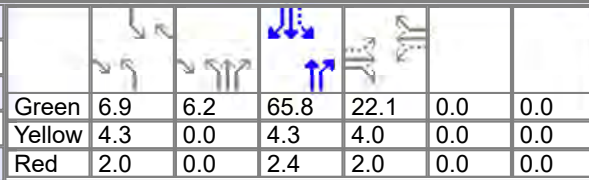
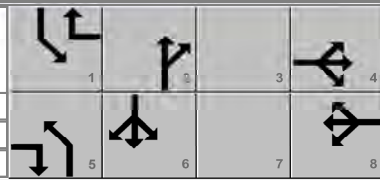
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End	Green	12.7	76.3	12.0	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	4.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.4	2.0	0.0	0.0	0.0			

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		2	1	6
Case Number				9.0		8.3	1.0	4.0
Phase Duration, s				18.0		83.0	19.0	102.0
Change Period, ($Y+R_c$), s				6.0		6.7	6.3	6.7
Max Allow Headway (MAH), s				3.2		0.0	3.0	0.0
Queue Clearance Time (g_s), s				14.0			14.7	
Green Extension Time (g_e), s				0.0		0.0	0.0	0.0
Phase Call Probability				1.00			1.00	
Max Out Probability				1.00			1.00	

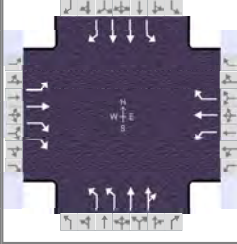
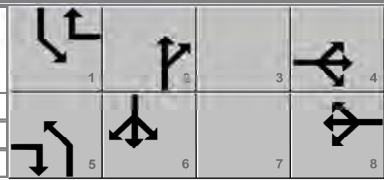
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement				3		18		2	12	1		6
Adjusted Flow Rate (v), veh/h				158		192		1070	1070	270		1708
Adjusted Saturation Flow Rate (s), veh/h/ln				1767		1572		1752	1688	1781		1625
Queue Service Time (g_s), s				10.6		12.0		71.5	75.6	12.7		33.3
Cycle Queue Clearance Time (g_c), s				10.6		12.0		71.5	75.6	12.7		33.3
Green Ratio (g/C)				0.10		0.21		0.64	0.64	0.76		0.79
Capacity (c), veh/h				177		324		1114	1073	250		2582
Volume-to-Capacity Ratio (X)				0.892		0.594		0.960	0.996	1.080		0.661
Back of Queue (Q), ft/ln (95 th percentile)				271.2		229.1		1033.7	1077	431.1		378.1
Back of Queue (Q), veh/ln (95 th percentile)				10.6		9.0		38.3	42.4	17.0		13.7
Queue Storage Ratio (RQ) (95 th percentile)				0.00		0.00		0.00	0.00	0.00		0.00
Uniform Delay (d_1), s/veh				53.4		43.1		20.4	21.7	47.7		8.0
Incremental Delay (d_2), s/veh				37.9		2.0		18.9	26.6	64.8		0.7
Initial Queue Delay (d_3), s/veh				0.0		0.0		0.0	0.0	0.0		0.0
Control Delay (d), s/veh				91.2		45.2		39.4	48.3	112.5		8.7
Level of Service (LOS)				F		D		D	D	F		A
Approach Delay, s/veh / LOS	0.0			65.9	E		43.9	D		22.8		C
Intersection Delay, s/veh / LOS	36.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.15	B	2.32	B	1.88	B	0.64	A
Bicycle LOS Score / LOS				F	2.25	B	2.10	B

HCS Signalized Intersection Input Data

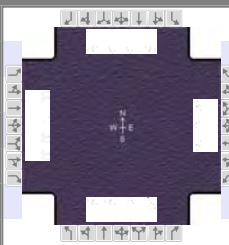
General Information						Intersection Information									
Agency	Smart Services Inc.					Duration, h	0.250								
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other								
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92								
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45								
Intersection	1375-US 23 & Panhandl...		File Name	US 23 (2A) - 2044 Incomplete Ntwk Build - AM Pe...											
Project Description	2A-2044 Incomplete Network Build AM Peak														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				135	29	438	189	17	211	294	993	67	96	1361	145
Signal Information															
Cycle, s	120.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
Green				6.9	6.2	65.8	22.1	0.0	0.0						
Yellow				4.3	0.0	4.3	4.0	0.0	0.0						
Red				2.0	0.0	2.4	2.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				135	29	438	189	17	211	294	993	67	96	1361	145
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h				None			None			None			None		
Heavy Vehicles (P _{HV}), %				2	2	2	2	2	7	2	14		7	12	2
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.55	0.55	0.55
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft				0	0	0	0	0	0	0	0		0	0	0
Grade (P _g), %				0			0			0			0		
Speed Limit, mi/h				35	35	35	45	45	45	45	45	45	45	45	45
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					30.0		30.0	20.0	70.0	20.0	70.0				
Yellow Change Interval (Y), s					4.0		4.0	4.3	4.3	4.3	4.3				
Red Clearance Interval (R _c), s					2.0		2.0	2.0	2.4	2.0	2.4				
Minimum Green (G _{min}), s					10		10	7	20	7	20				
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Passage (P _T), s					2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0		
Recall Mode					Off		Off	Off	Ped	Off	Off				
Dual Entry					Yes		Yes	No	Yes	No	Yes				
Walk (Walk), s					0.0		0.0		0.0		0.0		0.0		
Pedestrian Clearance Time (P _C), s					0.0		0.0		0.0		0.0		0.0		
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency	Smart Services Inc.					Duration, h	0.250														
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other														
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92														
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45														
Intersection	1375-US 23 & Panhandl...		File Name	US 23 (2A) - 2044 Incomplete Ntwk Build - AM Pe...																	
Project Description	2A-2044 Incomplete Network Build AM Peak																				
Demand Information						EB			WB			NB				SB					
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h						135	29	438	189	17	211	294	993	67	96	1361	145				
Signal Information																					
Cycle, s	120.0	Reference Phase	2																		
Offset, s	0	Reference Point	End																		
Uncoordinated	No	Simult. Gap E/W	On			Green	6.9	6.2	65.8	22.1	0.0	0.0									
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	4.3	0.0	4.3	4.0	0.0	0.0									
						Red	2.0	0.0	2.4	2.0	0.0	0.0									
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase								4				8		5		2		1		6	
Case Number								5.0				5.0		2.0		4.0		1.1		3.0	
Phase Duration, s								28.1				28.1		19.4		78.7		13.2		72.5	
Change Period, (Y+R _c), s								6.0				6.0		6.3		6.7		6.3		6.7	
Max Allow Headway (MAH), s								3.2				3.2		3.0		0.0		3.0		0.0	
Queue Clearance Time (g _s), s								19.3				21.1		12.9				5.5			
Green Extension Time (g _e), s								1.4				1.0		0.2		0.0		0.1		0.0	
Phase Call Probability								1.00				1.00		1.00				0.98			
Max Out Probability								0.64				1.00		1.00				0.00			
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14	3	8	18	5	2	12	1	6	16				
Adjusted Flow Rate (v), veh/h						147	32	476	205	18	229	320	582	570	117	1661	177				
Adjusted Saturation Flow Rate (s), veh/h/ln						1394	1870	1403	1378	1870	1522	1730	1693	1654	1711	1639	1585				
Queue Service Time (g _s), s						11.6	1.7	17.3	17.4	1.0	16.1	10.9	25.2	25.2	3.5	52.3	4.5				
Cycle Queue Clearance Time (g _c), s						12.6	1.7	17.3	19.1	1.0	16.1	10.9	25.2	25.2	3.5	52.3	4.5				
Green Ratio (g/C)						0.18	0.18	0.29	0.18	0.18	0.24	0.11	0.60	0.60	0.61	0.55	0.55				
Capacity (c), veh/h						306	345	824	295	345	368	377	1016	993	333	1797	869				
Volume-to-Capacity Ratio (X)						0.480	0.091	0.578	0.697	0.054	0.623	0.847	0.574	0.574	0.352	0.924	0.204				
Back of Queue (Q), ft/ln (95 th percentile)						184.3	35.5	251.5	261.5	20.3	266.4	225.9	398.8	358.4	56.6	550	66.7				
Back of Queue (Q), veh/ln (95 th percentile)						7.3	1.4	9.9	10.3	0.8	10.1	8.9	14.3	14.1	2.1	20.1	2.6				
Queue Storage Ratio (RQ) (95 th percentile)						0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
Uniform Delay (d ₁), s/veh						45.5	40.6	36.1	48.5	40.3	40.6	52.5	14.6	14.6	12.2	16.9	8.4				
Incremental Delay (d ₂), s/veh						0.4	0.0	0.5	4.8	0.0	1.9	10.7	2.4	2.4	0.1	5.8	0.3				
Initial Queue Delay (d ₃), s/veh						0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
Control Delay (d), s/veh						45.9	40.6	36.6	53.3	40.3	42.5	63.2	17.0	17.1	12.4	22.7	8.7				
Level of Service (LOS)						D	D	D	D	D	D	E	B	B	B	C	A				
Approach Delay, s/veh / LOS						38.9		D	47.3		D	27.0		C	20.8		C				
Intersection Delay, s/veh / LOS						28.1						C									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.46		B	2.46		B	2.08		B	2.41		B				
Bicycle LOS Score / LOS						1.57		B	1.24		A	1.70		B	1.92		B				

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Smart Services Inc.			Duration, h	0.250		
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other		
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92		
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30		
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (2P) - 2044 Incomplete Ntwk Build - PM Pe...				
Project Description	2P-2044 Incomplete Network Build PM Peak						



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121

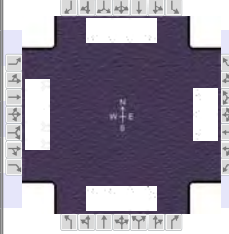
Signal Information				Signal Diagram								
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	15.8	5.8	65.9	13.5	0.0	0.0				
		Yellow	4.3	0.0	4.3	4.0	0.0	0.0				
		Red	2.0	0.0	2.4	2.0	0.0	0.0				

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	2	2	2	3	2	3	2	10		2	13	3
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.51	0.51
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0		0	0	0
Grade (P _g), %	0			0			0			0		
Speed Limit, mi/h	35	35	35	45	45	45	45	45	45	45	45	45

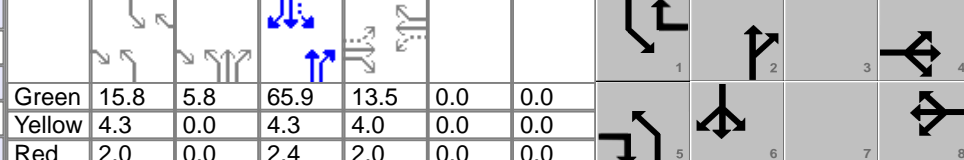
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		19.5		19.5	37.0	75.5	25.0	63.5
Yellow Change Interval (Y), s		4.0		4.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R _c), s		2.0		2.0	2.0	2.4	2.0	2.4
Minimum Green (G _{min}), s		10		10	7	20	7	20
Start-Up Lost Time (I _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s		2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode		Off		Off	Off	Ped	Off	Off
Dual Entry		Yes		Yes	No	Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (2P) - 2044 Incomplete Ntwk Build - PM Pe...			
Project Description	2P-2044 Incomplete Network Build PM Peak					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121

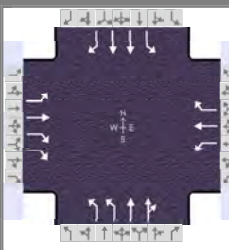
Signal Information														
Cycle, s	120.0	Reference Phase	2	Green	15.8	5.8	65.9	13.5	0.0	0.0	1	2	3	4
Offset, s	0	Reference Point	End	Yellow	4.3	0.0	4.3	4.0	0.0	0.0	5	6	7	8
Uncoordinated	No	Simult. Gap E/W	On	Red	2.0	0.0	2.4	2.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On											

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	5	2	1	6
Case Number		5.0		5.0	2.0	4.0	1.1	3.0
Phase Duration, s		19.5		19.5	27.9	78.4	22.1	72.6
Change Period, (Y+R _c), s		6.0		6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s		3.2		3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g _s), s		15.5		15.5	20.6		15.7	
Green Extension Time (g _e), s		0.0		0.0	1.0	0.0	0.2	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		1.00	0.01		1.00	

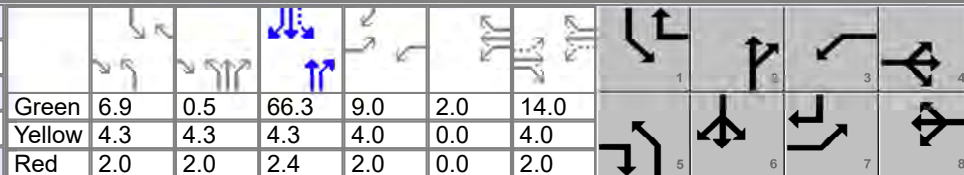
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	141	24	357	158	35	192	550	995	995	270	1595	133
Adjusted Saturation Flow Rate (s), veh/h/ln	1374	1870	1403	1376	1870	1572	1730	1752	1684	1781	1625	1572
Queue Service Time (g _s), s	11.5	1.4	12.4	12.1	2.0	12.6	18.6	63.6	69.9	13.7	54.3	6.5
Cycle Queue Clearance Time (g _c), s	13.5	1.4	12.4	13.5	2.0	12.6	18.6	63.6	69.9	13.7	54.3	6.5
Green Ratio (g/C)	0.11	0.11	0.29	0.11	0.11	0.24	0.18	0.60	0.60	0.68	0.55	0.55
Capacity (c), veh/h	191	210	821	199	210	385	623	1046	1005	295	1785	863
Volume-to-Capacity Ratio (X)	0.738	0.114	0.434	0.792	0.165	0.500	0.882	0.951	0.990	0.915	0.894	0.154
Back of Queue (Q), ft/ln (95 th percentile)	217.3	29.5	191.7	245.3	42.5	214.1	330.2	993.4	1028.7	299.6	750.6	105.6
Back of Queue (Q), veh/ln (95 th percentile)	8.6	1.2	7.5	9.6	1.7	8.4	13.0	36.8	40.5	11.8	27.2	4.1
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	54.7	47.9	34.4	54.7	48.2	39.0	48.0	22.5	23.8	38.1	30.2	18.2
Incremental Delay (d ₂), s/veh	12.4	0.1	0.1	17.9	0.1	0.4	5.9	18.3	26.0	15.0	4.0	0.2
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	67.1	48.0	34.5	72.5	48.3	39.4	53.9	40.9	49.9	53.1	34.2	18.3
Level of Service (LOS)	E	D	C	E	D	D	D	D	D	D	C	B
Approach Delay, s/veh / LOS	44.0	D		53.8	D		47.2	D		35.7	D	
Intersection Delay, s/veh / LOS	43.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.08	B	2.41	B
Bicycle LOS Score / LOS	1.35	A	1.12	A	2.58	C	2.11	B

HCS Signalized Intersection Input Data

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...			
Project Description	3A-2044 Incomplete Network Build AM Peak					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	135	29	438	189	17	211	294	993	67	96	1361	145

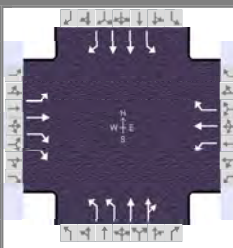
Signal Information																								
Cycle, s	130.0	Reference Phase	2	Green	6.9	0.5	66.3	9.0	2.0	14.0	Yellow	4.3	4.3	4.3	4.0	0.0	4.0	Red	2.0	2.0	2.4	2.0	0.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Traffic Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	135	29	438	189	17	211	294	993	67	96	1361	145
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h	None			None			None			None		
Heavy Vehicles (P_{HV}), %	2	2	2	2	2	7	2	14		7	12	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.59	0.59	0.59
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0		0	0	0
Grade (P_g), %	0			0			0			0		
Speed Limit, mi/h	35	35	35	45	45	45	45	45	45	45	45	45

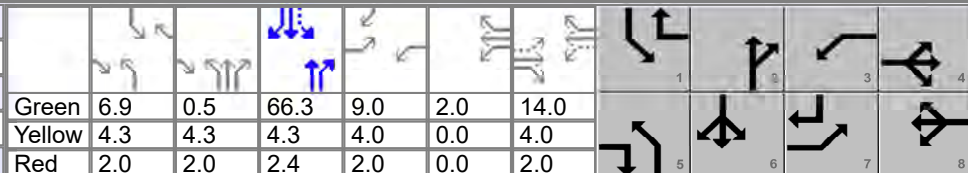
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	15.0	20.0	17.0	22.0	20.0	77.0	16.0	73.0
Yellow Change Interval (Y), s	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.4	2.0	2.4
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Ped	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...			
Project Description	3A-2044 Incomplete Network Build AM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	135	29	438	189	17	211	294	993	67	96	1361	145

Signal Information												
Cycle, s	130.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	6.9	0.5	66.3	9.0	2.0	14.0				
		Yellow	4.3	4.3	4.3	4.0	0.0	4.0				
		Red	2.0	2.0	2.4	2.0	0.0	2.0				

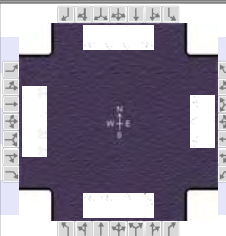
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	2.0	4.0	1.1	3.0
Phase Duration, s	15.0	20.0	17.0	22.0	20.0	79.8	13.2	73.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s	3.1	3.3	3.0	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	11.0	16.0	13.0	18.0	13.8		6.2	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.99	
Max Out Probability	1.00	1.00	1.00	1.00	1.00		0.53	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	147	32	476	205	18	229	320	582	570	117	1661	177
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1403	1781	1870	1522	1730	1693	1654	1711	1639	1585
Queue Service Time (g_s), s	9.0	2.0	14.0	11.0	1.1	16.0	11.8	29.9	29.9	4.2	65.5	7.9
Cycle Queue Clearance Time (g_c), s	9.0	2.0	14.0	11.0	1.1	16.0	11.8	29.9	29.9	4.2	65.5	7.9
Green Ratio (g/C)	0.18	0.11	0.21	0.19	0.12	0.18	0.11	0.56	0.56	0.56	0.51	0.58
Capacity (c), veh/h	317	201	598	333	230	268	365	952	930	295	1672	918
Volume-to-Capacity Ratio (X)	0.463	0.156	0.796	0.616	0.080	0.855	0.877	0.612	0.612	0.398	0.993	0.193
Back of Queue (Q), ft/ln (95 th percentile)	195	43	315.2	265.5	24.1	357.3	256.6	479.4	430.6	72.5	985.8	146.6
Back of Queue (Q), veh/ln (95 th percentile)	7.7	1.7	12.4	10.5	1.0	13.5	10.1	17.2	17.0	2.7	36.0	5.8
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	48.1	52.6	48.5	48.4	50.5	51.9	57.3	19.0	19.0	16.3	37.3	15.4
Incremental Delay (d_2), s/veh	0.4	0.1	6.9	2.5	0.1	21.8	19.9	2.9	3.0	0.2	15.4	0.3
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	48.5	52.8	55.3	50.9	50.5	73.8	77.3	21.9	22.0	16.5	52.7	15.7
Level of Service (LOS)	D	D	E	D	D	E	E	C	C	B	D	B
Approach Delay, s/veh / LOS	53.7		D	62.5		E	34.0		C	47.2		D
Intersection Delay, s/veh / LOS	45.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.09	B	2.42	B
Bicycle LOS Score / LOS	1.57	B	1.24	A	1.70	B	1.92	B

HCS Signalized Intersection Input Data

General Information					Intersection Information			
Agency	Smart Services Inc.				Duration, h	0.250		
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other		
Jurisdiction	City of Delaware	Time Period	PM Peak		PHF	0.92		
Urban Street	US 23	Analysis Year	2044		Analysis Period	1 > 16:30		
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...					
Project Description	3P-2044 Incomplete Network Build PM Peak							



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121

Signal Information				Signal Diagram									
Cycle, s	130.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On										
Force Mode	Fixed	Simult. Gap N/S	On										
		Green		13.7	3.4	64.6	7.0	10.0	0.0				
		Yellow		4.3	4.3	4.3	4.0	4.0	0.0				
		Red		2.0	2.0	2.4	2.0	2.0	0.0				

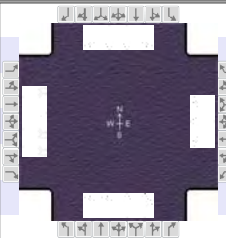
Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2	2	3	2	3	2	10		2	13	3
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.54	0.54	0.54
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0		0	0	0
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	45	45	45	45	45	45	45	45	45

Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	13.0	16.0	13.0	16.0	49.0	81.0	20.0	52.0
Yellow Change Interval (Y), s	4.0	4.0	4.0	4.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	2.0	2.0	2.0	2.0	2.0	2.4	2.0	2.4
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Ped	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...		
Project Description	3P-2044 Incomplete Network Build PM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	130	22	328	145	32	177	506	1625	206	245	1447	121

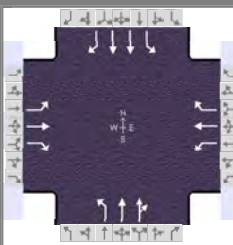
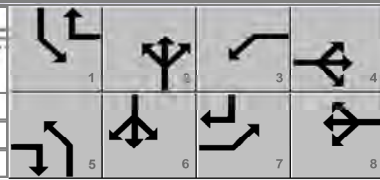
Signal Information				Signal Phases											
Cycle, s	130.0	Reference Phase	2												
Offset, s	0	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
		Green		13.7	3.4	64.6	7.0	10.0	0.0						
		Yellow		4.3	4.3	4.3	4.0	4.0	0.0						
		Red		2.0	2.0	2.4	2.0	2.0	0.0						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	2.0	4.0	1.1	3.0
Phase Duration, s	13.0	16.0	13.0	16.0	29.7	81.0	20.0	71.3
Change Period, (Y+R _c), s	6.0	6.0	6.0	6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s	3.1	3.3	3.0	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g _s), s	9.0	12.0	9.0	12.0	22.2		15.7	
Green Extension Time (g _e), s	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0
Phase Call Probability	0.99	1.00	1.00	1.00	1.00		1.00	
Max Out Probability	1.00	1.00	1.00	1.00	0.00		1.00	

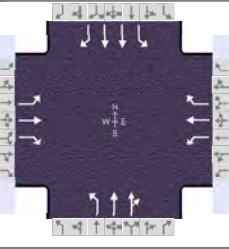
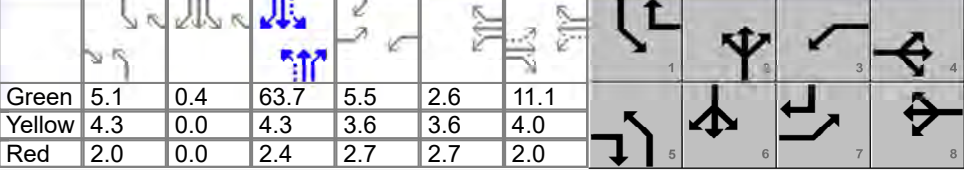
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	141	24	357	158	35	192	550	995	995	270	1595	133
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1403	1767	1870	1572	1730	1752	1684	1781	1625	1572
Queue Service Time (g _s), s	7.0	1.6	10.0	7.0	2.3	10.0	20.2	73.2	74.3	13.7	62.5	4.3
Cycle Queue Clearance Time (g _c), s	7.0	1.6	10.0	7.0	2.3	10.0	20.2	73.2	74.3	13.7	62.5	4.3
Green Ratio (g/C)	0.13	0.08	0.26	0.13	0.08	0.18	0.18	0.57	0.57	0.60	0.50	0.50
Capacity (c), veh/h	212	144	721	219	144	287	622	1001	962	243	1616	782
Volume-to-Capacity Ratio (X)	0.667	0.166	0.495	0.720	0.242	0.671	0.884	0.994	1.034	1.111	0.987	0.171
Back of Queue (Q), ft/ln (95 th percentile)	66.7	33.8	215.4	100.3	48.8	259.2	343	1205.8	1226	481.2	782.6	66.3
Back of Queue (Q), veh/ln (95 th percentile)	2.6	1.3	8.5	3.9	1.9	10.1	13.5	44.7	48.3	18.9	28.4	2.6
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	54.7	56.1	41.1	55.5	56.4	49.5	52.0	27.6	27.9	49.5	25.1	12.2
Incremental Delay (d ₂), s/veh	6.3	0.2	0.2	9.6	0.3	4.9	1.7	27.0	38.2	76.1	13.7	0.3
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	61.0	56.3	41.3	65.0	56.8	54.4	53.7	54.6	66.0	125.6	38.8	12.4
Level of Service (LOS)	E	E	D	E	E	D	D	D	F	F	D	B
Approach Delay, s/veh / LOS	47.3		D	59.0		E	58.9		E	48.8		D
Intersection Delay, s/veh / LOS	54.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.47	B	2.47	B	2.09	B	2.42	B
Bicycle LOS Score / LOS	1.35	A	1.12	A	2.58	C	2.11	B

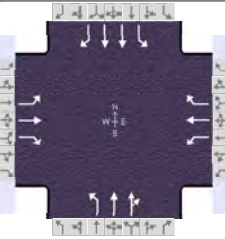
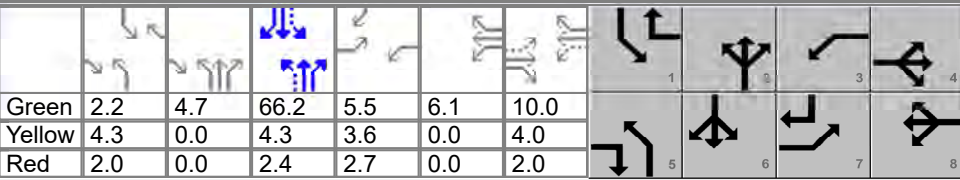
HCS Signalized Intersection Input Data

General Information						Intersection Information												
Agency	Smart Services Inc.					Duration, h	0.250											
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other											
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92											
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45											
Intersection	1375-US 23 & Panhandl...		File Name	US 23 (5A) - 2044 Complete Ntwk No Build - AM...														
Project Description	5A-2044 Complete Network No Build AM Peak																	
Demand Information						EB			WB			NB				SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h						43	126	53	189	43	10	36	845	67	37	1196	16	
Signal Information																		
Cycle, s	120.0	Reference Phase	2															
Offset, s	0	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On			Green	5.1	0.4	63.7	5.5	2.6	11.1						
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	4.3	0.0	4.3	3.6	3.6	4.0						
						Red	2.0	0.0	2.4	2.7	2.7	2.0						
Traffic Information						EB			WB			NB			SB			
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h						43	126	53	189	43	10	36	845	67	37	1196	16	
Initial Queue (Q _b), veh/h						0	0	0	0	0	0	0	0	0	0	0	0	
Base Saturation Flow Rate (s ₀), veh/h						1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Parking (N _m), man/h						None			None			None			None			
Heavy Vehicles (P _{HV}), %						2	2	2	2	2	7	2	14		7	12	2	
Ped / Bike / RTOR, /h						0	0	0	0	0	0	0	0	0	0	0	0	
Buses (N _b), buses/h						0	0	0	0	0	0	0	0	0	0	0	0	
Arrival Type (AT)						3	3	3	3	3	3	3	3	3	3	3	3	
Upstream Filtering (I)						1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.73	0.73	
Lane Width (W), ft						12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	
Turn Bay Length, ft						0	0	0	0	0	0	0	0		0	0	0	
Grade (P _g), %							0			0			0		0			
Speed Limit, mi/h						35	35	35	45	45	45	45	45	45	45	45	45	
Phase Information						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s						22.0	16.0	63.0	57.0	14.0	27.0	14.0	27.0					
Yellow Change Interval (Y), s						3.6	4.0	3.6	4.0	4.3	4.3	4.3	4.3					
Red Clearance Interval (R _c), s						2.7	2.0	2.7	2.0	2.0	2.4	2.0	2.4					
Minimum Green (G _{min}), s						7	10	7	10	7	20	7	20					
Start-Up Lost Time (l _t), s						2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Extension of Effective Green (e), s						2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Passage (PT), s						2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Recall Mode						Off	Off	Off	Off	Off	Ped	Off	Off					
Dual Entry						No	Yes	No	Yes	No	Yes	No	Yes					
Walk (Walk), s							0.0		0.0		0.0		0.0					
Pedestrian Clearance Time (PC), s							0.0		0.0		0.0		0.0					
Multimodal Information						EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius						0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft						9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	
Street Width / Island / Curb, ft						0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft						12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking						No	0.50	No	0.50	No	0.50	No	0.50	No	0.50			

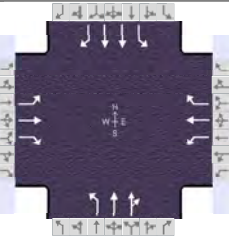
HCS Signalized Intersection Results Summary

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	1375-US 23 & Panhandl...		File Name	US 23 (5A) - 2044 Complete Ntwk No Build - AM...												
Project Description	5A-2044 Complete Network No Build AM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					43	126	53	189	43	10	36	845	67	37	1196	16
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	0	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	5.1	0.4	63.7	5.5	2.6	11.1										
Yellow	4.3	0.0	4.3	3.6	3.6	4.0										
Red	2.0	0.0	2.4	2.7	2.7	2.0										
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					7	4	3	8	5	2	1	6				
Case Number					1.1	3.0	1.1	3.0	1.1	4.0	1.1	3.0				
Phase Duration, s					11.8	17.1	20.7	25.9	11.4	70.4	11.8	70.8				
Change Period, (Y+R _c), s					6.3	6.0	6.3	6.0	6.3	6.7	6.3	6.7				
Max Allow Headway (MAH), s					3.1	3.1	3.0	3.1	3.0	0.0	3.0	0.0				
Queue Clearance Time (g _s), s					4.8	10.6	14.1	4.6	3.1		3.5					
Green Extension Time (g _e), s					0.0	0.4	0.3	0.4	0.1	0.0	0.1	0.0				
Phase Call Probability					0.79	1.00	1.00	1.00	0.73		0.79					
Max Out Probability					0.00	0.00	0.00	0.00	0.00		0.00					
Movement Group Results					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h					47	137	58	205	47	11	39	502	489	47	1522	20
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1870	1585	1781	1870	1522	1781	1693	1648	1711	1639	1585
Queue Service Time (g _s), s					2.8	8.6	3.9	12.1	2.6	0.7	1.1	23.8	23.8	1.5	49.1	0.6
Cycle Queue Clearance Time (g _c), s					2.8	8.6	3.9	12.1	2.6	0.7	1.1	23.8	23.8	1.5	49.1	0.6
Green Ratio (g/C)					0.14	0.09	0.13	0.23	0.17	0.21	0.57	0.53	0.53	0.58	0.53	0.58
Capacity (c), veh/h					267	172	213	299	311	323	173	899	875	321	1753	920
Volume-to-Capacity Ratio (X)					0.175	0.795	0.270	0.687	0.151	0.034	0.226	0.559	0.559	0.147	0.868	0.022
Back of Queue (Q), ft/ln (95 th percentile)					56.5	190.4	70.9	227.9	53.5	11.9	21.8	395.7	354.3	25	686.5	9.8
Back of Queue (Q), veh/ln (95 th percentile)					2.2	7.5	2.8	9.0	2.1	0.4	0.9	14.2	13.9	0.9	25.1	0.4
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh					45.8	53.4	46.6	40.9	42.8	37.5	23.2	18.8	18.8	14.0	25.9	10.3
Incremental Delay (d ₂), s/veh					0.1	3.1	0.3	1.0	0.1	0.0	0.2	2.5	2.6	0.1	4.6	0.0
Initial Queue Delay (d ₃), s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					45.9	56.5	46.9	42.0	42.9	37.5	23.5	21.3	21.3	14.0	30.6	10.3
Level of Service (LOS)					D	E	D	D	D	D	C	C	C	B	C	B
Approach Delay, s/veh / LOS					52.2		D	41.9		D	21.4		C	29.8		C
Intersection Delay, s/veh / LOS					29.8						C					
Multimodal Results					EB			WB			NB			SB		
Pedestrian LOS Score / LOS					2.31		B	2.46		B	2.09		B	2.09		B
Bicycle LOS Score / LOS					0.89		A	0.92		A	1.34		A	1.61		B

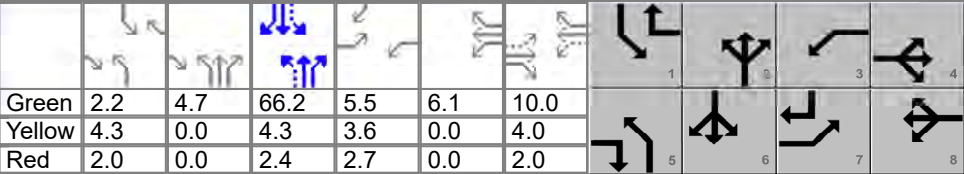
HCS Signalized Intersection Input Data

General Information						Intersection Information																		
Agency	Smart Services Inc.					Duration, h	0.250																	
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other																	
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92																	
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30																	
Intersection	1375-US 23 & Panhandl...		File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...																				
Project Description	5P-2044 Complete Network No Build PM Peak																							
Demand Information				EB			WB			NB			SB											
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R									
Demand (v), veh/h				43	81	34	145	142	44	103	1284	206	10	1261	36									
Signal Information																								
Cycle, s	120.0	Reference Phase	2																					
Offset, s	0	Reference Point	End																					
Uncoordinated	No	Simult. Gap E/W	On																					
Force Mode	Fixed	Simult. Gap N/S	On	Green	2.2	4.7	66.2	5.5	6.1	10.0	Yellow	4.3	0.0	4.3	3.6	0.0	4.0	Red	2.0	0.0	2.4	2.7	0.0	2.0
Traffic Information				EB			WB			NB			SB											
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R									
Demand (v), veh/h				43	81	34	145	142	44	103	1284	206	10	1261	36									
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0									
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900									
Parking (N _m), man/h				None			None			None			None											
Heavy Vehicles (P _{HV}), %				2	2	2	3	2	3	2	10		2	13	2									
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0									
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0									
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3									
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80									
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0									
Turn Bay Length, ft				0	0	0	0	0	0	0	0		0	0	0									
Grade (P _g), %				0			0			0			0											
Speed Limit, mi/h				35	35	35	45	45	45	45	45	45	45	45	45									
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT													
Maximum Green (G _{max}) or Phase Split, s				31.0	21.0	51.0	41.0	21.0	34.0	14.0	27.0													
Yellow Change Interval (Y), s				3.6	4.0	3.6	4.0	4.3	4.3	4.3	4.3													
Red Clearance Interval (R _c), s				2.7	2.0	2.7	2.0	2.0	2.4	2.0	2.4													
Minimum Green (G _{min}), s				7	10	7	10	7	20	7	20													
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0													
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0													
Passage (PT), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0													
Recall Mode				Off	Off	Off	Off	Off	Ped	Off	Off													
Dual Entry				No	Yes	No	Yes	No	Yes	No	Yes													
Walk (Walk), s					0.0		0.0		0.0		0.0													
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0		0.0													
Multimodal Information				EB			WB			NB			SB											
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0									
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0									
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No									
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0									
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50											

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...			
Project Description	5P-2044 Complete Network No Build PM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	43	81	34	145	142	44	103	1284	206	10	1261	36

Signal Information																								
Cycle, s	120.0	Reference Phase	2	Green	2.2	4.7	66.2	5.5	6.1	10.0	Yellow	4.3	0.0	4.3	3.6	0.0	4.0	Red	2.0	0.0	2.4	2.7	0.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

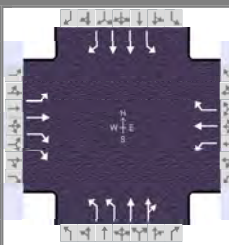
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	4.0	1.1	3.0
Phase Duration, s	11.8	16.0	17.9	22.1	13.1	77.6	8.5	72.9
Change Period, ($Y+R_c$), s	6.3	6.0	6.3	6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s	3.1	3.1	3.0	3.1	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	4.8	7.4	11.5	11.3	5.1		2.3	
Green Extension Time (g_e), s	0.0	0.6	0.3	0.6	0.2	0.0	0.0	0.0
Phase Call Probability	0.79	1.00	0.99	1.00	0.98		0.31	
Max Out Probability	0.00	0.00	0.00	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	47	88	37	158	154	48	112	821	799	11	1393	40
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1585	1767	1870	1572	1781	1752	1668	1781	1625	1585
Queue Service Time (g_s), s	2.8	5.4	2.5	9.5	9.3	3.2	3.1	43.3	45.1	0.3	43.8	1.7
Cycle Queue Clearance Time (g_c), s	2.8	5.4	2.5	9.5	9.3	3.2	3.1	43.3	45.1	0.3	43.8	1.7
Green Ratio (g/C)	0.13	0.08	0.14	0.20	0.13	0.15	0.61	0.59	0.59	0.57	0.55	0.60
Capacity (c), veh/h	191	156	222	281	251	240	234	1035	985	154	1794	948
Volume-to-Capacity Ratio (X)	0.245	0.565	0.166	0.561	0.614	0.200	0.479	0.793	0.810	0.072	0.777	0.042
Back of Queue (Q), ft/ln (95 th percentile)	57.3	118.2	44.5	187.3	196.2	56.5	64.5	654.4	617.4	5.5	651.8	45.8
Back of Queue (Q), veh/ln (95 th percentile)	2.3	4.7	1.8	7.3	7.7	2.2	2.5	24.2	24.3	0.2	23.6	1.8
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	46.8	52.9	45.4	42.9	49.0	44.5	21.1	18.9	19.3	18.9	27.4	14.1
Incremental Delay (d_2), s/veh	0.2	1.2	0.1	0.7	0.9	0.2	0.6	6.3	7.2	0.1	2.7	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	47.1	54.1	45.5	43.5	49.9	44.6	21.7	25.2	26.5	18.9	30.1	14.1
Level of Service (LOS)	D	D	D	D	D	D	C	C	C	B	C	B
Approach Delay, s/veh / LOS	50.3		D	46.4		D	25.5		C	29.6		C
Intersection Delay, s/veh / LOS	30.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.31	B	2.46	B	2.08	B	2.09	B
Bicycle LOS Score / LOS	0.77	A	1.08	A	1.92	B	1.66	B

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Smart Services Inc.			Duration, h	0.250		
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other		
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92		
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45		
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...				
Project Description	6A-2044 Complete Network Build AM Peak						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	167	155	465	189	60	10	302	757	67	37	1079	160

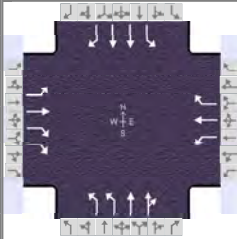
Signal Information				Signal Timing (s)								Signal Phases			
Cycle, s	120.0	Reference Phase	2												
Offset, s	0	Reference Point	End	Green	5.5	1.8	52.3	7.7	21.1	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	4.3	3.6	4.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	2.0	2.4	2.7	2.0	0.0					

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	167	155	465	189	60	10	302	757	67	37	1079	160
Initial Queue (Q_b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s_o), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N_m), man/h		None			None			None			None	
Heavy Vehicles (P_{HV}), %	2	2	2	2	2	7	2	14		7	12	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N_b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.74	0.74	0.74
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0		0	0	0
Grade (P_g), %		0			0			0			0	
Speed Limit, mi/h	35	35	35	45	45	45	45	45	45	45	45	45

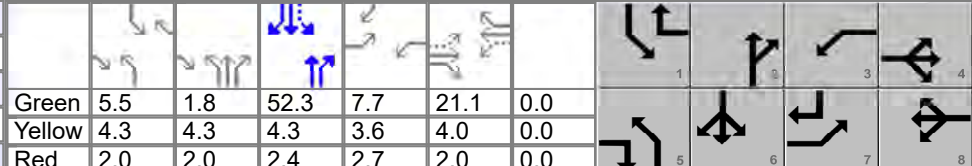
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G_{max}) or Phase Split, s	14.0	28.0	14.0	28.0	27.0	59.0	19.0	51.0
Yellow Change Interval (Y), s	3.6	4.0	3.6	4.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R_c), s	2.7	2.0	2.7	2.0	2.0	2.4	2.0	2.4
Minimum Green (G_{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (l_t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Ped	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk ($Walk$), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...			
Project Description	6A-2044 Complete Network Build AM Peak					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	167	155	465	189	60	10	302	757	67	37	1079	160

Signal Information																		
Cycle, s	120.0	Reference Phase	2	Green	5.5	1.8	52.3	7.7	21.1	0.0	Yellow	4.3	4.3	4.3	3.6	4.0	0.0	
Offset, s	0	Reference Point	End	Red	2.0	2.0	2.4	2.7	2.0	0.0	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On

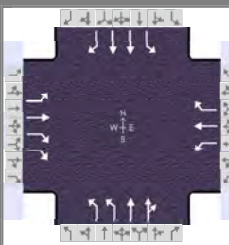
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	2.0	4.0	1.1	3.0
Phase Duration, s	14.0	27.1	14.0	27.1	19.9	67.1	11.8	59.0
Change Period, (Y+R _c), s	6.3	6.0	6.3	6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s	3.1	3.3	3.0	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g _s), s	9.7	20.7	9.7	5.6	13.1		3.8	
Green Extension Time (g _e), s	0.0	0.4	0.0	1.8	0.5	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.79	
Max Out Probability	1.00	1.00	1.00	0.00	0.01		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	182	168	505	205	65	11	328	454	441	47	1369	203
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1403	1781	1870	1522	1730	1693	1644	1711	1639	1585
Queue Service Time (g _s), s	7.7	9.8	18.7	7.7	3.6	0.7	11.1	21.9	21.9	1.8	48.2	7.3
Cycle Queue Clearance Time (g _c), s	7.7	9.8	18.7	7.7	3.6	0.7	11.1	21.9	21.9	1.8	48.2	7.3
Green Ratio (g/C)	0.24	0.18	0.29	0.24	0.18	0.22	0.11	0.50	0.50	0.48	0.44	0.50
Capacity (c), veh/h	347	329	812	289	329	338	393	852	827	320	1428	792
Volume-to-Capacity Ratio (X)	0.523	0.513	0.622	0.711	0.198	0.032	0.834	0.534	0.534	0.147	0.959	0.256
Back of Queue (Q), ft/ln (95 th percentile)	50.2	204.6	269.6	116.5	74.3	11.7	215.7	374.7	334.8	32.8	699.3	110.1
Back of Queue (Q), veh/ln (95 th percentile)	2.0	8.1	10.6	4.6	2.9	0.4	8.5	13.5	13.2	1.2	25.5	4.3
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh	40.1	44.8	36.9	43.1	42.2	36.6	52.1	20.2	20.2	18.4	29.7	13.5
Incremental Delay (d ₂), s/veh	0.7	0.5	1.0	6.8	0.1	0.0	2.9	2.4	2.5	0.1	12.8	0.6
Initial Queue Delay (d ₃), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.8	45.3	38.0	50.0	42.3	36.6	54.9	22.6	22.7	18.4	42.4	14.1
Level of Service (LOS)	D	D	D	D	D	D	D	C	C	B	D	B
Approach Delay, s/veh / LOS	40.0	D		47.7	D		31.3	C		38.2	D	
Intersection Delay, s/veh / LOS	37.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.10	B	2.43	B
Bicycle LOS Score / LOS	1.90	B	0.95	A	1.50	A	1.63	B

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...		
Project Description	6P-2044 Complete Network Build PM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	167	103	339	145	174	44	522	1189	206	10	1183	154

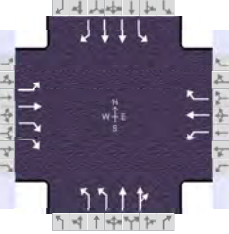
Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	2.2	13.9	46.4	9.7	1.0	15.2			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	4.3	3.6	0.0	4.0			
				Red	2.0	2.0	2.4	2.7	0.0	2.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	167	103	339	145	174	44	522	1189	206	10	1183	154
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h	None			None			None			None		
Heavy Vehicles (P _{HV}), %	2	2	2	3	3	0	2	10		2	2	13
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0		0	0	0
Grade (P _g), %	0			0			0			0		
Speed Limit, mi/h	35	35	35	45	45	45	45	45	45	45	45	45

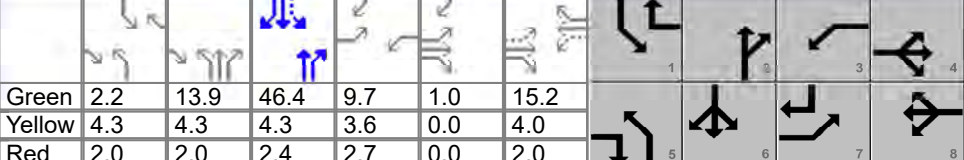
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	17.0	30.5	16.0	29.5	35.0	59.5	14.0	38.5
Yellow Change Interval (Y), s	3.6	4.0	3.6	4.0	4.3	4.3	4.3	4.3
Red Clearance Interval (R _c), s	2.7	2.0	2.7	2.0	2.0	2.4	2.0	2.4
Minimum Green (G _{min}), s	7	10	7	10	7	20	7	20
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Ped	Off	Off
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	1375-US 23 & Panhandl...	File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...			
Project Description	6P-2044 Complete Network Build PM Peak					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	167	103	339	145	174	44	522	1189	206	10	1183	154

Signal Information																								
Cycle, s	120.0	Reference Phase	2	Green	2.2	13.9	46.4	9.7	1.0	15.2	Yellow	4.3	4.3	4.3	3.6	0.0	4.0	Red	2.0	2.0	2.4	2.7	0.0	2.0
Offset, s	0	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	2.0	4.0	1.1	3.0
Phase Duration, s	17.0	22.2	16.0	21.2	28.7	73.3	8.5	53.1
Change Period, ($Y+R_c$), s	6.3	6.0	6.3	6.0	6.3	6.7	6.3	6.7
Max Allow Headway (MAH), s	3.1	3.2	3.0	3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	12.7	14.3	11.3	13.9	21.2		2.4	
Green Extension Time (g_e), s	0.0	1.3	0.0	1.3	1.2	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	0.99	1.00	1.00		0.31	
Max Out Probability	1.00	0.03	1.00	0.05	0.00		0.00	

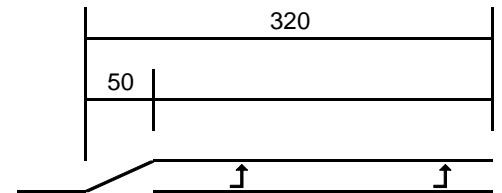
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	182	112	368	158	189	48	567	772	744	11	1306	170
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1870	1403	1767	1856	1610	1730	1752	1662	1781	1781	1447
Queue Service Time (g_s), s	10.7	6.6	12.3	9.3	11.9	3.1	19.2	42.0	43.3	0.4	42.1	6.7
Cycle Queue Clearance Time (g_c), s	10.7	6.6	12.3	9.3	11.9	3.1	19.2	42.0	43.3	0.4	42.1	6.7
Green Ratio (g/C)	0.22	0.14	0.32	0.21	0.13	0.14	0.19	0.56	0.56	0.40	0.39	0.48
Capacity (c), veh/h	252	253	902	283	235	233	645	973	923	153	1378	689
Volume-to-Capacity Ratio (X)	0.721	0.443	0.409	0.556	0.804	0.205	0.880	0.794	0.807	0.072	0.948	0.247
Back of Queue (Q), ft/ln (95 th percentile)	228	141.4	189.7	187	243	55.8	328.9	652.6	607	8.4	621.7	101
Back of Queue (Q), veh/ln (95 th percentile)	9.0	5.6	7.5	7.3	9.5	2.2	12.9	24.2	23.9	0.3	24.5	3.7
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	41.8	47.7	31.8	41.6	51.0	45.2	47.5	21.2	21.5	24.1	31.1	14.0
Incremental Delay (d_2), s/veh	8.4	0.5	0.1	1.5	3.6	0.2	2.7	6.6	7.5	0.1	12.4	0.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	50.2	48.2	31.9	43.1	54.5	45.4	50.2	27.9	29.0	24.1	43.5	14.6
Level of Service (LOS)	D	D	C	D	D	D	D	C	C	C	D	B
Approach Delay, s/veh / LOS	39.7		D	48.9		D	34.3		C	40.1		D
Intersection Delay, s/veh / LOS	38.2						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.09	B	2.44	B
Bicycle LOS Score / LOS	1.58	B	1.14	A	2.21	B	1.70	B

(1375CNB-NB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - NB LT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	175 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	103 VPH	Turn Lane Length =	320 feet
# of Turning Lanes =	1		
Advancing Volume =	1593 VPH		
Turning % (>10% HIGH)	6.5% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	3.4		
Storage Length (Calc) =	175 feet		



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

ADDISON FARMS
TRAFFIC IMPACT STUDY

PREPARED BY:  SMART
SERVICES

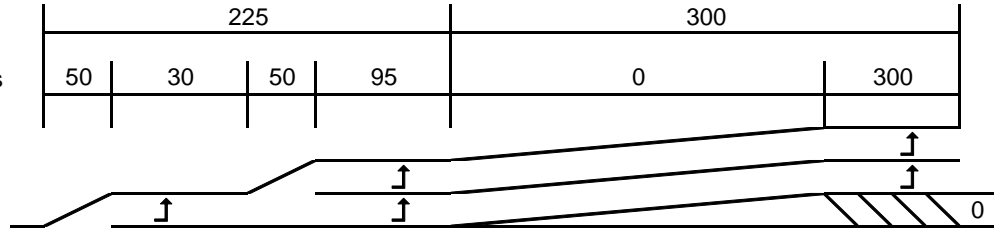
4/2023

APPENDIX

LEFT TURN LANE CALCULATIONS

(1375IB-NB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - NB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (PM PEAK)

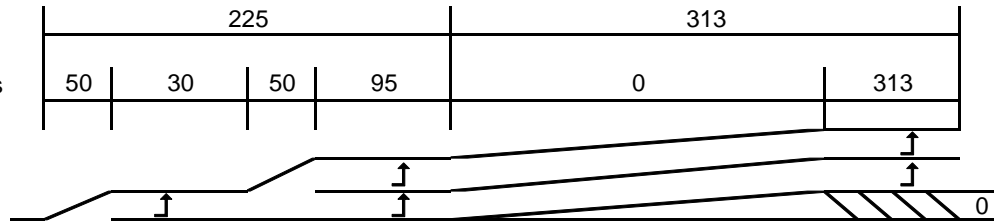
Type = Signalized
 Speed = 50 MPH
 Cycle Length = 120 seconds
 Turning Volume = 506 VPH
 # of Turning Lanes = 2
 Vehicles per Cycle = 17
 Storage Length (Calc) = 600 feet
 8:1 Taper = 0 feet
 L1 = 225 feet
 L2 = 145 feet



NOTE: Calculations based on 401-12E in ODOT L&D Manual. All dimensions are in feet.

(1375CB-NB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - NB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (PM PEAK)

Type = Signalized
 Speed = 50 MPH
 Cycle Length = 120 seconds
 Turning Volume = 522 VPH
 # of Turning Lanes = 2
 Vehicles per Cycle = 17
 Storage Length (Calc) = 625 feet
 8:1 Taper = 0 feet
 L1 = 225 feet
 L2 = 145 feet

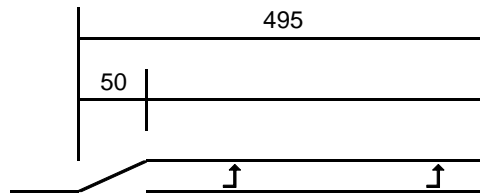


NOTE: Calculations based on 401-12E in ODOT L&D Manual. All dimensions are in feet.

(1375INB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	350 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	245 VPH	Turn Lane Length =	495 feet
# of Turning Lanes =	1		
Advancing Volume =	1796 VPH		
Turning % (>10% HIGH)	13.6% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	8.2		
Storage Length (Calc) =	350 feet		

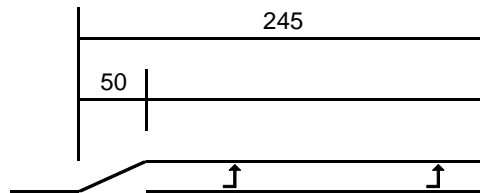


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375CNB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB LT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: AM PEAK

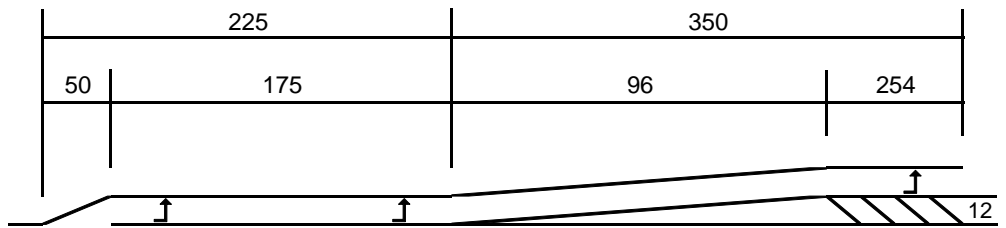
Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	100 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	37 VPH	Turn Lane Length =	245 feet
# of Turning Lanes =	1		
Advancing Volume =	1249 VPH		
Turning % (>10% HIGH)	3.0% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	1.2		
Storage Length (Calc) =	100 feet		



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375IB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (PM PEAK)

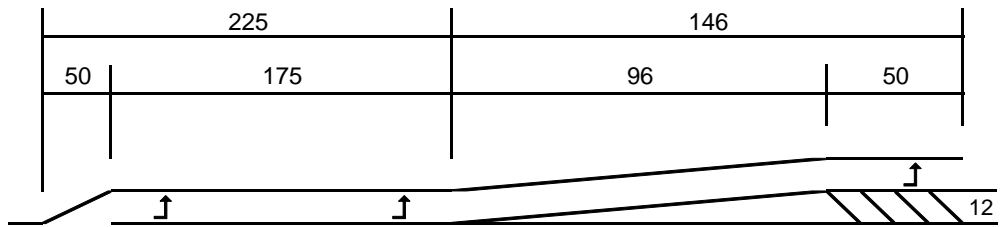
Type = Signalized
 Speed = 50 MPH
 Cycle Length = 120 seconds
 Turning Volume = 245 VPH
 # of Turning Lanes = 1
 Vehicles per Cycle = 8.17
 Storage Length (Calc) = 350 feet
 8:1 Taper = 96 feet
 L1 = 225 feet



NOTE: Calculations based on 401-8E in ODOT L&D Manual. All dimensions are in feet.

(1375CB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (AM PEAK)

Type = Signalized
 Speed = 50 MPH
 Cycle Length = 120 seconds
 Turning Volume = 37 VPH
 # of Turning Lanes = 1
 Vehicles per Cycle = 1
 Storage Length (Calc) = 100 feet
 8:1 Taper = 96 feet
 L1 = 225 feet



NOTE: Calculations based on 401-8E in ODOT L&D Manual. All dimensions are in feet.

ADDISON FARMS
 TRAFFIC IMPACT STUDY

PREPARED BY: SMART SERVICES

4/2023

APPENDIX

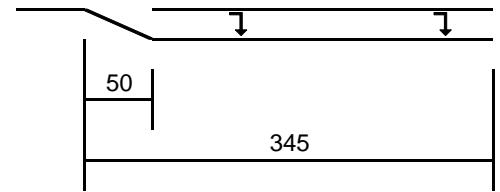
OFFSET LEFT TURN CALCULATIONS

(13751B-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	200 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	145 VPH	Turn Lane Length =	345 feet
# of Turning Lanes =	1		
Advancing Volume =	1602 VPH		
Turning % (>10% HIGH)	9.1% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	4.83		
Storage Length (Calc) =	200 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

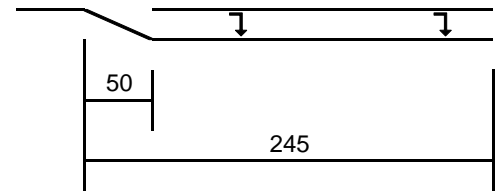


(1375CNB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB RT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	100 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	36 VPH	Turn Lane Length =	245 feet
# of Turning Lanes =	1		
Advancing Volume =	1277 VPH		
Turning % (>10% HIGH)	2.8% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	1.20		
Storage Length (Calc) =	100 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

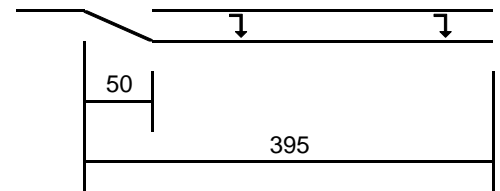


(1375CB-SB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	250 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	160 VPH	Turn Lane Length =	395 feet
# of Turning Lanes =	1		
Advancing Volume =	1276 VPH		
Turning % (>10% HIGH)	12.5% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	5.33		
Storage Length (Calc) =	250 feet		

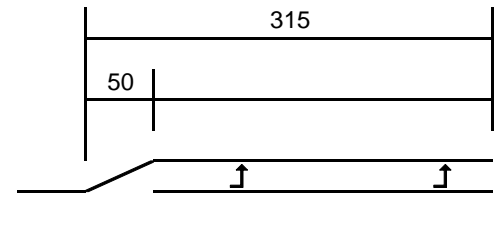
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(1375CNB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	200 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	135 VPH	Turn Lane Length =	315 feet
# of Turning Lanes =	1		
Advancing Volume =	602 VPH		
Turning % (>10% HIGH)	22.4% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	4.5		
Storage Length (Calc) =	200 feet		

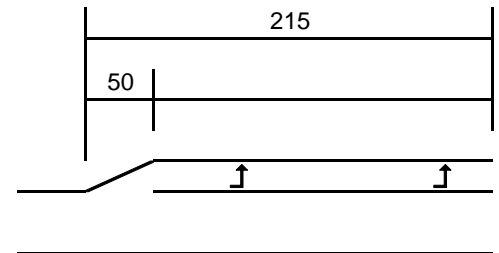


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375CB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB LT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	100 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	43 VPH	Turn Lane Length =	215 feet
# of Turning Lanes =	1		
Advancing Volume =	158 VPH		
Turning % (>10% HIGH)	27.2% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	1.4		
Storage Length (Calc) =	100 feet		

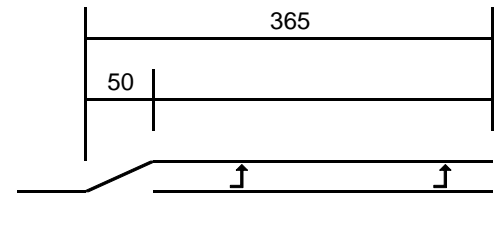


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375INB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	250 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	167 VPH	Turn Lane Length =	365 feet
# of Turning Lanes =	1		
Advancing Volume =	609 VPH		
Turning % (>10% HIGH)	27.4% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	5.6		
Storage Length (Calc) =	250 feet		

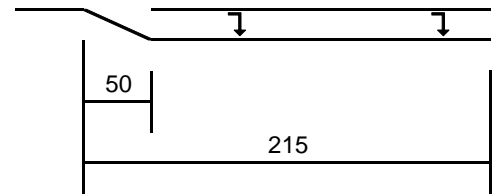


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375CNB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB RT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED
 Critical Analysis Period: AM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	100 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	53 VPH	Turn Lane Length =	215 feet
# of Turning Lanes =	1		
Advancing Volume =	222 VPH		
Turning % (>10% HIGH)	23.9% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	1.8		
Storage Length (Calc) =	100 feet		

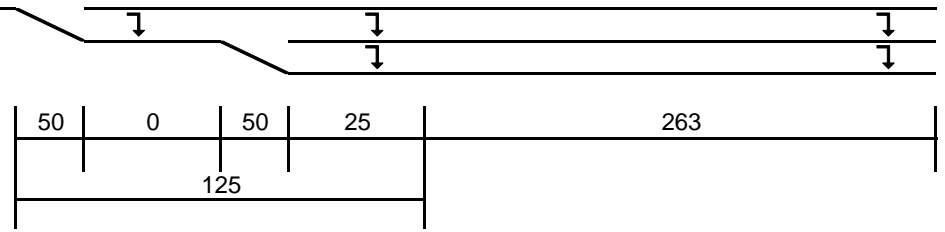
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(1375IB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (AM PEAK)

Type = Signalized
 Speed = 40 MPH
 Cycle Length = 120 seconds
 Turning Volume = 438 VPH
 # of Turning Lanes = 2
 Vehicles per Cycle = 14.6
 Storage Length (Calc) = 525 feet
 L1 = 125 feet
 L2 = 75 feet

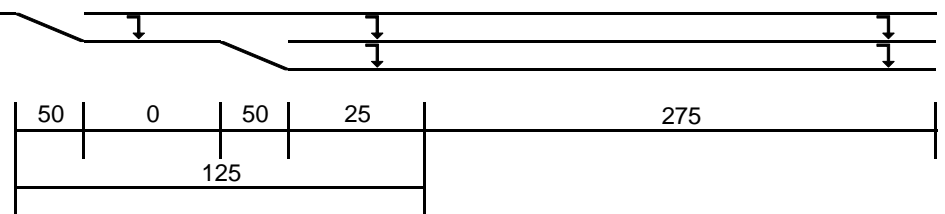
NOTE: Calculations based on 401-12E in ODOT L&D Manual. All dimensions are in feet.



(1375CB-EB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - EB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED (AM PEAK)

Type = Signalized
 Speed = 40 MPH
 Cycle Length = 120 seconds
 Turning Volume = 465 VPH
 # of Turning Lanes = 2
 Vehicles per Cycle = 15.5
 Storage Length (Calc) = 550 feet
 L1 = 125 feet
 L2 = 75 feet

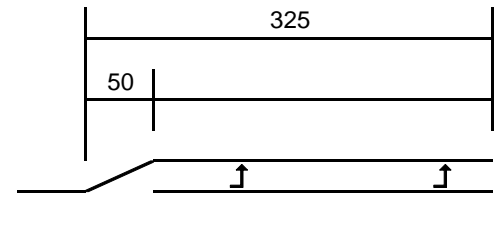
NOTE: Calculations based on 401-12E in ODOT L&D Manual. All dimensions are in feet.



(1375INB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: AM PEAK

Type = Signalized
Speed = 35 MPH Storage Length (Adj) = 275 feet
Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
Turning Volume = 189 VPH Turn Lane Length = 325 feet
of Turning Lanes = 1
Advancing Volume = 400 VPH
Turning % (>10% HIGH) 47.3% HIGH
Design Condition = A
Vehicles per Cycle = 6.3
Storage Length (Calc) = 275 feet

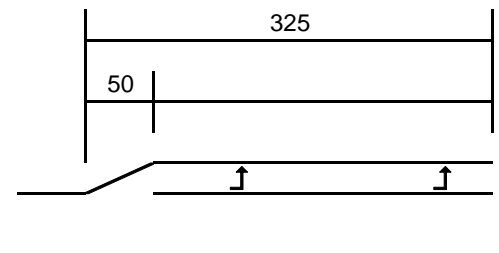


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375IB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type = Signalized
Speed = 35 MPH Storage Length (Adj) = 275 feet
Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
Turning Volume = 189 VPH Turn Lane Length = 325 feet
of Turning Lanes = 1
Advancing Volume = 417 VPH
Turning % (>10% HIGH) 45.3% HIGH
Design Condition = A
Vehicles per Cycle = 6.3
Storage Length (Calc) = 275 feet

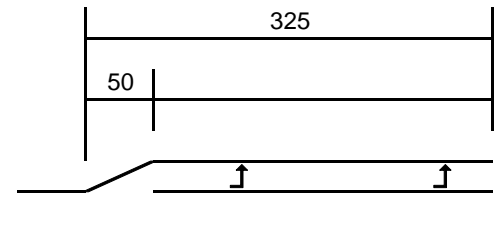


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375CNB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB LT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: AM PEAK

Type = Signalized
Speed = 35 MPH Storage Length (Adj) = 275 feet
Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
Turning Volume = 189 VPH Turn Lane Length = 325 feet
of Turning Lanes = 1
Advancing Volume = 189 VPH
Turning % (>10% HIGH) 100.0% HIGH
Design Condition = A
Vehicles per Cycle = 6.3
Storage Length (Calc) = 275 feet

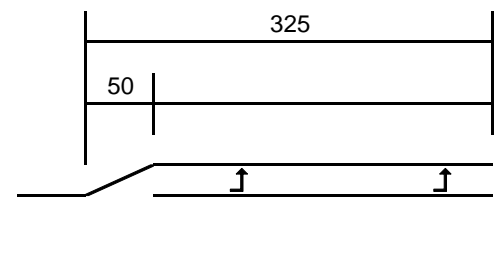


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375CB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type = Signalized
Speed = 35 MPH Storage Length (Adj) = 275 feet
Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
Turning Volume = 189 VPH Turn Lane Length = 325 feet
of Turning Lanes = 1
Advancing Volume = 206 VPH
Turning % (>10% HIGH) 91.7% HIGH
Design Condition = A
Vehicles per Cycle = 6.3
Storage Length (Calc) = 275 feet



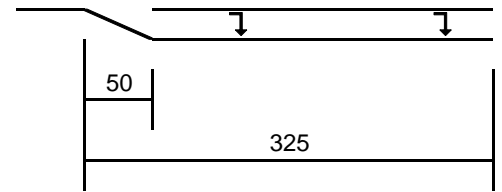
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1375INB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB RT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: AM Peak

Type = Signalized
 Speed = 35 MPH Storage Length (Adj) = 275 feet
 Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 211 VPH Turn Lane Length = 325 feet
 # of Turning Lanes = 1
 Advancing Volume = 400 VPH
 Turning % (>10% HIGH) 52.8% HIGH
 Design Condition = A
 Vehicles per Cycle = 7.03
 Storage Length (Calc) = 275 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

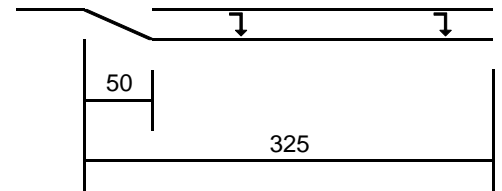


(1375IB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM Peak

Type = Signalized
 Speed = 35 MPH Storage Length (Adj) = 275 feet
 Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 211 VPH Turn Lane Length = 325 feet
 # of Turning Lanes = 1
 Advancing Volume = 417 VPH
 Turning % (>10% HIGH) 50.6% HIGH
 Design Condition = A
 Vehicles per Cycle = 7.03
 Storage Length (Calc) = 275 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

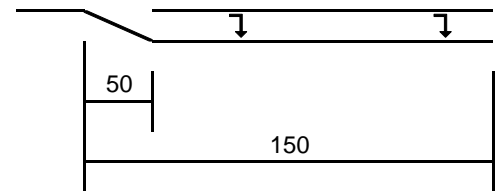


(1375CNB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - WB RT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM Peak

Type = Signalized
 Speed = 35 MPH Storage Length (Adj) = 100 feet
 Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 44 VPH Turn Lane Length = 150 feet
 # of Turning Lanes = 1
 Advancing Volume = 331 VPH
 Turning % (>10% HIGH) 13.3% HIGH
 Design Condition = A
 Vehicles per Cycle = 1.47
 Storage Length (Calc) = 100 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

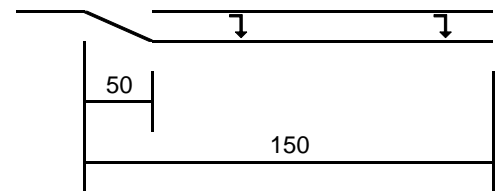


(1375CB-WB) PANHANDLE ROAD/MERRICK PARKWAY & US 23 - SB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type = Signalized
 Speed = 35 MPH Storage Length (Adj) = 100 feet
 Cycle Length = 120 seconds Deceleration/Div. Taper = 50 feet
 Turning Volume = 44 VPH Turn Lane Length = 150 feet
 # of Turning Lanes = 1
 Advancing Volume = 363 VPH
 Turning % (>10% HIGH) 12.1% HIGH
 Design Condition = A
 Vehicles per Cycle = 1.47
 Storage Length (Calc) = 100 feet

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



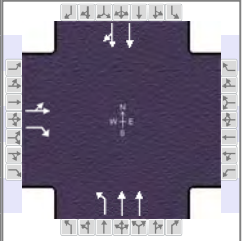
7876 US 23 & McDonalds

HCS Signalized Intersection Input Data

General Information						Intersection Information											
Agency		Smart Services Inc.				Duration, h		0.250									
Analyst		TJS		Analysis Date		Apr 14, 2023		Area Type		Other							
Jurisdiction		City of Delaware		Time Period		AM Peak		PHF		0.92							
Urban Street		US 23		Analysis Year		2044		Analysis Period		1 > 7:45							
Intersection		7876-US 23 & McDonal...		File Name		US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...											
Project Description		1A-2044 Incomplete Network No Build AM Peak															
Demand Information				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h				53	0	81				93	1162			1442	32		
Signal Information																	
Cycle, s		120.0		Reference Phase		2											
Offset, s		0		Reference Point		End											
Uncoordinated		No		Simult. Gap E/W		On											
Force Mode		Fixed		Simult. Gap N/S		On											
				Green	5.8	83.4	11.9	0.0	0.0	0.0							
				Yellow	4.3	4.3	3.0	0.0	0.0	0.0							
				Red	2.4	1.6	3.3	0.0	0.0	0.0							
Traffic Information				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h				53	0	81				93	1162			1442	32		
Initial Queue (Q _b), veh/h				0	0	0				0	0			0	0		
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900				1900	1900			1900	1900		
Parking (N _m), man/h				None						None			None				
Heavy Vehicles (P _{HV}), %				2		2				2	15				12		
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	0		
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0		
Arrival Type (AT)				3	3	3				3	3			3	3		
Upstream Filtering (I)				1.00	1.00	1.00				0.82	0.82			0.33	0.33		
Lane Width (W), ft				12.0		12.0				12.0	12.0				12.0		
Turn Bay Length, ft				0		0				0	0				0		
Grade (P _g), %				0			0			0		0					
Speed Limit, mi/h				45	45	45				45	45			45	45		
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT						
Maximum Green (G _{max}) or Phase Split, s				68.0					14.0	52.0				38.0			
Yellow Change Interval (Y), s				3.0					4.3	4.3				4.3			
Red Clearance Interval (R _c), s				3.3					2.4	1.6				1.6			
Minimum Green (G _{min}), s				12					6	30				30			
Start-Up Lost Time (I _t), s				2.0	2.0				2.0	2.0				2.0			
Extension of Effective Green (e), s				2.0	2.0				2.0	2.0				2.0			
Passage (PT), s				2.0					2.0	2.0				2.0			
Recall Mode				Off					Off	Min				Min			
Dual Entry				Yes					No	Yes				Yes			
Walk (Walk), s				0.0		0.0						0.0					
Pedestrian Clearance Time (PC), s				0.0		0.0						0.0					
Multimodal Information				EB			WB			NB			SB				
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0		
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0		
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No		
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0		
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50			

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45
Intersection	7876-US 23 & McDonal...	File Name	US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...		
Project Description	1A-2044 Incomplete Network No Build AM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	53	0	81				93	1162			1442	32

Signal Information				Phase Diagram								
Cycle, s	120.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	5.8	83.4	11.9	0.0	0.0	0.0				
		Yellow	4.3	4.3	3.0	0.0	0.0	0.0				
		Red	2.4	1.6	3.3	0.0	0.0	0.0				

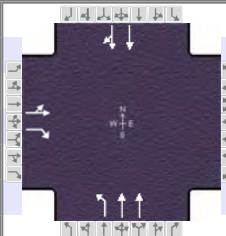
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		11.0			1.0	4.0		8.3
Phase Duration, s		18.2			12.5	101.8		89.3
Change Period, (Y+R _c), s		6.3			6.7	5.9		5.9
Max Allow Headway (MAH), s		3.2			3.0	0.0		0.0
Queue Clearance Time (g _s), s		8.0			4.0			
Green Extension Time (g _e), s		0.3			0.2	0.0		0.0
Phase Call Probability		0.99			0.97			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14				5	2		6	16	
Adjusted Flow Rate (v), veh/h		58	88				106	1318		954	954	
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1585				1781	1597		1722	1709	
Queue Service Time (g _s), s		3.6	6.0				2.0	19.8		77.0	50.4	
Cycle Queue Clearance Time (g _c), s		3.6	6.0				2.0	19.8		77.0	50.4	
Green Ratio (g/C)		0.10	0.15				0.76	0.80		0.69	0.69	
Capacity (c), veh/h		177	234				159	2553		1196	1187	
Volume-to-Capacity Ratio (X)		0.326	0.376				0.664	0.517		0.797	0.803	
Back of Queue (Q), ft/ln (95 th percentile)		72.9	106.9				100.6	243.4		600.4	563.2	
Back of Queue (Q), veh/ln (95 th percentile)		2.9	4.2				4.0	8.7		21.9	22.5	
Queue Storage Ratio (RQ) (95 th percentile)		0.00	0.00				0.00	0.00		0.00	0.00	
Uniform Delay (d ₁), s/veh		50.3	46.1				34.7	5.4		15.7	16.3	
Incremental Delay (d ₂), s/veh		0.4	0.4				1.5	0.6		1.9	2.0	
Initial Queue Delay (d ₃), s/veh		0.0	0.0				0.0	0.0		0.0	0.0	
Control Delay (d), s/veh		50.7	46.5				36.1	6.0		17.6	18.3	
Level of Service (LOS)		D	D				D	A		B	B	
Approach Delay, s/veh / LOS	48.2		D	0.0			8.2		A	17.9		B
Intersection Delay, s/veh / LOS	15.2						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.15	B	1.32	A	1.87	B
Bicycle LOS Score / LOS	0.73	A			1.61	B	1.81	B

HCS Signalized Intersection Input Data

General Information				Intersection Information			
Agency	Smart Services Inc.			Duration, h	0.250		
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other		
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92		
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30		
Intersection	7876-US 23 & McDonal...	File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...				
Project Description	1P-2044 Incomplete Network No Build PM Peak						



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	55	0	87				52	1801			1613	23

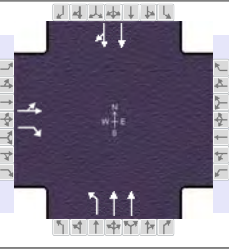




Signal Information				Signal Timing (s)									
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	5.2	84.0	11.9	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0			
				Red	2.4	1.6	3.3	0.0	0.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	55	0	87				52	1801			1613	23
Initial Queue (Q _b), veh/h	0	0	0				0	0			0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900				1900	1900			1900	1900
Parking (N _m), man/h		None						None			None	
Heavy Vehicles (P _{HV}), %		2	2				2	10			15	
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (AT)	3	3	3				3	3			3	3
Upstream Filtering (I)	1.00	1.00	1.00				0.23	0.23			0.32	0.32
Lane Width (W), ft		12.0	12.0				12.0	12.0			12.0	
Turn Bay Length, ft		0	0				0	0			0	
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45				45	45			45	45

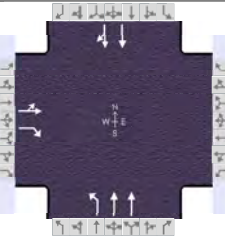
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		43.0			41.0	77.0		36.0
Yellow Change Interval (Y), s		3.0			4.3	4.3		4.3
Red Clearance Interval (R _c), s		3.3			2.4	1.6		1.6
Minimum Green (G _{min}), s		12			6	30		30
Start-Up Lost Time (I _t), s	2.0	2.0			2.0	2.0		2.0
Extension of Effective Green (e), s	2.0	2.0			2.0	2.0		2.0
Passage (PT), s		2.0			2.0	2.0		2.0
Recall Mode		Off			Off	Min		Min
Dual Entry		Yes			No	Yes		Yes
Walk (Walk), s		0.0		0.0				0.0
Pedestrian Clearance Time (PC), s		0.0		0.0				0.0

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

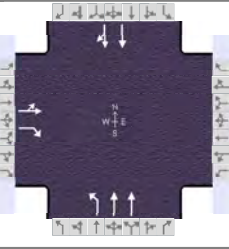
HCS Signalized Intersection Results Summary

General Information						Intersection Information												
Agency	Smart Services Inc.					Duration, h	0.250											
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other											
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92											
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30											
Intersection	7876-US 23 & McDonal...		File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...														
Project Description	1P-2044 Incomplete Network No Build PM Peak																	
Demand Information				EB			WB			NB			SB					
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R			
Demand (v), veh/h				55	0	87				52	1801			1613	23			
Signal Information																		
Cycle, s	120.0	Reference Phase	2															
Offset, s	0	Reference Point	End	Green	5.2	84.0	11.9	0.0	0.0	0.0								
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0								
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0								
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT							
Assigned Phase					4			5	2			6						
Case Number					11.0			1.0	4.0			8.3						
Phase Duration, s					18.2			11.9	101.8			89.9						
Change Period, (Y+R _c), s					6.3			6.7	5.9			5.9						
Max Allow Headway (MAH), s					3.2			3.0	0.0			0.0						
Queue Clearance Time (g _s), s					8.5			3.0										
Green Extension Time (g _e), s					0.3			0.1	0.0			0.0						
Phase Call Probability					0.99			0.86										
Max Out Probability					0.00			0.00										
Movement Group Results				EB			WB			NB			SB					
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R			
Assigned Movement				7	4	14				5	2		6	16				
Adjusted Flow Rate (v), veh/h					60	95				59	2048		955	955				
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1585				1781	1668		1678	1669				
Queue Service Time (g _s), s					3.8	6.5				1.0	45.8		101.9	53.9				
Cycle Queue Clearance Time (g _c), s					3.8	6.5				1.0	45.8		101.9	53.9				
Green Ratio (g/C)					0.10	0.14				0.76	0.80		0.70	0.70				
Capacity (c), veh/h					177	226				137	2665		1174	1169				
Volume-to-Capacity Ratio (X)					0.338	0.419				0.433	0.769		0.813	0.817				
Back of Queue (Q), ft/ln (95 th percentile)					75.8	116.4				52.6	456.5		668.9	604.4				
Back of Queue (Q), veh/ln (95 th percentile)					3.0	4.6				2.1	16.9		23.9	24.2				
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00				0.00	0.00		0.00	0.00				
Uniform Delay (d ₁), s/veh					50.4	46.9				34.4	9.6		17.7	18.1				
Incremental Delay (d ₂), s/veh					0.4	0.5				0.2	0.5		2.1	2.2				
Initial Queue Delay (d ₃), s/veh					0.0	0.0				0.0	0.0		0.0	0.0				
Control Delay (d), s/veh					50.8	47.4				34.6	10.1		19.8	20.2				
Level of Service (LOS)					D	D				C	B		B	C				
Approach Delay, s/veh / LOS				48.7	D		0.0			10.8	B		20.0	C				
Intersection Delay, s/veh / LOS				16.4						B								
Multimodal Results				EB			WB			NB			SB					
Pedestrian LOS Score / LOS				2.32	B		2.15	B		1.32	A		1.87	B				
Bicycle LOS Score / LOS				0.74	A				2.15	B		1.95	B					

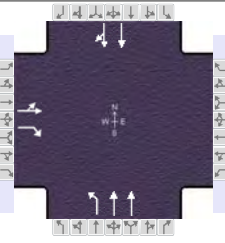
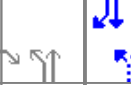


HCS Signalized Intersection Input Data

General Information						Intersection Information											
Agency			Smart Services Inc.			Duration, h		0.250									
Analyst		TJS		Analysis Date		Apr 14, 2023		Area Type		Other							
Jurisdiction			City of Delaware			Time Period		AM Peak									
Urban Street			US 23			Analysis Year		2044									
Intersection			7876-US 23 & McDonal...			File Name		US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...									
Project Description			3A-2044 Incomplete Network Build AM Peak														
Demand Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						53	0	81				93	1193			1443	32
Signal Information																	
Cycle, s		130.0		Reference Phase		2											
Offset, s		24		Reference Point		End											
Uncoordinated		No		Simult. Gap E/W		On		Green			5.9			93.3			
Force Mode		Fixed		Simult. Gap N/S		On		Yellow			4.3			4.3			
								Red			2.4			1.6			
Traffic Information						EB			WB			NB			SB		
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h						53	0	81				93	1193			1443	32
Initial Queue (Q _b), veh/h						0	0	0				0	0		0	0	0
Base Saturation Flow Rate (s ₀), veh/h						1900	1900	1900				1900	1900		1900	1900	
Parking (N _m), man/h						None						None			None		
Heavy Vehicles (P _{HV}), %						2		2				2		15	12		
Ped / Bike / RTOR, /h						0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h						0	0	0				0	0	0	0	0	0
Arrival Type (AT)						3	3	3				3	3		3	3	
Upstream Filtering (I)						1.00	1.00	1.00				0.73	0.73		0.44	0.44	
Lane Width (W), ft						12.0		12.0				12.0		12.0	12.0		
Turn Bay Length, ft						0		0				0		0	0		
Grade (P _g), %						0			0			0			0		
Speed Limit, mi/h						45	45	45				45	45			45	45
Phase Information						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s							47.0			40.0	83.0		43.0				
Yellow Change Interval (Y), s							3.0			4.3	4.3		4.3				
Red Clearance Interval (R _c), s							3.3			2.4	1.6		1.6				
Minimum Green (G _{min}), s							12			6	30		30				
Start-Up Lost Time (l _t), s						2.0	2.0			2.0	2.0		2.0				
Extension of Effective Green (e), s						2.0	2.0			2.0	2.0		2.0				
Passage (P _T), s							2.0			2.0	2.0		2.0				
Recall Mode							Off			Off	Min		Min				
Dual Entry							Yes			No	Yes		Yes				
Walk (Walk), s							0.0		0.0				0.0				
Pedestrian Clearance Time (P _C), s							0.0		0.0				0.0				
Multimodal Information						EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius						0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft						9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft						0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft						12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking						No	0.50		No				0.50		No	0.50	

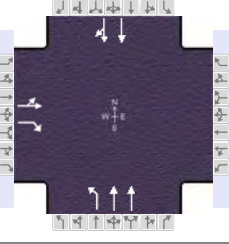
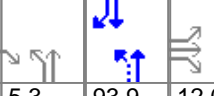



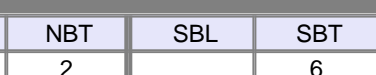
HCS Signalized Intersection Results Summary

General Information						Intersection Information															
Agency	Smart Services Inc.					Duration, h	0.250														
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other														
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92														
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45														
Intersection	7876-US 23 & McDonal...		File Name	US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...																	
Project Description	3A-2044 Incomplete Network Build AM Peak																				
Demand Information						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Demand (v), veh/h						53	0	81				93	1193				1443	32			
Signal Information																					
Cycle, s	130.0	Reference Phase	2																		
Offset, s	24	Reference Point	End																		
Uncoordinated	No	Simult. Gap E/W	On			Green	5.9	93.3	11.9	0.0	0.0	0.0									
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	4.3	4.3	3.0	0.0	0.0	0.0									
						Red	2.4	1.6	3.3	0.0	0.0	0.0									
Timer Results						EBL		EBT		WBL		WBT		NBL		NBT		SBL		SBT	
Assigned Phase								4						5		2				6	
Case Number								11.0						1.0		4.0				8.3	
Phase Duration, s								18.2						12.6		111.8				99.2	
Change Period, (Y+R _c), s								6.3						6.7		5.9				5.9	
Max Allow Headway (MAH), s								3.2						3.0		0.0				0.0	
Queue Clearance Time (g _s), s								8.6						4.0							
Green Extension Time (g _e), s								0.3						0.2		0.0				0.0	
Phase Call Probability								0.99						0.98							
Max Out Probability								0.00						0.00							
Movement Group Results						EB			WB			NB			SB						
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R				
Assigned Movement						7	4	14				5	2			6	16				
Adjusted Flow Rate (v), veh/h							58	88				105	1350			955	954				
Adjusted Saturation Flow Rate (s), veh/h/ln							1781	1585				1781	1597			1722	1709				
Queue Service Time (g _s), s							3.9	6.6				2.0	11.7			81.5	51.6				
Cycle Queue Clearance Time (g _c), s							3.9	6.6				2.0	11.7			81.5	51.6				
Green Ratio (g/C)							0.09	0.14				0.78	0.81			0.72	0.72				
Capacity (c), veh/h							164	217				157	2601			1236	1226				
Volume-to-Capacity Ratio (X)							0.352	0.406				0.670	0.519			0.772	0.778				
Back of Queue (Q), ft/ln (95 th percentile)							80.6	118.8				116.1	99.2			636.9	597.5				
Back of Queue (Q), veh/ln (95 th percentile)							3.2	4.7				4.6	3.5			23.2	23.9				
Queue Storage Ratio (RQ) (95 th percentile)							0.00	0.00				0.00	0.00			0.00	0.00				
Uniform Delay (d ₁), s/veh							55.4	51.3				39.0	2.1			15.0	15.6				
Incremental Delay (d ₂), s/veh							0.5	0.5				1.3	0.5			2.1	2.2				
Initial Queue Delay (d ₃), s/veh							0.0	0.0				0.0	0.0			0.0	0.0				
Control Delay (d), s/veh							55.9	51.7				40.3	2.6			17.1	17.8				
Level of Service (LOS)							E	D				D	A			B	B				
Approach Delay, s/veh / LOS						53.4		D	0.0			5.3		A	17.5		B				
Intersection Delay, s/veh / LOS						13.9						B									
Multimodal Results						EB			WB			NB			SB						
Pedestrian LOS Score / LOS						2.32		B	2.16		B	1.31		A	1.86		B				
Bicycle LOS Score / LOS						0.73		A				1.64		B	1.81		B				

HCS Signalized Intersection Input Data

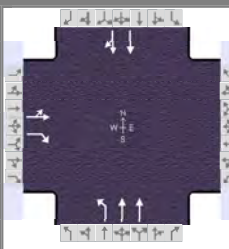
General Information						Intersection Information									
Agency	Smart Services Inc.					Duration, h	0.250								
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other								
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92								
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30								
Intersection	7876-US 23 & McDonal...		File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...											
Project Description	3P-2044 Incomplete Network Build PM Peak														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				55	0	87				52	1796			1630	23
Signal Information															
Cycle, s	130.0	Reference Phase	2												
Offset, s	2	Reference Point	End	Green	5.3	93.9	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				55	0	87				52	1796			1630	23
Initial Queue (Q _b), veh/h				0	0	0				0	0			0	0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900				1900	1900			1900	1900
Parking (N _m), man/h				None						None			None		
Heavy Vehicles (P _{HV}), %					2	2				2	10			15	
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0
Arrival Type (AT)				3	3	3				3	3			3	3
Upstream Filtering (I)				1.00	1.00	1.00				0.19	0.19			0.33	0.33
Lane Width (W), ft					12.0	12.0				12.0	12.0			12.0	
Turn Bay Length, ft					0	0				0	0			0	
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h				45	45	45				45	45			45	45
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					20.0			20.0	110.0		90.0				
Yellow Change Interval (Y), s					3.0			4.3	4.3		4.3				
Red Clearance Interval (R _c), s					3.3			2.4	1.6		1.6				
Minimum Green (G _{min}), s					12			6	30		30				
Start-Up Lost Time (I _t), s				2.0	2.0			2.0	2.0		2.0				
Extension of Effective Green (e), s				2.0	2.0			2.0	2.0		2.0				
Passage (PT), s					2.0			2.0	2.0		2.0				
Recall Mode					Off			Off	Min		Min				
Dual Entry					Yes			No	Yes		Yes				
Walk (Walk), s					0.0		0.0				0.0				
Pedestrian Clearance Time (PC), s					0.0		0.0				0.0				
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	7876-US 23 & McDonal...		File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...												
Project Description	3P-2044 Incomplete Network Build PM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				55	0	87				52	1796			1630	23	
Signal Information																
Cycle, s	130.0	Reference Phase	2													
Offset, s	2	Reference Point	End	Green	5.3	93.9	12.0	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0						
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase					4			5	2		6					
Case Number					11.0			1.0	4.0		8.3					
Phase Duration, s					18.3			12.0	111.7		99.8					
Change Period, (Y+R _c), s					6.3			6.7	5.9		5.9					
Max Allow Headway (MAH), s					3.2			3.0	0.0		0.0					
Queue Clearance Time (g _s), s					9.2			3.0								
Green Extension Time (g _e), s					0.1			0.0	0.0		0.0					
Phase Call Probability					1.00			0.88								
Max Out Probability					0.22			0.00								
Movement Group Results				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement				7	4	14				5	2		6	16		
Adjusted Flow Rate (v), veh/h					60	95				59	2022		965	965		
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1585				1781	1668		1678	1669		
Queue Service Time (g _s), s					4.1	7.2				1.0	47.2		53.2	56.0		
Cycle Queue Clearance Time (g _c), s					4.1	7.2				1.0	47.2		53.2	56.0		
Green Ratio (g/C)					0.09	0.13				0.78	0.81		0.72	0.72		
Capacity (c), veh/h					164	210				195	2716		1211	1205		
Volume-to-Capacity Ratio (X)					0.365	0.450				0.301	0.745		0.797	0.801		
Back of Queue (Q), ft/ln (95 th percentile)					83.7	129				43.9	481.9		687.2	621.7		
Back of Queue (Q), veh/ln (95 th percentile)					3.3	5.1				1.7	17.8		24.5	24.9		
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00				0.00	0.00		0.00	0.00		
Uniform Delay (d ₁), s/veh					55.5	52.0				21.0	9.8		16.6	17.0		
Incremental Delay (d ₂), s/veh					0.5	0.6				0.1	0.4		1.9	1.9		
Initial Queue Delay (d ₃), s/veh					0.0	0.0				0.0	0.0		0.0	0.0		
Control Delay (d), s/veh					56.0	52.6				21.1	10.2		18.5	18.9		
Level of Service (LOS)					E	D				C	B		B	B		
Approach Delay, s/veh / LOS				53.9	D	0.0			10.5	B	18.7	B				
Intersection Delay, s/veh / LOS				15.9			B									
Multimodal Results				EB			WB			NB			SB			
Pedestrian LOS Score / LOS				2.32	B	2.16	B	1.31	A	1.86	B					
Bicycle LOS Score / LOS				0.74	A			2.14	B	1.97	B					

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45
Intersection	7876-US 23 & McDonal...	File Name	US 23 (5A) - 2044 Complete Ntwk No Build - AM...		
Project Description	5A-2044 Complete Network No Build AM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	53	0	81				93	697			1090	32

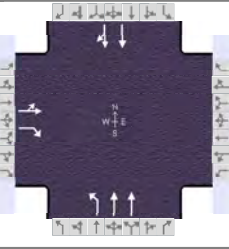
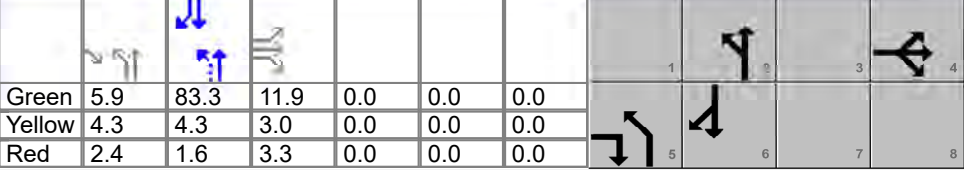
Signal Information				Signal Timing (s)									
Cycle, s	120.0	Reference Phase	2										
Offset, s	7	Reference Point	End	Green	5.9	83.3	11.9	0.0	0.0	0.0			
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	53	0	81				93	697			1090	32
Initial Queue (Q _b), veh/h	0	0	0				0	0			0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900				1900	1900			1900	1900
Parking (N _m), man/h	None						None			None		
Heavy Vehicles (P _{HV}), %		2	2				2	15				12
Ped / Bike / RTOR, /h	0	0	0	0	0		0	0		0	0	0
Buses (N _b), buses/h	0	0	0				0	0	0	0	0	0
Arrival Type (AT)	3	3	3				3	3				3
Upstream Filtering (I)	1.00	1.00	1.00				0.83	0.83				0.47
Lane Width (W), ft		12.0	12.0				12.0	12.0				12.0
Turn Bay Length, ft		0	0				0	0				0
Grade (P _g), %		0		0				0				0
Speed Limit, mi/h	45	45	45				45	45				45

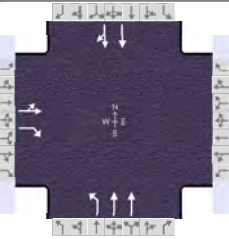








Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s		20.0			14.0	100.0		86.0
Yellow Change Interval (Y), s		3.0			4.3	4.3		4.3
Red Clearance Interval (R _c), s		3.3			2.4	1.6		1.6
Minimum Green (G _{min}), s		12			6	30		30
Start-Up Lost Time (l _t), s	2.0	2.0			2.0	2.0		2.0
Extension of Effective Green (e), s	2.0	2.0			2.0	2.0		2.0
Passage (P _T), s		2.0			2.0	2.0		2.0
Recall Mode		Off			Off	Min		Min
Dual Entry		Yes			No	Yes		Yes
Walk (Walk), s		0.0		0.0				0.0
Pedestrian Clearance Time (P _C), s		0.0		0.0				0.0

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

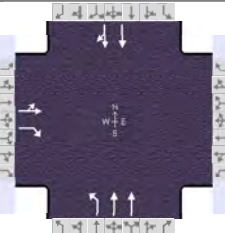
HCS Signalized Intersection Results Summary

General Information						Intersection Information											
Agency	Smart Services Inc.					Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other										
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92										
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45										
Intersection	7876-US 23 & McDonal...		File Name	US 23 (5A) - 2044 Complete Ntwk No Build - AM...													
Project Description	5A-2044 Complete Network No Build AM Peak																
Demand Information				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h				53	0	81				93	697			1090	32		
Signal Information																	
Cycle, s	120.0	Reference Phase	2														
Offset, s	7	Reference Point	End														
Uncoordinated	No	Simult. Gap E/W	On														
Force Mode	Fixed	Simult. Gap N/S	On														
Green	5.9	83.3	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Yellow	4.3	4.3	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Red	2.4	1.6	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT						
Assigned Phase					4			5	2		6						
Case Number					11.0			1.0	4.0		8.3						
Phase Duration, s					18.2			12.6	101.8		89.2						
Change Period, (Y+R _c), s					6.3			6.7	5.9		5.9						
Max Allow Headway (MAH), s					3.2			3.0	0.0		0.0						
Queue Clearance Time (g _s), s					8.0			4.0									
Green Extension Time (g _e), s					0.1			0.1	0.0		0.0						
Phase Call Probability					0.99			0.98									
Max Out Probability					0.06			0.06									
Movement Group Results				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Assigned Movement				7	4	14				5	2		6	16			
Adjusted Flow Rate (v), veh/h					58	88				115	861		775	770			
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1585				1781	1597		1722	1705			
Queue Service Time (g _s), s					3.6	6.0				2.0	7.2		22.0	43.2			
Cycle Queue Clearance Time (g _c), s					3.6	6.0				2.0	7.2		22.0	43.2			
Green Ratio (g/C)					0.10	0.15				0.76	0.80		0.69	0.69			
Capacity (c), veh/h					177	235				259	2553		1196	1184			
Volume-to-Capacity Ratio (X)					0.326	0.375				0.444	0.337		0.648	0.651			
Back of Queue (Q), ft/ln (95 th percentile)					72.9	106.9				77.9	74.7		637.9	586.6			
Back of Queue (Q), veh/ln (95 th percentile)					2.9	4.2				3.1	2.7		23.3	23.5			
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00				0.00	0.00		0.00	0.00			
Uniform Delay (d ₁), s/veh					50.3	46.1				17.6	2.5		22.5	23.1			
Incremental Delay (d ₂), s/veh					0.4	0.4				0.4	0.3		1.3	1.3			
Initial Queue Delay (d ₃), s/veh					0.0	0.0				0.0	0.0		0.0	0.0			
Control Delay (d), s/veh					50.7	46.5				18.0	2.8		23.8	24.4			
Level of Service (LOS)					D	D				B	A		C	C			
Approach Delay, s/veh / LOS				48.1	D		0.0			4.6	A	24.1	C				
Intersection Delay, s/veh / LOS				18.3					B								
Multimodal Results				EB			WB			NB			SB				
Pedestrian LOS Score / LOS				2.32	B		2.15	B		1.32	A		1.87	B			
Bicycle LOS Score / LOS				0.73	A				1.20	A		1.49	A				

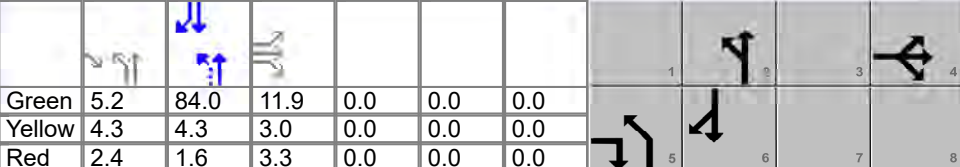
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	7876-US 23 & McDonal...		File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...												
Project Description	5P-2044 Complete Network No Build PM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				55	0	87				52	1257			1113	23	
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	30	Reference Point	End	Green	5.2	84.0	11.9	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				55	0	87				52	1257			1113	23	
Initial Queue (Q _b), veh/h				0	0	0				0	0			0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900				1900	1900			1900	1900	
Parking (N _m), man/h				None						None			None			
Heavy Vehicles (P _{HV}), %					2	2				2	10			15		
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	0	
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0	
Arrival Type (AT)				3	3	3				3	3			3	3	
Upstream Filtering (I)				1.00	1.00	1.00				0.56	0.56			0.68	0.68	
Lane Width (W), ft					12.0	12.0				12.0	12.0			12.0		
Turn Bay Length, ft					0	0				0	0			0		
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h				45	45	45				45	45			45	45	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s					23.0			18.0	97.0		79.0					
Yellow Change Interval (Y), s					3.0			4.3	4.3		4.3					
Red Clearance Interval (R _c), s					3.3			2.4	1.6		1.6					
Minimum Green (G _{min}), s					12			6	30		30					
Start-Up Lost Time (l _t), s				2.0	2.0			2.0	2.0		2.0					
Extension of Effective Green (e), s				2.0	2.0			2.0	2.0		2.0					
Passage (P _T), s					2.0			2.0	2.0		2.0					
Recall Mode					Off			Off	Min		Min					
Dual Entry					Yes			No	Yes		Yes					
Walk (Walk), s					0.0		0.0				0.0					
Pedestrian Clearance Time (P _C), s					0.0		0.0				0.0					
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	7876-US 23 & McDonal...	File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...			
Project Description	5P-2044 Complete Network No Build PM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	55	0	87				52	1257			1113	23

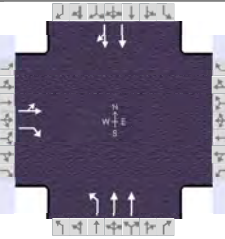
Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	30	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	5.2	84.0	11.9	0.0	0.0	0.0				
		Yellow	4.3	4.3	3.0	0.0	0.0	0.0				
		Red	2.4	1.6	3.3	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		11.0			1.0	4.0		8.3
Phase Duration, s		18.2			11.9	101.8		89.9
Change Period, (Y+R _c), s		6.3			6.7	5.9		5.9
Max Allow Headway (MAH), s		3.2			3.0	0.0		0.0
Queue Clearance Time (g _s), s		8.5			3.0			
Green Extension Time (g _e), s		0.2			0.0	0.0		0.0
Phase Call Probability		0.99			0.86			
Max Out Probability		0.00			0.00			

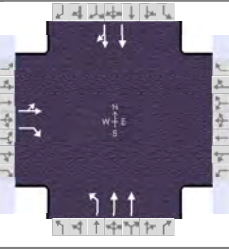
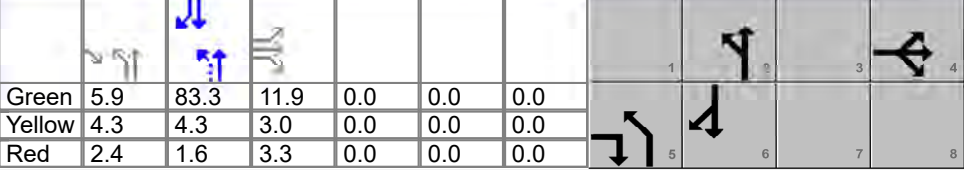
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14				5	2			6	16
Adjusted Flow Rate (v), veh/h		60	95				59	1431			691	687
Adjusted Saturation Flow Rate (s), veh/h/ln		1781	1585				1781	1668			1678	1666
Queue Service Time (g _s), s		3.8	6.5				1.0	6.9			27.5	36.5
Cycle Queue Clearance Time (g _c), s		3.8	6.5				1.0	6.9			27.5	36.5
Green Ratio (g/C)		0.10	0.14				0.76	0.80			0.70	0.70
Capacity (c), veh/h		177	226				293	2665			1174	1166
Volume-to-Capacity Ratio (X)		0.338	0.419				0.202	0.537			0.588	0.589
Back of Queue (Q), ft/ln (95 th percentile)		75.8	116.4				24	50.4			570.9	509.8
Back of Queue (Q), veh/ln (95 th percentile)		3.0	4.6				0.9	1.9			20.4	20.4
Queue Storage Ratio (RQ) (95 th percentile)		0.00	0.00				0.00	0.00			0.00	0.00
Uniform Delay (d ₁), s/veh		50.4	46.9				11.3	1.0			19.2	19.4
Incremental Delay (d ₂), s/veh		0.4	0.5				0.1	0.4			1.5	1.5
Initial Queue Delay (d ₃), s/veh		0.0	0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh		50.8	47.4				11.4	1.5			20.7	20.9
Level of Service (LOS)		D	D				B	A			C	C
Approach Delay, s/veh / LOS	48.7	D		0.0			1.9	A		20.8	C	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.15	B	1.32	A	1.87	B
Bicycle LOS Score / LOS	0.74	A			1.66	B	1.51	B

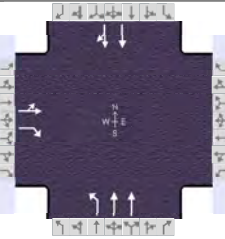








HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	7876-US 23 & McDonal...		File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...												
Project Description	6A-2044 Complete Network Build AM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				53	0	81				93	735			1117	32	
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	7	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On	Green	5.9	83.3	11.9	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
				Red	2.4	1.6	3.3	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				53	0	81				93	735			1117	32	
Initial Queue (Q _b), veh/h				0	0	0				0	0			0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900				1900	1900			1900	1900	
Parking (N _m), man/h				None						None			None			
Heavy Vehicles (P _{HV}), %					2	2				2	15			12		
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	0	
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0	
Arrival Type (AT)				3	3	3				3	3			3	3	
Upstream Filtering (I)				1.00	1.00	1.00				0.84	0.84			0.48	0.48	
Lane Width (W), ft					12.0	12.0				12.0	12.0			12.0		
Turn Bay Length, ft					0	0				0	0			0		
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h				45	45	45				45	45			45	45	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s					64.0			19.0	56.0		37.0					
Yellow Change Interval (Y), s					3.0			4.3	4.3		4.3					
Red Clearance Interval (R _c), s					3.3			2.4	1.6		1.6					
Minimum Green (G _{min}), s					12			6	30		30					
Start-Up Lost Time (l _t), s				2.0	2.0			2.0	2.0		2.0					
Extension of Effective Green (e), s				2.0	2.0			2.0	2.0		2.0					
Passage (P _T), s					2.0			2.0	2.0		2.0					
Recall Mode					Off			Off	Min		Min					
Dual Entry					Yes			No	Yes		Yes					
Walk (Walk), s					0.0		0.0				0.0					
Pedestrian Clearance Time (P _C), s					0.0		0.0				0.0					
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50		

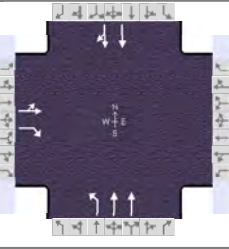
HCS Signalized Intersection Results Summary

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	7876-US 23 & McDonal...		File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...												
Project Description	6A-2044 Complete Network Build AM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				53	0	81				93	735			1117	32	
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	7	Reference Point	End	Green	5.9	83.3	11.9	0.0	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0	0.0					
Timer Results				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase					4			5	2			6				
Case Number					11.0			1.0	4.0			8.3				
Phase Duration, s					18.2			12.6	101.8			89.2				
Change Period, (Y+R _c), s					6.3			6.7	5.9			5.9				
Max Allow Headway (MAH), s					3.2			3.0	0.0			0.0				
Queue Clearance Time (g _s), s					8.0			3.9								
Green Extension Time (g _e), s					0.3			0.2	0.0			0.0				
Phase Call Probability					0.99			0.98								
Max Out Probability					0.00			0.00								
Movement Group Results				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement				7	4	14				5	2		6	16		
Adjusted Flow Rate (v), veh/h					58	88				114	901		790	785		
Adjusted Saturation Flow Rate (s), veh/h/ln					1781	1585				1781	1597		1722	1705		
Queue Service Time (g _s), s					3.6	6.0				1.9	6.6		51.0	44.6		
Cycle Queue Clearance Time (g _c), s					3.6	6.0				1.9	6.6		51.0	44.6		
Green Ratio (g/C)					0.10	0.15				0.76	0.80		0.69	0.69		
Capacity (c), veh/h					177	235				235	2553		1196	1184		
Volume-to-Capacity Ratio (X)					0.326	0.375				0.486	0.353		0.661	0.663		
Back of Queue (Q), ft/ln (95 th percentile)					72.9	106.9				95.9	65.2		659.6	606.4		
Back of Queue (Q), veh/ln (95 th percentile)					2.9	4.2				3.8	2.3		24.1	24.3		
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00				0.00	0.00		0.00	0.00		
Uniform Delay (d ₁), s/veh					50.3	46.1				22.8	2.1		23.2	23.8		
Incremental Delay (d ₂), s/veh					0.4	0.4				0.5	0.3		1.4	1.4		
Initial Queue Delay (d ₃), s/veh					0.0	0.0				0.0	0.0		0.0	0.0		
Control Delay (d), s/veh					50.7	46.5				23.3	2.4		24.6	25.2		
Level of Service (LOS)					D	D				C	A		C	C		
Approach Delay, s/veh / LOS				48.1	D		0.0			4.8	A		24.9	C		
Intersection Delay, s/veh / LOS				18.7					B							
Multimodal Results				EB			WB			NB			SB			
Pedestrian LOS Score / LOS				2.32	B		2.15	B		1.32	A		1.87	B		
Bicycle LOS Score / LOS				0.73	A				1.23	A		1.52	B			

HCS Signalized Intersection Input Data

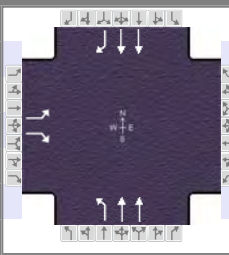
General Information						Intersection Information											
Agency	Smart Services Inc.					Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other										
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92										
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30										
Intersection	7876-US 23 & McDonal...		File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...													
Project Description	6P-2044 Complete Network Build PM Peak																
Demand Information				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h				55	0	87				52	1288			1153	23		
Signal Information																	
Cycle, s	120.0	Reference Phase	2														
Offset, s	97	Reference Point	End	Green	5.2	84.0	11.9	0.0	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.0	0.0	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.4	1.6	3.3	0.0	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB				
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R		
Demand (v), veh/h				55	0	87				52	1288			1153	23		
Initial Queue (Q _b), veh/h				0	0	0				0	0			0	0		
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900				1900	1900			1900	1900		
Parking (N _m), man/h				None						None			None				
Heavy Vehicles (P _{HV}), %					2	2				2	10			15			
Ped / Bike / RTOR, /h				0	0	0	0	0		0	0		0	0	0		
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0		
Arrival Type (AT)				3	3	3				3	3			3	3		
Upstream Filtering (I)				1.00	1.00	1.00				0.55	0.55			0.68	0.68		
Lane Width (W), ft					12.0	12.0				12.0	12.0			12.0			
Turn Bay Length, ft					0	0				0	0			0			
Grade (P _g), %					0			0			0			0			
Speed Limit, mi/h				45	45	45				45	45			45	45		
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT						
Maximum Green (G _{max}) or Phase Split, s					36.0			21.0	84.0			63.0					
Yellow Change Interval (Y), s					3.0			4.3	4.3			4.3					
Red Clearance Interval (R _c), s					3.3			2.4	1.6			1.6					
Minimum Green (G _{min}), s					12			6	30			30					
Start-Up Lost Time (l _t), s				2.0	2.0			2.0	2.0			2.0					
Extension of Effective Green (e), s				2.0	2.0			2.0	2.0			2.0					
Passage (P _T), s					2.0			2.0	2.0			2.0					
Recall Mode					Off			Off	Min			Min					
Dual Entry					Yes			No	Yes			Yes					
Walk (Walk), s					0.0		0.0					0.0					
Pedestrian Clearance Time (P _C), s					0.0		0.0					0.0					
Multimodal Information				EB			WB			NB			SB				
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0		
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0		
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No		
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0		
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50			

HCS Signalized Intersection Results Summary

General Information						Intersection Information												
Agency	Smart Services Inc.					Duration, h	0.250											
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other											
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92											
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30											
Intersection	7876-US 23 & McDonal...		File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...														
Project Description	6P-2044 Complete Network Build PM Peak																	
Demand Information						EB			WB			NB			SB			
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h						55	0	87				52	1288			1153	23	
Signal Information																		
Cycle, s	120.0	Reference Phase	2															
Offset, s	97	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On			Green	5.2	84.0	11.9	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	4.3	4.3	3.0	0.0	0.0	0.0						
						Red	2.4	1.6	3.3	0.0	0.0	0.0						
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase							4			5	2		6					
Case Number							11.0			1.0	4.0		8.3					
Phase Duration, s							18.2			11.9	101.8		89.9					
Change Period, (Y+R _c), s							6.3			6.7	5.9		5.9					
Max Allow Headway (MAH), s							3.2			3.0	0.0		0.0					
Queue Clearance Time (g _s), s							8.5			3.0								
Green Extension Time (g _e), s							0.3			0.1	0.0		0.0					
Phase Call Probability							0.99			0.86								
Max Out Probability							0.00			0.00								
Movement Group Results						EB			WB			NB			SB			
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement						7	4	14				5	2		6	16		
Adjusted Flow Rate (v), veh/h							60	95				59	1463		712	708		
Adjusted Saturation Flow Rate (s), veh/h/ln							1781	1585				1781	1668		1678	1666		
Queue Service Time (g _s), s							3.8	6.5				1.0	30.4		38.9	41.3		
Cycle Queue Clearance Time (g _c), s							3.8	6.5				1.0	30.4		38.9	41.3		
Green Ratio (g/C)							0.10	0.14				0.76	0.80		0.70	0.70		
Capacity (c), veh/h							177	226				271	2665		1174	1166		
Volume-to-Capacity Ratio (X)							0.338	0.419				0.218	0.549		0.606	0.607		
Back of Queue (Q), ft/ln (95 th percentile)							75.8	116.4				26.6	413.8		660.7	589.6		
Back of Queue (Q), veh/ln (95 th percentile)							3.0	4.6				1.0	15.3		23.6	23.6		
Queue Storage Ratio (RQ) (95 th percentile)							0.00	0.00				0.00	0.00		0.00	0.00		
Uniform Delay (d ₁), s/veh							50.4	46.9				12.5	10.4		23.9	24.1		
Incremental Delay (d ₂), s/veh							0.4	0.5				0.1	0.4		1.6	1.6		
Initial Queue Delay (d ₃), s/veh							0.0	0.0				0.0	0.0		0.0	0.0		
Control Delay (d), s/veh							50.8	47.4				12.6	10.9		25.5	25.7		
Level of Service (LOS)							D	D				B	B		C	C		
Approach Delay, s/veh / LOS						48.7	D	0.0		10.9	B	25.6	C					
Intersection Delay, s/veh / LOS						19.5			B									
Multimodal Results						EB			WB			NB			SB			
Pedestrian LOS Score / LOS						2.32	B	2.15	B	1.32	A	1.87	B					
Bicycle LOS Score / LOS						0.74	A			1.69	B	1.54	B					

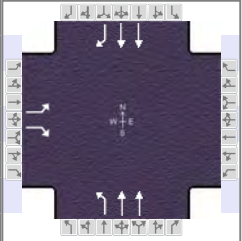
1341 US 23 & Hills-Miller

HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency			Smart Services Inc.			Duration, h		0.250							
Analyst		TJS		Analysis Date		Apr 14, 2023		Area Type		Other					
Jurisdiction			City of Delaware			Time Period		AM Peak							
Urban Street			US 23			Analysis Year		2044							
Intersection			1341-US 23 & Hills Mille...			File Name		US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...							
Project Description			1A-2044 Incomplete Network No Build AM Peak												
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				247		472				220	1189			1283	68
Signal Information															
Cycle, s		120.0	Reference Phase		2										
Offset, s		37	Reference Point		End										
Uncoordinated		No	Simult. Gap E/W		On	Green	11.4	56.4	33.8	0.0	0.0	0.0			
Force Mode		Fixed	Simult. Gap N/S		On	Yellow	4.3	4.3	3.6	0.0	0.0	0.0			
						Red	1.7	1.9	2.6	0.0	0.0	0.0			
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				247		472				220	1189			1283	68
Initial Queue (Q _b), veh/h				0		0				0	0			0	0
Base Saturation Flow Rate (s ₀), veh/h				1900		1900				1900	1900			1900	1900
Parking (N _m), man/h				None						None			None		
Heavy Vehicles (P _{HV}), %				13		2				7	15			16	3
Ped / Bike / RTOR, /h				0	0		0	0		0	0		0	0	0
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0
Arrival Type (AT)				3		3				3	3			3	3
Upstream Filtering (I)				1.00		1.00				0.85	0.85			1.00	1.00
Lane Width (W), ft				12.0		12.0				12.0	12.0			12.0	12.0
Turn Bay Length, ft				0		0				0	0			0	0
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h				45		45				45	45			45	45
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s				40.0	40.0			23.0	80.0			57.0			
Yellow Change Interval (Y), s				3.0	3.6			4.3	4.3			4.3			
Red Clearance Interval (R _c), s				1.0	2.6			1.7	1.9			1.9			
Minimum Green (G _{min}), s				7	10			10	20			20			
Start-Up Lost Time (I _t), s				2.0				2.0	2.0			2.0			
Extension of Effective Green (e), s				2.0				2.0	2.0			2.0			
Passage (P _T), s				2.0	2.0			2.0	2.0			2.0			
Recall Mode				Off	Off			Off	Min			Min			
Dual Entry				No	Yes			No	Yes			Yes			
Walk (Walk), s					0.0		0.0					0.0			
Pedestrian Clearance Time (P _C), s					0.0		0.0					0.0			
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (1A) - 2044 Incomplete Ntwk No Build - AM...		
Project Description	1A-2044 Incomplete Network No Build AM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	247		472				220	1189			1283	68

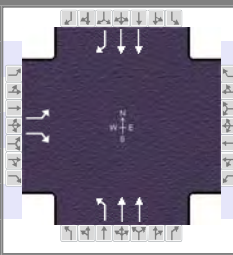
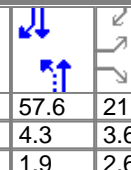
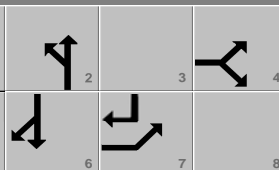
Signal Information				Phase Diagram								
Cycle, s	120.0	Reference Phase	2									
Offset, s	37	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
		Green	11.4	56.4	33.8	0.0	0.0	0.0				
		Yellow	4.3	4.3	3.6	0.0	0.0	0.0				
		Red	1.7	1.9	2.6	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		40.0			17.4	80.0		62.6
Change Period, (Y+R _c), s		6.2			6.0	6.2		6.2
Max Allow Headway (MAH), s		3.2			3.0	0.0		0.0
Queue Clearance Time (g _s), s		35.8			11.2			
Green Extension Time (g _e), s		0.0			0.2	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			0.06			

Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (v), veh/h	268		513				215	1161			1395	74
Adjusted Saturation Flow Rate (s), veh/h/ln	1626		1585				1711	1597			1583	1572
Queue Service Time (g _s), s	17.0		33.8				9.2	32.8			50.1	1.5
Cycle Queue Clearance Time (g _c), s	17.0		33.8				9.2	32.8			50.1	1.5
Green Ratio (g/C)	0.28		0.38				0.58	0.62			0.47	0.75
Capacity (c), veh/h	458		597				242	1965			1488	1182
Volume-to-Capacity Ratio (X)	0.586		0.859				0.887	0.591			0.937	0.063
Back of Queue (Q), ft/ln (95 th percentile)	303.2		541.4				296.8	510			775.9	18.3
Back of Queue (Q), veh/ln (95 th percentile)	11.0		21.3				11.2	18.2			27.5	0.7
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d ₁), s/veh	37.1		34.5				32.9	21.9			30.1	3.9
Incremental Delay (d ₂), s/veh	1.3		11.5				15.0	1.1			12.5	0.1
Initial Queue Delay (d ₃), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh	38.4		46.0				47.8	23.0			42.6	4.0
Level of Service (LOS)	D		D				D	C			D	A
Approach Delay, s/veh / LOS	43.4		D	0.0			26.9	C		40.7		D
Intersection Delay, s/veh / LOS	36.0						D					

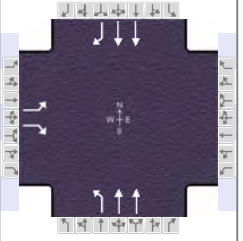
Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	0.69	A	1.91	B
Bicycle LOS Score / LOS		F			1.75	B	1.70	B

HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	Smart Services Inc.					Duration, h	0.250								
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other								
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92								
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30								
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...											
Project Description	1P-2044 Incomplete Network No Build PM Peak														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				219		369				367	1690			1388	162
Signal Information															
Cycle, s	120.0	Reference Phase	2												
Offset, s	42	Reference Point	End	Green	22.2	57.6	21.8	0.0	0.0	0.0					
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.6	0.0	0.0	0.0					
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.9	2.6	0.0	0.0	0.0					
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				219		369				367	1690			1388	162
Initial Queue (Q _b), veh/h				0		0				0	0			0	0
Base Saturation Flow Rate (s ₀), veh/h				1900		1900				1900	1900			1900	1900
Parking (N _m), man/h				None						None			None		
Heavy Vehicles (P _{HV}), %				3		2				3	10			12	2
Ped / Bike / RTOR, /h				0	0		0	0		0	0		0	0	0
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0
Arrival Type (AT)				3		3				3	3			3	3
Upstream Filtering (I)				1.00		1.00				0.57	0.57			1.00	1.00
Lane Width (W), ft				12.0		12.0				12.0	12.0			12.0	12.0
Turn Bay Length, ft				0		0				0	0			0	0
Grade (P _g), %					0			0			0			0	
Speed Limit, mi/h				45		45				45	45			45	45
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s				28.0	28.0			30.0	92.0		62.0				
Yellow Change Interval (Y), s				3.0	3.6			4.3	4.3		4.3				
Red Clearance Interval (R _c), s				1.0	2.6			1.7	1.9		1.9				
Minimum Green (G _{min}), s				7	10			10	20		20				
Start-Up Lost Time (I _t), s				2.0				2.0	2.0		2.0				
Extension of Effective Green (e), s				2.0				2.0	2.0		2.0				
Passage (PT), s				2.0	2.0			2.0	2.0		2.0				
Recall Mode				Off	Off			Off	Min		Min				
Dual Entry				No	Yes			No	Yes		Yes				
Walk (Walk), s					0.0		0.0				0.0				
Pedestrian Clearance Time (PC), s					0.0		0.0				0.0				
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50	

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (1P) - 2044 Incomplete Ntwk No Build - P...		
Project Description	1P-2044 Incomplete Network No Build PM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	219		369				367	1690			1388	162

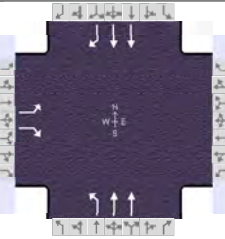
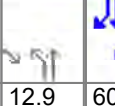


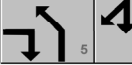
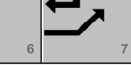
Signal Information				Phase Diagram								
Cycle, s	120.0	Reference Phase	2									
Offset, s	42	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	22.2	57.6	21.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Yellow	4.3	4.3	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Red	1.7	1.9	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		28.0			28.2	92.0		63.8
Change Period, ($Y+R_c$), s		6.2			6.0	6.2		6.2
Max Allow Headway (MAH), s		3.2			3.0	0.0		0.0
Queue Clearance Time (g_s), s		23.8			22.0			
Green Extension Time (g_e), s		0.0			0.2	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		1.00			1.00			

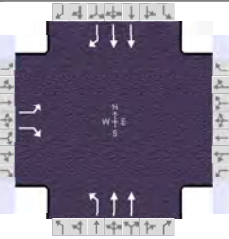
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2		6		16
Adjusted Flow Rate (v), veh/h	238		401				376	1732		1509		176
Adjusted Saturation Flow Rate (s), veh/h/ln	1767		1585				1767	1668		1639		1585
Queue Service Time (g_s), s	15.3		21.8				20.0	46.2		53.1		5.1
Cycle Queue Clearance Time (g_c), s	15.3		21.8				20.0	46.2		53.1		5.1
Green Ratio (g/C)	0.18		0.37				0.68	0.72		0.48		0.66
Capacity (c), veh/h	321		581				399	2385		1575		1049
Volume-to-Capacity Ratio (X)	0.741		0.691				0.942	0.726		0.958		0.168
Back of Queue (Q), ft/ln (95 th percentile)	298		382.6				420.1	616.7		827.1		74.2
Back of Queue (Q), veh/ln (95 th percentile)	11.6		15.1				16.4	22.8		30.2		2.9
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00		0.00		0.00
Uniform Delay (d_1), s/veh	46.4		32.3				36.0	17.7		30.0		7.7
Incremental Delay (d_2), s/veh	7.9		2.9				18.9	1.1		14.6		0.3
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0		0.0		0.0
Control Delay (d), s/veh	54.3		35.2				54.9	18.8		44.7		8.1
Level of Service (LOS)	D		D				D	B		D		A
Approach Delay, s/veh / LOS	42.3		D	0.0			25.2	C		40.8		D
Intersection Delay, s/veh / LOS	33.6						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	0.66	A	1.91	B
Bicycle LOS Score / LOS		F			2.33	B	1.88	B

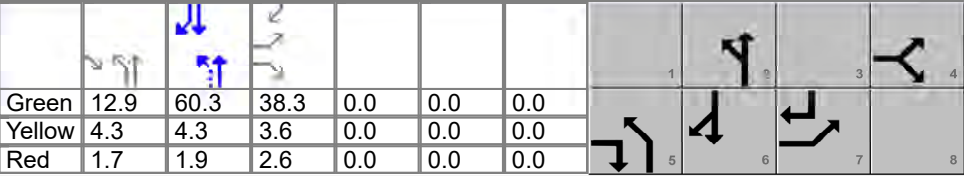
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...												
Project Description	3A-2044 Incomplete Network Build AM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				266		446				213	1227			1310	75	
Signal Information																
Cycle, s	130.0	Reference Phase	2													
Offset, s	65	Reference Point	End	Green	12.9	60.3	38.3	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.6	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.9	2.6	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				266		446				213	1227			1310	75	
Initial Queue (Q _b), veh/h				0		0				0	0			0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900		1900				1900	1900			1900	1900	
Parking (N _m), man/h				None						None			None			
Heavy Vehicles (P _{HV}), %				13		2				7	15			16	3	
Ped / Bike / RTOR, /h				0	0		0	0		0	0		0	0	0	
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0	
Arrival Type (AT)				3		3				3	3			3	3	
Upstream Filtering (I)				1.00		1.00				0.85	0.85			1.00	1.00	
Lane Width (W), ft				12.0		12.0				12.0	12.0			12.0	12.0	
Turn Bay Length, ft				0		0				0	0			0	0	
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h				45		45				45	45			45	45	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s				71.0	71.0			30.0	59.0			29.0				
Yellow Change Interval (Y), s				3.0	3.6			4.3	4.3			4.3				
Red Clearance Interval (R _c), s				1.0	2.6			1.7	1.9			1.9				
Minimum Green (G _{min}), s				7	10			10	20			20				
Start-Up Lost Time (l _t), s				2.0				2.0	2.0			2.0				
Extension of Effective Green (e), s				2.0				2.0	2.0			2.0				
Passage (PT), s				2.0	2.0			2.0	2.0			2.0				
Recall Mode				Off	Off			Off	Min			Min				
Dual Entry				No	Yes			No	Yes			Yes				
Walk (Walk), s					0.0		0.0					0.0				
Pedestrian Clearance Time (PC), s					0.0		0.0					0.0				
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (3A) - 2044 Incomplete Ntwk Build - AM Pe...			
Project Description	3A-2044 Incomplete Network Build AM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	266		446				213	1227			1310	75

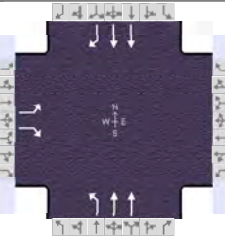

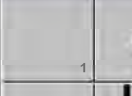

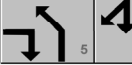
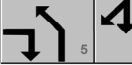
Signal Information														
Cycle, s	130.0	Reference Phase	2											
Offset, s	65	Reference Point	End	Green	12.9	60.3	38.3	0.0	0.0	0.0				
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.6	0.0	0.0	0.0				
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.9	2.6	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			5	2		6
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		44.5			18.9	85.5		66.5
Change Period, ($Y+R_c$), s		6.2			6.0	6.2		6.2
Max Allow Headway (MAH), s		3.2			3.0	0.0		0.0
Queue Clearance Time (g_s), s		36.7			12.6			
Green Extension Time (g_e), s		1.6			0.4	0.0		0.0
Phase Call Probability		1.00			1.00			
Max Out Probability		0.00			0.00			

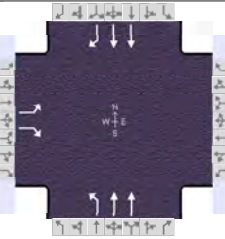
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				5	2			6	16
Adjusted Flow Rate (v), veh/h	289		485				208	1200			1424	82
Adjusted Saturation Flow Rate (s), veh/h/ln	1626		1585				1711	1597			1583	1572
Queue Service Time (g_s), s	19.8		34.7				10.6	35.2			56.9	1.7
Cycle Queue Clearance Time (g_c), s	19.8		34.7				10.6	35.2			56.9	1.7
Green Ratio (g/C)	0.29		0.39				0.58	0.61			0.46	0.76
Capacity (c), veh/h	480		625				235	1948			1470	1194
Volume-to-Capacity Ratio (X)	0.603		0.776				0.887	0.616			0.969	0.068
Back of Queue (Q), ft/ln (95 th percentile)	340.4		479.2				280.7	531			900.9	22
Back of Queue (Q), veh/ln (95 th percentile)	12.3		18.9				10.6	19.0			31.9	0.9
Queue Storage Ratio (RQ) (95 th percentile)	0.00		0.00				0.00	0.00			0.00	0.00
Uniform Delay (d_1), s/veh	39.3		34.4				38.2	21.4			33.9	4.0
Incremental Delay (d_2), s/veh	0.5		1.0				3.8	1.2			17.1	0.1
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (d), s/veh	39.8		35.4				42.0	22.7			51.0	4.1
Level of Service (LOS)	D		D				D	C			D	A
Approach Delay, s/veh / LOS	37.0		D	0.0			25.5	C			48.5	D
Intersection Delay, s/veh / LOS	37.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.32	B	2.32	B	0.69	A	1.91	B
Bicycle LOS Score / LOS		F			1.78	B	1.73	B

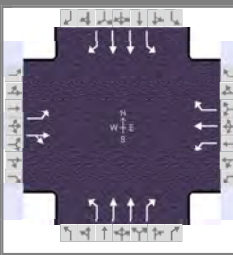
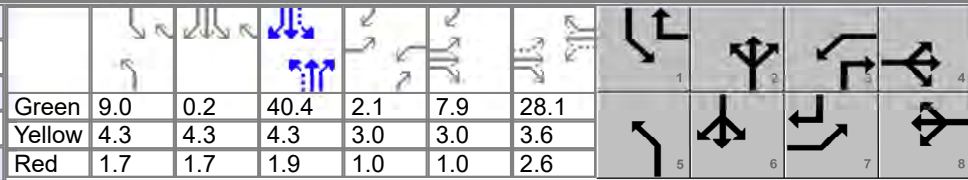
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency	Smart Services Inc.					Duration, h	0.250									
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other									
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...												
Project Description	3P-2044 Incomplete Network Build PM Peak															
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				232		346				331	1721			1428	185	
Signal Information																
Cycle, s	130.0	Reference Phase	2													
Offset, s	49	Reference Point	End	Green	22.3	62.6	26.7	0.0	0.0	0.0						
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.3	4.3	3.6	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.7	1.9	2.6	0.0	0.0	0.0						
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				232		346				331	1721			1428	185	
Initial Queue (Q _b), veh/h				0		0				0	0			0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900		1900				1900	1900			1900	1900	
Parking (N _m), man/h				None						None			None			
Heavy Vehicles (P _{HV}), %				3		0				3	10			12	2	
Ped / Bike / RTOR, /h				0	0		0	0		0	0		0	0	0	
Buses (N _b), buses/h				0	0	0				0	0	0	0	0	0	
Arrival Type (AT)				3		3				3	3			3	3	
Upstream Filtering (I)				1.00		1.00				0.60	0.60			1.00	1.00	
Lane Width (W), ft				12.0		12.0				12.0	12.0			12.0	12.0	
Turn Bay Length, ft				0		0				0	0			0	0	
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h				45		45				45	45			45	45	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s				33.0	33.0			39.0	97.0		58.0					
Yellow Change Interval (Y), s				3.0	3.6			4.3	4.3		4.3					
Red Clearance Interval (R _c), s				1.0	2.6			1.7	1.9		1.9					
Minimum Green (G _{min}), s				7	10			10	20		20					
Start-Up Lost Time (l _t), s				2.0				2.0	2.0		2.0					
Extension of Effective Green (e), s				2.0				2.0	2.0		2.0					
Passage (PT), s				2.0	2.0			2.0	2.0		2.0					
Recall Mode				Off	Off			Off	Min		Min					
Dual Entry				No	Yes			No	Yes		Yes					
Walk (Walk), s					0.0		0.0				0.0					
Pedestrian Clearance Time (PC), s					0.0		0.0				0.0					
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0				0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0				9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No		0		0.0		No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0				12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50		No				0.50		No	0.50		

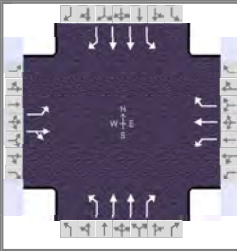
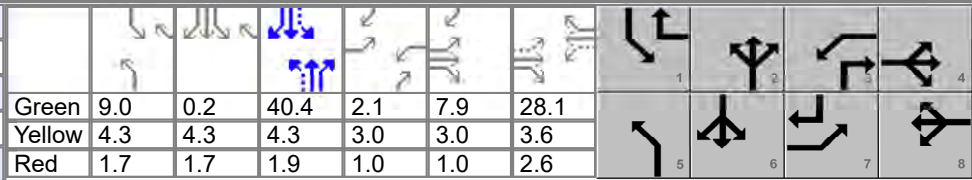
HCS Signalized Intersection Results Summary

General Information						Intersection Information												
Agency	Smart Services Inc.					Duration, h	0.250											
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other											
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92											
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30											
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (3P) - 2044 Incomplete Ntwk Build - PM Pe...														
Project Description	3P-2044 Incomplete Network Build PM Peak																	
Demand Information						EB			WB			NB			SB			
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h						232		346				331	1721			1428	185	
Signal Information																		
Cycle, s	130.0	Reference Phase	2															
Offset, s	49	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On			Green	22.3	62.6	26.7	0.0	0.0	0.0						
Force Mode	Fixed	Simult. Gap N/S	On			Yellow	4.3	4.3	3.6	0.0	0.0	0.0						
						Red	1.7	1.9	2.6	0.0	0.0	0.0						
Timer Results						EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Assigned Phase							4			5	2		6					
Case Number							9.0			1.0	4.0		7.3					
Phase Duration, s							32.9			28.3	97.1		68.8					
Change Period, (Y+R _c), s							6.2			6.0	6.2		6.2					
Max Allow Headway (MAH), s							3.2			3.0	0.0		0.0					
Queue Clearance Time (g _s), s							26.7			21.8								
Green Extension Time (g _e), s							0.0			0.5	0.0		0.0					
Phase Call Probability							1.00			1.00								
Max Out Probability							1.00			0.00								
Movement Group Results						EB			WB			NB			SB			
Approach Movement						L	T	R	L	T	R	L	T	R	L	T	R	
Assigned Movement						7		14				5	2		6		16	
Adjusted Flow Rate (v), veh/h						252		376				336	1746		1552		201	
Adjusted Saturation Flow Rate (s), veh/h/ln						1767		1610				1767	1668		1639		1585	
Queue Service Time (g _s), s						17.2		24.7				19.8	53.5		60.6		5.9	
Cycle Queue Clearance Time (g _c), s						17.2		24.7				19.8	53.5		60.6		5.9	
Green Ratio (g/C)						0.21		0.38				0.67	0.70		0.48		0.69	
Capacity (c), veh/h						363		607				363	2332		1579		1089	
Volume-to-Capacity Ratio (X)						0.694		0.620				0.924	0.749		0.983		0.185	
Back of Queue (Q), ft/ln (95 th percentile)						319.1		364.8				408.5	739.4		956.3		86.4	
Back of Queue (Q), veh/ln (95 th percentile)						12.5		14.6				16.0	27.4		34.9		3.4	
Queue Storage Ratio (RQ) (95 th percentile)						0.00		0.00				0.00	0.00		0.00		0.00	
Uniform Delay (d ₁), s/veh						47.9		32.9				44.1	22.3		33.2		7.3	
Incremental Delay (d ₂), s/veh						4.7		1.4				10.4	1.4		18.9		0.4	
Initial Queue Delay (d ₃), s/veh						0.0		0.0				0.0	0.0		0.0		0.0	
Control Delay (d), s/veh						52.6		34.4				54.4	23.6		52.1		7.7	
Level of Service (LOS)						D		C				D	C		D		A	
Approach Delay, s/veh / LOS						41.7		D	0.0			28.6	C	47.0		D		
Intersection Delay, s/veh / LOS						37.7						D						
Multimodal Results						EB			WB			NB			SB			
Pedestrian LOS Score / LOS						2.32		B	2.32		B	0.67		A	1.91		B	
Bicycle LOS Score / LOS								F				2.33		B	1.93		B	

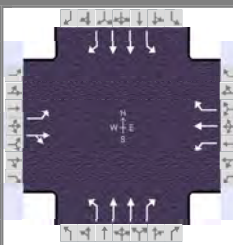
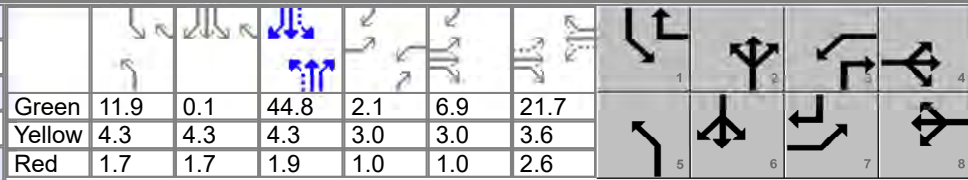
HCS Signalized Intersection Input Data

General Information						Intersection Information												
Agency	Smart Services Inc.					Duration, h	0.250											
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other											
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92											
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45											
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (4A) - 2044 Complete Ntwk No Build - AM...														
Project Description	4A-2044 Complete Network No Build AM Peak																	
Demand Information				EB			WB			NB			SB					
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R			
Demand (v), veh/h				217	65	394	10	198	329	72	891	10	277	1018	56			
Signal Information																		
Cycle, s	120.0	Reference Phase	2															
Offset, s	35	Reference Point	End															
Uncoordinated	No	Simult. Gap E/W	On															
Force Mode	Fixed	Simult. Gap N/S	On															
Green	9.0	0.2	40.4	2.1	7.9	28.1												
Yellow	4.3	4.3	4.3	3.0	3.0	3.6												
Red	1.7	1.7	1.9	1.0	1.0	2.6												
Traffic Information				EB			WB			NB			SB					
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R			
Demand (v), veh/h				217	65	394	10	198	329	72	891	10	277	1018	56			
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0			
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Parking (N _m), man/h				None			None			None			None					
Heavy Vehicles (P _{HV}), %				13	2		2	2	2	7	15	2	2	16	3			
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0			
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0			
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3			
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00			
Lane Width (W), ft				12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0			
Turn Bay Length, ft				0	0		0	0	0	0	0	0	0	0	0			
Grade (P _g), %					0			0			0			0				
Speed Limit, mi/h				45	45	45	45	45	45	45	45	45	45	45	45			
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT							
Maximum Green (G _{max}) or Phase Split, s				18.0	63.0	11.0	56.0	16.0	30.0	16.0	30.0	16.0	30.0					
Yellow Change Interval (Y), s				3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3	4.3	4.3					
Red Clearance Interval (R _c), s				1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9	1.7	1.9					
Minimum Green (G _{min}), s				7	10	7	10	10	20	10	20	10	20					
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Passage (PT), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0					
Recall Mode				Off	Off	Off	Off	Off	Min	Off	Min	Off	Min					
Dual Entry				No	Yes	No	Yes	No	Yes	No	Yes	No	Yes					
Walk (Walk), s					0.0		0.0		0.0		0.0		0.0					
Pedestrian Clearance Time (PC), s					0.0		0.0		0.0		0.0		0.0					
Multimodal Information				EB			WB			NB			SB					
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50	No	0.50	No	0.50	

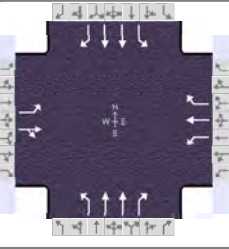
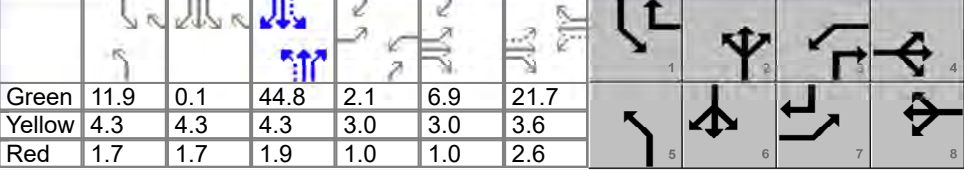
HCS Signalized Intersection Results Summary

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (4A) - 2044 Complete Ntwk No Build - AM...												
Project Description	4A-2044 Complete Network No Build AM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					217	65	394	10	198	329	72	891	10	277	1018	56
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	35	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	9.0	0.2	40.4	2.1	7.9	28.1										
Yellow	4.3	4.3	4.3	3.0	3.0	3.6										
Red	1.7	1.7	1.9	1.0	1.0	2.6										
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					7	4	3	8	5	2	1	6				
Case Number					1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0				
Phase Duration, s					18.0	46.1	6.1	34.3	15.0	46.6	21.2	52.8				
Change Period, ($Y+R_c$), s					4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2				
Max Allow Headway (MAH), s					3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0				
Queue Clearance Time (g_s), s					14.9	37.6	2.6	24.4	4.9		14.7					
Green Extension Time (g_e), s					0.0	2.3	0.0	2.3	0.1	0.0	0.5	0.0				
Phase Call Probability					1.00	1.00	0.30	1.00	0.90		1.00					
Max Out Probability					1.00	0.00	0.03	0.00	0.00		0.00					
Movement Group Results					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h					236	499		11	215	358	68	841	9	301	1107	61
Adjusted Saturation Flow Rate (s), veh/h/ln					1626	1620		1781	1870	1585	1711	1597	1585	1781	1583	1572
Queue Service Time (g_s), s					12.9	35.6		0.6	12.0	22.4	2.9	29.4	0.5	12.7	39.4	2.4
Cycle Queue Clearance Time (g_c), s					12.9	35.6		0.6	12.0	22.4	2.9	29.4	0.5	12.7	39.4	2.4
Green Ratio (g/C)					0.37	0.33		0.25	0.23	0.36	0.41	0.34	0.35	0.48	0.39	0.50
Capacity (c), veh/h					393	539		109	437	571	209	1074	561	345	1229	794
Volume-to-Capacity Ratio (X)					0.601	0.926		0.100	0.492	0.626	0.326	0.783	0.017	0.873	0.900	0.077
Back of Queue (Q), ft/ln (95 th percentile)					240.5	535.2		10.9	233.2	329.8	54.8	506.5	9.5	230.6	641.2	39.6
Back of Queue (Q), veh/ln (95 th percentile)					8.7	21.1		0.4	9.2	13.0	2.1	18.1	0.4	9.1	22.7	1.5
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh					29.2	38.6		36.6	39.8	31.7	27.6	40.6	29.5	26.0	34.5	15.3
Incremental Delay (d_2), s/veh					1.8	8.7		0.1	0.3	0.4	0.3	5.4	0.1	3.3	10.7	0.2
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					31.0	47.3		36.8	40.1	32.1	28.0	46.0	29.5	29.3	45.2	15.5
Level of Service (LOS)					C	D		D	D	C	C	D	C	C	D	B
Approach Delay, s/veh / LOS					42.0		D	35.2		D	44.5		D	40.7		D
Intersection Delay, s/veh / LOS					41.0						D					
Multimodal Results					EB			WB			NB			SB		
Pedestrian LOS Score / LOS					2.44		B	2.45		B	2.12		B	1.92		B
Bicycle LOS Score / LOS					1.70		B	1.45		A	1.36		A	1.70		B

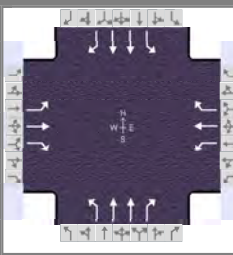
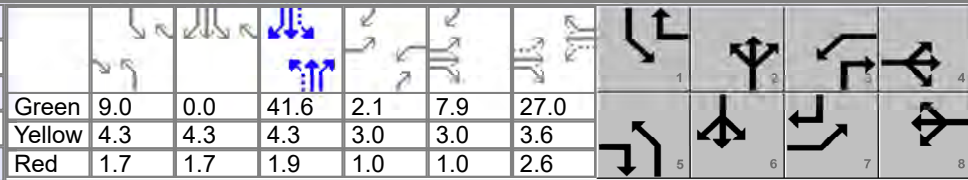
HCS Signalized Intersection Input Data

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (4P) - 2044 Complete Ntwk No Build - PM...												
Project Description	4P-2044 Complete Network No Build PM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					189	206	192	10	119	447	237	1276	10	351	1065	134
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	59	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	11.9	0.1	44.8	2.1	6.9	21.7										
Yellow	4.3	4.3	4.3	3.0	3.0	3.6										
Red	1.7	1.7	1.9	1.0	1.0	2.6										
Traffic Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					189	206	192	10	119	447	237	1276	10	351	1065	134
Initial Queue (Q _b), veh/h					0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h					1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h					None			None			None			None		
Heavy Vehicles (P _{HV}), %					3	2		2	2	2	3	10	2	2	12	2
Ped / Bike / RTOR, /h					0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h					0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)					3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)					1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Lane Width (W), ft					12.0	12.0		12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft					0	0		0	0	0	0	0	0	0	0	0
Grade (P _g), %						0			0			0			0	
Speed Limit, mi/h					45	45	45	45	45	45	45	45	45	45	45	45
Phase Information					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					21.0	33.0	12.0	24.0	28.0	51.0	24.0	47.0				
Yellow Change Interval (Y), s					3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3				
Red Clearance Interval (R _c), s					1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9				
Minimum Green (G _{min}), s					7	10	7	10	10	20	10	20				
Start-Up Lost Time (l _t), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (PT), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Recall Mode					Off	Off	Off	Off	Off	Min	Off	Min				
Dual Entry					No	Yes	No	Yes	No	Yes	No	Yes				
Walk (Walk), s						0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (PC), s						0.0		0.0		0.0		0.0				
Multimodal Information					EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius					0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft					9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft					0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft					12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking					No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

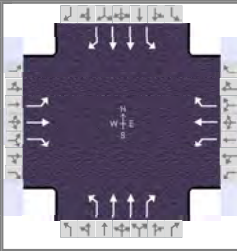
HCS Signalized Intersection Results Summary

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (4P) - 2044 Complete Ntwk No Build - PM...												
Project Description	4P-2044 Complete Network No Build PM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					189	206	192	10	119	447	237	1276	10	351	1065	134
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	59	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	11.9	0.1	44.8	2.1	6.9	21.7										
Yellow	4.3	4.3	4.3	3.0	3.0	3.6										
Red	1.7	1.7	1.9	1.0	1.0	2.6										
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					7	4	3	8	5	2	1	6				
Case Number					1.1	4.0	1.1	3.0	1.1	3.0	1.1	3.0				
Phase Duration, s					17.1	38.9	6.1	27.9	17.9	51.0	24.0	57.1				
Change Period, (Y+R _c), s					4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2				
Max Allow Headway (MAH), s					3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0				
Queue Clearance Time (g _s), s					12.9	31.3	2.6	23.7	11.6		20.0					
Green Extension Time (g _e), s					0.1	0.5	0.0	0.0	0.3	0.0	0.0	0.0				
Phase Call Probability					1.00	1.00	0.30	1.00	1.00		1.00					
Max Out Probability					0.34	1.00	0.00	1.00	0.00		1.00					
Movement Group Results					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h					205	433		11	129	486	232	1249	10	382	1158	146
Adjusted Saturation Flow Rate (s), veh/h/ln					1767	1721		1781	1870	1585	1767	1668	1585	1781	1639	1585
Queue Service Time (g _s), s					10.9	29.3		0.6	7.3	21.7	9.6	44.8	0.5	18.0	37.7	5.7
Cycle Queue Clearance Time (g _c), s					10.9	29.3		0.6	7.3	21.7	9.6	44.8	0.5	18.0	37.7	5.7
Green Ratio (g/C)					0.31	0.27		0.20	0.18	0.33	0.47	0.37	0.39	0.54	0.42	0.53
Capacity (c), veh/h					402	468		102	339	525	280	1244	619	328	1391	845
Volume-to-Capacity Ratio (X)					0.510	0.924		0.107	0.382	0.925	0.827	1.004	0.016	1.164	0.832	0.172
Back of Queue (Q), ft/ln (95 th percentile)					207	543.7		11.8	151.8	583.5	177.5	778	8.3	705.1	590.2	92.6
Back of Queue (Q), veh/ln (95 th percentile)					8.1	21.4		0.5	6.0	23.0	6.9	28.8	0.3	27.8	21.5	3.6
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh					33.1	42.5		40.5	43.2	38.7	26.0	39.0	23.8	39.2	30.8	14.4
Incremental Delay (d ₂), s/veh					0.4	23.6		0.2	0.3	22.1	3.8	24.2	0.0	101.8	6.0	0.4
Initial Queue Delay (d ₃), s/veh					0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					33.5	66.1		40.7	43.5	60.7	29.8	63.2	23.8	141.0	36.7	14.9
Level of Service (LOS)					C	E		D	D	E	C	F	C	F	D	B
Approach Delay, s/veh / LOS					55.6	E		56.8	E		57.8	E		58.4	E	
Intersection Delay, s/veh / LOS					57.6						E					
Multimodal Results					EB			WB			NB			SB		
Pedestrian LOS Score / LOS					2.45	B		2.46	B		2.12	B		1.92	B	
Bicycle LOS Score / LOS					1.54	B		1.52	B		1.85	B		1.88	B	

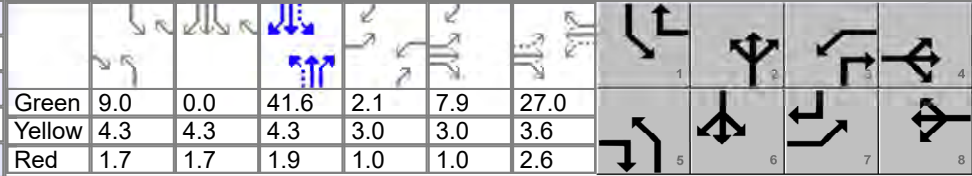
HCS Signalized Intersection Input Data

General Information						Intersection Information										
Agency			Smart Services Inc.			Duration, h		0.250								
Analyst		TJS		Analysis Date		Apr 14, 2023		Area Type		Other						
Jurisdiction			City of Delaware			Time Period		AM Peak		PHF			0.92			
Urban Street			US 23			Analysis Year		2044		Analysis Period			1 > 7:45			
Intersection			1341-US 23 & Hills Mille...			File Name		US 23 (5A) - 2044 Complete Ntwk No Build - AM...								
Project Description			5A-2044 Complete Network No Build AM Peak													
Demand Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				217	65	394	10	198	329	72	891	10	277	1018	56	
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	32	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	9.0	0.0	41.6	2.1	7.9	27.0										
Yellow	4.3	4.3	4.3	3.0	3.0	3.6										
Red	1.7	1.7	1.9	1.0	1.0	2.6										
Traffic Information				EB			WB			NB			SB			
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R	
Demand (v), veh/h				217	65	394	10	198	329	72	891	10	277	1018	56	
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0	
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Parking (N _m), man/h				None			None			None			None			
Heavy Vehicles (P _{HV}), %				13	2	0	2	2	2	7	15	2	2	16	3	
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0	
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0	
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3	
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	
Turn Bay Length, ft				0	0	0	0	0	0	0	0	0	0	0	0	
Grade (P _g), %				0			0			0			0			
Speed Limit, mi/h				45	45	45	45	45	45	45	45	45	45	45	45	
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT					
Maximum Green (G _{max}) or Phase Split, s				18.0	63.0	11.0	56.0	16.0	30.0	16.0	30.0	16.0	30.0			
Yellow Change Interval (Y), s				3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3	4.3	4.3			
Red Clearance Interval (R _c), s				1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9	1.7	1.9			
Minimum Green (G _{min}), s				7	10	7	10	10	20	10	20	10	20			
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Passage (PT), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Recall Mode				Off	Off	Off	Off	Off	Min	Off	Min					
Dual Entry				No	Yes	No	Yes	No	Yes	No	Yes					
Walk (Walk), s				0.0			0.0			0.0			0.0			
Pedestrian Clearance Time (PC), s				0.0			0.0			0.0			0.0			
Multimodal Information				EB			WB			NB			SB			
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No	
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50			

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (5A) - 2044 Complete Ntwk No Build - AM...			
Project Description	5A-2044 Complete Network No Build AM Peak					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	217	65	394	10	198	329	72	891	10	277	1018	56

Signal Information																								
Cycle, s	120.0	Reference Phase	2	Green	9.0	0.0	41.6	2.1	7.9	27.0	Yellow	4.3	4.3	4.3	3.0	3.0	3.6	Red	1.7	1.7	1.9	1.0	1.0	2.6
Offset, s	32	Reference Point	End	Uncoordinated	No	Simult. Gap E/W	On	Force Mode	Fixed	Simult. Gap N/S	On													

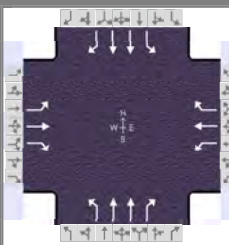
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	18.0	45.1	6.1	33.2	15.0	47.8	21.0	53.8
Change Period, ($Y+R_c$), s	4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2
Max Allow Headway (MAH), s	3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	15.1	28.2	2.6	24.7	4.9		14.5	
Green Extension Time (g_e), s	0.0	2.3	0.0	2.3	0.1	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	0.30	1.00	0.90		1.00	
Max Out Probability	1.00	0.00	0.03	0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	236	71	428	11	215	358	68	841	9	301	1107	61
Adjusted Saturation Flow Rate (s), veh/h/ln	1626	1870	1610	1781	1870	1585	1711	1597	1585	1781	1583	1572
Queue Service Time (g_s), s	13.1	3.2	26.2	0.6	12.1	22.7	2.9	28.4	0.5	12.5	38.9	2.3
Cycle Queue Clearance Time (g_c), s	13.1	3.2	26.2	0.6	12.1	22.7	2.9	28.4	0.5	12.5	38.9	2.3
Green Ratio (g/C)	0.36	0.32	0.40	0.24	0.22	0.35	0.42	0.35	0.36	0.49	0.40	0.51
Capacity (c), veh/h	382	606	642	391	421	554	215	1108	578	354	1257	808
Volume-to-Capacity Ratio (X)	0.618	0.117	0.667	0.028	0.512	0.645	0.316	0.759	0.016	0.850	0.880	0.075
Back of Queue (Q), ft/ln (95 th percentile)	244.9	63.9	370.2	10.9	236	335.4	53.4	474.7	8.5	223.5	623.8	38.7
Back of Queue (Q), veh/ln (95 th percentile)	8.9	2.5	14.8	0.4	9.3	13.2	2.0	17.0	0.3	8.8	22.1	1.5
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	30.0	28.5	29.6	34.6	40.7	32.8	26.7	36.5	26.0	25.3	33.5	14.8
Incremental Delay (d_2), s/veh	2.2	0.0	0.5	0.0	0.4	0.5	0.3	4.7	0.0	2.2	9.0	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	32.2	28.5	30.0	34.6	41.1	33.2	27.0	41.1	26.0	27.5	42.5	14.9
Level of Service (LOS)	C	C	C	C	D	C	C	D	C	C	D	B
Approach Delay, s/veh / LOS	30.6	C		36.2	D		39.9	D		38.3	D	
Intersection Delay, s/veh / LOS	36.8						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.45	B	2.12	B	2.11	B
Bicycle LOS Score / LOS	1.70	B	1.45	A	1.36	A	1.70	B

HCS Signalized Intersection Input Data

General Information				Intersection Information	
Agency	Smart Services Inc.			Duration, h	0.250
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...		
Project Description	5P-2044 Complete Network No Build PM Peak				



Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	189	206	192	10	119	447	237	1276	10	351	1065	134

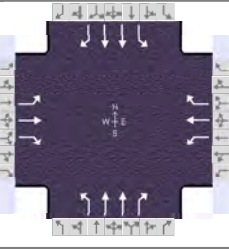
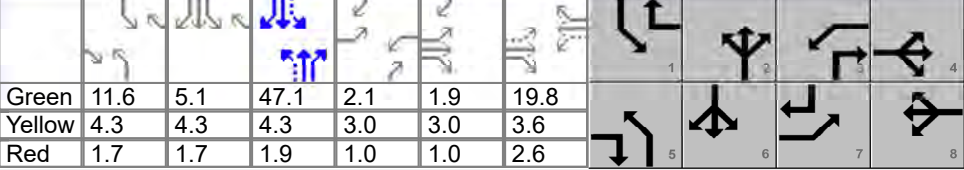
Signal Information				Signal Timing (s)									
Cycle, s	120.0	Reference Phase	2										
Offset, s	60	Reference Point	End										
Uncoordinated	No	Simult. Gap E/W	On	Green	11.6	5.1	47.1	2.1	1.9	19.8			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.3	4.3	4.3	3.0	3.0	3.6			
				Red	1.7	1.7	1.9	1.0	1.0	2.6			

Traffic Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	189	206	192	10	119	447	237	1276	10	351	1065	134
Initial Queue (Q _b), veh/h	0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h		None			None			None			None	
Heavy Vehicles (P _{HV}), %	3	2	0	2	2	2	3	10	2	2	12	2
Ped / Bike / RTOR, /h	0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h	0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)	3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)	1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83	1.00	1.00	1.00
Lane Width (W), ft	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft	0	0	0	0	0	0	0	0	0	0	0	0
Grade (P _g), %		0			0			0			0	
Speed Limit, mi/h	45	45	45	45	45	45	45	45	45	45	45	45

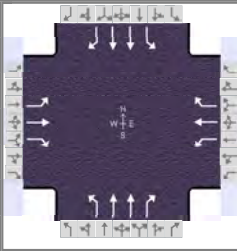
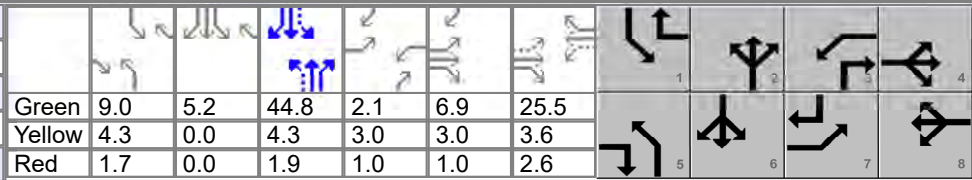
Phase Information	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Maximum Green (G _{max}) or Phase Split, s	12.0	26.0	12.0	26.0	29.0	45.0	37.0	53.0
Yellow Change Interval (Y), s	3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3
Red Clearance Interval (R _c), s	1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9
Minimum Green (G _{min}), s	7	10	7	10	10	20	10	20
Start-Up Lost Time (l _t), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Extension of Effective Green (e), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Passage (PT), s	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Recall Mode	Off	Off	Off	Off	Off	Min	Off	Min
Dual Entry	No	Yes	No	Yes	No	Yes	No	Yes
Walk (Walk), s		0.0		0.0		0.0		0.0
Pedestrian Clearance Time (PC), s		0.0		0.0		0.0		0.0

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

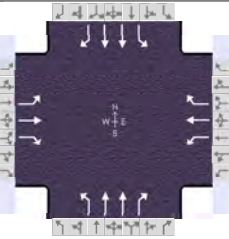
HCS Signalized Intersection Results Summary

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (5P) - 2044 Complete Ntwk No Build - PM...												
Project Description	5P-2044 Complete Network No Build PM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					189	206	192	10	119	447	237	1276	10	351	1065	134
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	60	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	11.6	5.1	47.1	2.1	1.9	19.8										
Yellow	4.3	4.3	4.3	3.0	3.0	3.6										
Red	1.7	1.7	1.9	1.0	1.0	2.6										
Timer Results					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Assigned Phase					7	4	3	8	5	2	1	6				
Case Number					1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0				
Phase Duration, s					12.0	31.9	6.1	26.0	17.6	53.3	28.7	64.4				
Change Period, (Y+R _c), s					4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2				
Max Allow Headway (MAH), s					3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0				
Queue Clearance Time (g _s), s					10.0	14.8	2.6	21.8	11.3		22.3					
Green Extension Time (g _e), s					0.0	1.9	0.0	0.0	0.3	0.0	0.5	0.0				
Phase Call Probability					1.00	1.00	0.30	1.00	1.00		1.00					
Max Out Probability					1.00	0.09	0.00	1.00	0.00		0.01					
Movement Group Results					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h					205	224	209	11	129	486	232	1249	10	382	1158	146
Adjusted Saturation Flow Rate (s), veh/h/ln					1767	1870	1610	1781	1870	1585	1767	1668	1585	1781	1639	1585
Queue Service Time (g _s), s					8.0	12.8	12.3	0.6	7.4	19.8	9.3	43.8	0.5	20.3	33.7	5.4
Cycle Queue Clearance Time (g _c), s					8.0	12.8	12.3	0.6	7.4	19.8	9.3	43.8	0.5	20.3	33.7	5.4
Green Ratio (g/C)					0.25	0.21	0.31	0.18	0.17	0.35	0.49	0.39	0.41	0.60	0.48	0.55
Capacity (c), veh/h					307	400	500	196	309	561	321	1310	651	410	1590	874
Volume-to-Capacity Ratio (X)					0.670	0.560	0.417	0.055	0.419	0.866	0.722	0.953	0.015	0.932	0.728	0.167
Back of Queue (Q), ft/ln (95 th percentile)					99.8	250.3	205.9	11.9	155.6	530.2	164.4	716.2	8.2	473.7	512.9	88
Back of Queue (Q), veh/ln (95 th percentile)					3.9	9.9	8.2	0.5	6.1	20.9	6.4	26.5	0.3	18.6	18.7	3.5
Queue Storage Ratio (RQ) (95 th percentile)					0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d ₁), s/veh					41.8	42.1	32.8	40.7	44.9	36.1	22.3	37.8	22.9	36.5	24.6	13.3
Incremental Delay (d ₂), s/veh					4.5	1.1	0.2	0.0	0.3	12.9	1.0	14.0	0.0	18.0	3.0	0.4
Initial Queue Delay (d ₃), s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh					46.4	43.2	33.0	40.7	45.3	49.0	23.3	51.8	23.0	54.5	27.6	13.7
Level of Service (LOS)					D	D	C	D	D	D	C	D	C	D	C	B
Approach Delay, s/veh / LOS					40.9		D	48.1		D	47.2		D	32.5		C
Intersection Delay, s/veh / LOS					40.8						D					
Multimodal Results					EB			WB			NB			SB		
Pedestrian LOS Score / LOS					2.46		B	2.46		B	2.11		B	2.10		B
Bicycle LOS Score / LOS					1.54		B	1.52		B	1.85		B	1.88		B

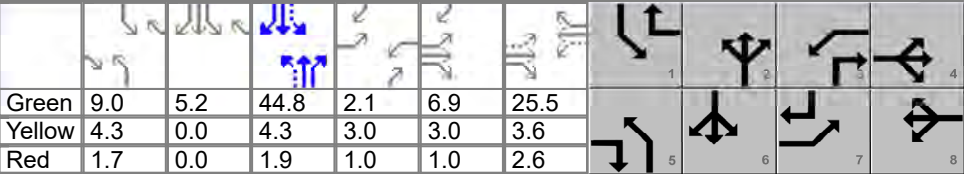
HCS Signalized Intersection Input Data

General Information					Intersection Information											
Agency	Smart Services Inc.				Duration, h	0.250										
Analyst	TJS	Analysis Date	Apr 14, 2023		Area Type	Other										
Jurisdiction	City of Delaware		Time Period	AM Peak		PHF	0.92									
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 7:45									
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...												
Project Description	6A-2044 Complete Network Build AM Peak															
Demand Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					236	65	394	10	198	329	72	929	10	277	1045	63
Signal Information																
Cycle, s	120.0	Reference Phase	2													
Offset, s	36	Reference Point	End													
Uncoordinated	No	Simult. Gap E/W	On													
Force Mode	Fixed	Simult. Gap N/S	On													
Green	9.0	5.2	44.8	2.1	6.9	25.5										
Yellow	4.3	0.0	4.3	3.0	3.0	3.6										
Red	1.7	0.0	1.9	1.0	1.0	2.6										
Traffic Information					EB			WB			NB			SB		
Approach Movement					L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h					236	65	394	10	198	329	72	929	10	277	1045	63
Initial Queue (Q _b), veh/h					0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h					1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h					None			None			None			None		
Heavy Vehicles (P _{HV}), %					13	2	2	2	2	2	7	15	2	2	16	3
Ped / Bike / RTOR, /h					0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h					0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)					3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)					1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94	1.00	1.00	1.00
Lane Width (W), ft					12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft					0	0	0	0	0	0	0	0	0	0	0	0
Grade (P _g), %					0			0			0			0		
Speed Limit, mi/h					45	45	45	45	45	45	45	45	45	45	45	45
Phase Information					EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s					17.0	17.0	32.0	32.0	39.0	50.0	21.0	32.0				
Yellow Change Interval (Y), s					3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3				
Red Clearance Interval (R _c), s					1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9				
Minimum Green (G _{min}), s					7	10	7	10	10	20	10	20				
Start-Up Lost Time (l _t), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (PT), s					2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Recall Mode					Off	Off	Off	Off	Off	Min	Off	Min				
Dual Entry					No	Yes	No	Yes	No	Yes	No	Yes				
Walk (Walk), s						0.0		0.0		0.0		0.0				
Pedestrian Clearance Time (PC), s						0.0		0.0		0.0		0.0				
Multimodal Information					EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius					0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft					9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft					0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft					12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking					No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	AM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 7:45	
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (6A) - 2044 Complete Ntwk Build - AM Pea...			
Project Description	6A-2044 Complete Network Build AM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	236	65	394	10	198	329	72	929	10	277	1045	63

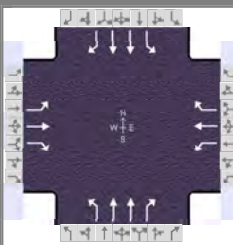
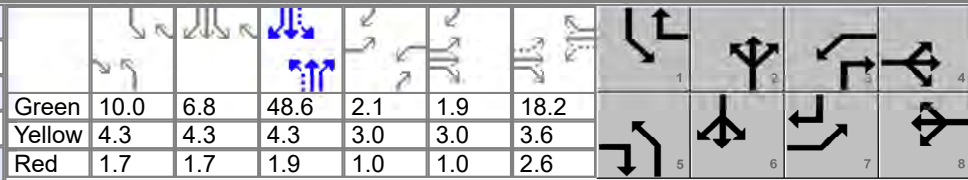
Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	36	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	9.0	5.2	44.8	2.1	6.9	25.5						
Yellow	4.3	0.0	4.3	3.0	3.0	3.6						
Red	1.7	0.0	1.9	1.0	1.0	2.6						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	17.0	42.6	6.1	31.7	15.0	51.0	20.2	56.3
Change Period, ($Y+R_c$), s	4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2
Max Allow Headway (MAH), s	3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	15.0	29.6	2.6	25.4	4.7		14.1	
Green Extension Time (g_e), s	0.0	1.6	0.0	0.2	0.1	0.0	0.1	0.0
Phase Call Probability	1.00	1.00	0.30	1.00	0.90		1.00	
Max Out Probability	1.00	0.31	0.00	1.00	0.00		1.00	

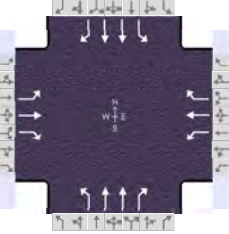
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	257	71	428	11	215	358	68	881	9	301	1136	68
Adjusted Saturation Flow Rate (s), veh/h/ln	1626	1870	1585	1781	1870	1585	1711	1597	1585	1781	1583	1572
Queue Service Time (g_s), s	13.0	3.3	27.6	0.6	12.3	23.4	2.7	29.3	0.5	12.1	39.1	2.6
Cycle Queue Clearance Time (g_c), s	13.0	3.3	27.6	0.6	12.3	23.4	2.7	29.3	0.5	12.1	39.1	2.6
Green Ratio (g/C)	0.34	0.30	0.38	0.23	0.21	0.33	0.45	0.37	0.39	0.50	0.42	0.53
Capacity (c), veh/h	354	568	599	375	398	525	223	1194	620	353	1321	827
Volume-to-Capacity Ratio (X)	0.725	0.124	0.714	0.029	0.541	0.681	0.306	0.738	0.015	0.854	0.860	0.083
Back of Queue (Q), ft/ln (95 th percentile)	285.4	66.2	406	11.1	240.7	355.8	50.6	484.8	8.4	263.7	617.2	42.5
Back of Queue (Q), veh/ln (95 th percentile)	10.3	2.6	16.0	0.4	9.5	14.0	1.9	17.3	0.3	10.4	21.9	1.7
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	34.0	30.3	31.8	35.7	42.0	34.6	25.2	35.0	24.8	24.6	31.8	14.1
Incremental Delay (d_2), s/veh	6.3	0.0	3.4	0.0	0.8	2.9	0.3	3.9	0.0	16.0	7.5	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.3	30.3	35.2	35.7	42.8	37.5	25.4	38.9	24.8	40.6	39.2	14.3
Level of Service (LOS)	D	C	D	D	D	D	C	D	C	D	D	B
Approach Delay, s/veh / LOS	36.5		D	39.4		D	37.8		D	38.4		D
Intersection Delay, s/veh / LOS	38.0						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.46	B	2.12	B	2.11	B
Bicycle LOS Score / LOS	1.73	B	1.45	A	1.39	A	1.73	B

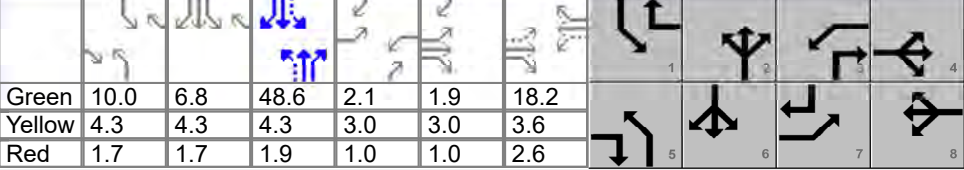
HCS Signalized Intersection Input Data

General Information						Intersection Information									
Agency	Smart Services Inc.					Duration, h	0.250								
Analyst	TJS	Analysis Date	Apr 14, 2023			Area Type	Other								
Jurisdiction	City of Delaware		Time Period	PM Peak		PHF	0.92								
Urban Street	US 23		Analysis Year	2044		Analysis Period	1 > 16:30								
Intersection	1341-US 23 & Hills Mille...		File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...											
Project Description	6P-2044 Complete Network Build PM Peak														
Demand Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				202	206	192	10	119	447	237	1307	10	351	1105	157
Signal Information															
Cycle, s	120.0	Reference Phase	2												
Offset, s	25	Reference Point	End												
Uncoordinated	No	Simult. Gap E/W	On												
Force Mode	Fixed	Simult. Gap N/S	On												
Green	10.0	6.8	48.6	2.1	1.9	18.2									
Yellow	4.3	4.3	4.3	3.0	3.0	3.6									
Red	1.7	1.7	1.9	1.0	1.0	2.6									
Traffic Information				EB			WB			NB			SB		
Approach Movement				L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h				202	206	192	10	119	447	237	1307	10	351	1105	157
Initial Queue (Q _b), veh/h				0	0	0	0	0	0	0	0	0	0	0	0
Base Saturation Flow Rate (s ₀), veh/h				1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Parking (N _m), man/h				None			None			None			None		
Heavy Vehicles (P _{HV}), %				3	2	2	2	2	2	3	10	2	2	12	2
Ped / Bike / RTOR, /h				0	0	0	0	0	0	0	0	0	0	0	0
Buses (N _b), buses/h				0	0	0	0	0	0	0	0	0	0	0	0
Arrival Type (AT)				3	3	3	3	3	3	3	3	3	3	3	3
Upstream Filtering (I)				1.00	1.00	1.00	1.00	1.00	1.00	0.82	0.82	0.82	1.00	1.00	1.00
Lane Width (W), ft				12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Turn Bay Length, ft				0	0	0	0	0	0	0	0	0	0	0	0
Grade (P _g), %				0			0			0			0		
Speed Limit, mi/h				45	45	45	45	45	45	45	45	45	45	45	45
Phase Information				EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT				
Maximum Green (G _{max}) or Phase Split, s				12.0	25.4	11.0	24.4	16.0	46.6	37.0	67.6				
Yellow Change Interval (Y), s				3.0	3.6	3.0	3.6	4.3	4.3	4.3	4.3				
Red Clearance Interval (R _c), s				1.0	2.6	1.0	2.6	1.7	1.9	1.7	1.9				
Minimum Green (G _{min}), s				7	10	7	10	10	20	10	20				
Start-Up Lost Time (l _t), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Extension of Effective Green (e), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Passage (PT), s				2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0				
Recall Mode				Off	Off	Off	Off	Off	Min	Off	Min				
Dual Entry				No	Yes	No	Yes	No	Yes	No	Yes				
Walk (Walk), s				0.0			0.0			0.0			0.0		
Pedestrian Clearance Time (PC), s				0.0			0.0			0.0			0.0		
Multimodal Information				EB			WB			NB			SB		
85th % Speed / Rest in Walk / Corner Radius				0.0	No	25.0	0.0	No	25.0	0.0	No	25.0	0.0	No	25.0
Walkway / Crosswalk Width / Length, ft				9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0	9.0	12.0	0.0
Street Width / Island / Curb, ft				0.0	0	No	0.0	0	No	0.0	0	No	0.0	0	No
Width Outside / Bike Lane / Shoulder, ft				12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0	12.0	5.0	2.0
Pedestrian Signal / Occupied Parking				No	0.50	No	0.50	No	0.50	No	0.50	No	0.50		

HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	Smart Services Inc.			Duration, h	0.250	
Analyst	TJS	Analysis Date	Apr 14, 2023	Area Type	Other	
Jurisdiction	City of Delaware	Time Period	PM Peak	PHF	0.92	
Urban Street	US 23	Analysis Year	2044	Analysis Period	1 > 16:30	
Intersection	1341-US 23 & Hills Mille...	File Name	US 23 (6P) - 2044 Complete Ntwk Build - PM Pea...			
Project Description	6P-2044 Complete Network Build PM Peak					

Demand Information	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Approach Movement												
Demand (v), veh/h	202	206	192	10	119	447	237	1307	10	351	1105	157

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	25	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On									
Force Mode	Fixed	Simult. Gap N/S	On									
Green	10.0	6.8	48.6	2.1	1.9	18.2						
Yellow	4.3	4.3	4.3	3.0	3.0	3.6						
Red	1.7	1.7	1.9	1.0	1.0	2.6						

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	5	2	1	6
Case Number	1.1	3.0	1.1	3.0	1.1	3.0	1.1	3.0
Phase Duration, s	12.0	30.3	6.1	24.4	16.0	54.8	28.8	67.6
Change Period, ($Y+R_c$), s	4.0	6.2	4.0	6.2	6.0	6.2	6.0	6.2
Max Allow Headway (MAH), s	3.0	3.2	3.0	3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	10.0	15.0	2.6	20.2	11.2		22.3	
Green Extension Time (g_e), s	0.0	1.7	0.0	0.0	0.0	0.0	0.5	0.0
Phase Call Probability	1.00	1.00	0.30	1.00	1.00		1.00	
Max Out Probability	1.00	0.15	0.03	1.00	1.00		0.01	

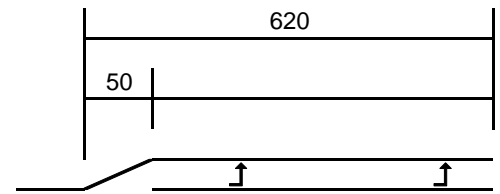
Movement Group Results	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	5	2	12	1	6	16
Adjusted Flow Rate (v), veh/h	220	224	209	11	129	486	232	1280	10	382	1201	171
Adjusted Saturation Flow Rate (s), veh/h/ln	1767	1870	1585	1781	1870	1585	1767	1668	1585	1781	1639	1585
Queue Service Time (g_s), s	8.0	13.0	13.0	0.6	7.6	18.2	9.2	45.1	0.5	20.3	33.9	6.1
Cycle Queue Clearance Time (g_c), s	8.0	13.0	13.0	0.6	7.6	18.2	9.2	45.1	0.5	20.3	33.9	6.1
Green Ratio (g/C)	0.23	0.20	0.28	0.17	0.15	0.34	0.49	0.41	0.42	0.61	0.51	0.58
Capacity (c), veh/h	289	375	450	179	284	541	306	1351	670	411	1678	917
Volume-to-Capacity Ratio (X)	0.761	0.597	0.464	0.061	0.456	0.897	0.760	0.948	0.015	0.929	0.716	0.186
Back of Queue (Q), ft/ln (95 th percentile)	147.1	256.7	217.1	12.2	158.4	556.5	191.5	753.5	12.9	472.1	507.9	96.9
Back of Queue (Q), veh/ln (95 th percentile)	5.7	10.1	8.5	0.5	6.2	21.9	7.5	27.9	0.5	18.6	18.5	3.8
Queue Storage Ratio (RQ) (95 th percentile)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d_1), s/veh	44.4	43.6	35.4	42.0	46.4	37.5	23.1	41.4	24.7	36.7	22.6	12.0
Incremental Delay (d_2), s/veh	10.1	1.8	0.3	0.1	0.4	17.2	8.0	12.9	0.0	17.6	2.6	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	54.5	45.4	35.7	42.1	46.8	54.7	31.1	54.3	24.8	54.3	25.2	12.4
Level of Service (LOS)	D	D	D	D	D	D	C	D	C	D	C	B
Approach Delay, s/veh / LOS	45.3		D	52.8		D	50.6		D	30.3		C
Intersection Delay, s/veh / LOS	42.3						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.46	B	2.46	B	2.11	B	2.10	B
Bicycle LOS Score / LOS	1.56	B	1.52	B	1.88	B	1.93	B

(1341INB-NB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - NB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	475 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	367 VPH	Turn Lane Length =	620 feet
# of Turning Lanes =	1		
Advancing Volume =	2057 VPH		
Turning % (>10% HIGH)	17.8% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	12.2		
Storage Length (Calc) =	475 feet		

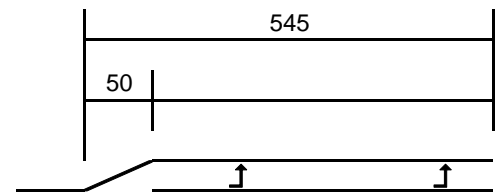


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341IB-NB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - NB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	400 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	331 VPH	Turn Lane Length =	545 feet
# of Turning Lanes =	1		
Advancing Volume =	2052 VPH		
Turning % (>10% HIGH)	16.1% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	11.0		
Storage Length (Calc) =	400 feet		

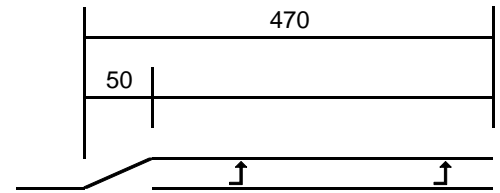


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341CNB-NB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - NB LT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	325 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	237 VPH	Turn Lane Length =	470 feet
# of Turning Lanes =	1		
Advancing Volume =	1513 VPH		
Turning % (>10% HIGH)	15.7% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	7.9		
Storage Length (Calc) =	325 feet		

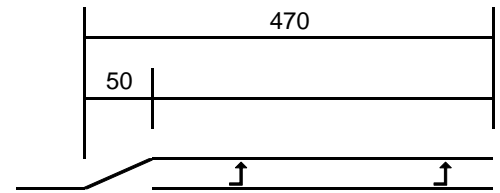


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341CB-NB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - NB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	325 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	237 VPH	Turn Lane Length =	470 feet
# of Turning Lanes =	1		
Advancing Volume =	1544 VPH		
Turning % (>10% HIGH)	15.3% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	7.9		
Storage Length (Calc) =	325 feet		



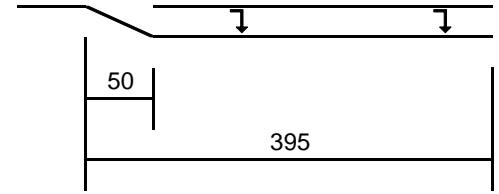
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341INB-SB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - SB RT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	250 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	162 VPH	Turn Lane Length =	395 feet
# of Turning Lanes =	1		
Advancing Volume =	1550 VPH		
Turning % (>10% HIGH)	10.5% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	5.4		
Storage Length (Calc) =	250 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

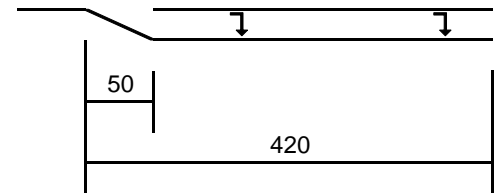


(1341IB-SB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - SB RT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	275 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	185 VPH	Turn Lane Length =	420 feet
# of Turning Lanes =	1		
Advancing Volume =	1613 VPH		
Turning % (>10% HIGH)	11.5% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	6.2		
Storage Length (Calc) =	275 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

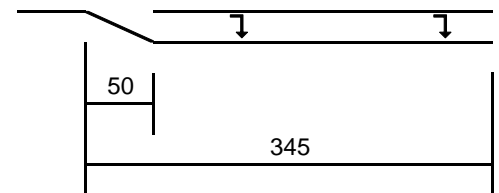


(1341CNB-SB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - SB RT - 2044 'NO BUILD' (COMPLETE NETWORK) W/ DIVERTED

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	200 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	134 VPH	Turn Lane Length =	345 feet
# of Turning Lanes =	1		
Advancing Volume =	1550 VPH		
Turning % (>10% HIGH)	8.6% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	4.5		
Storage Length (Calc) =	200 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

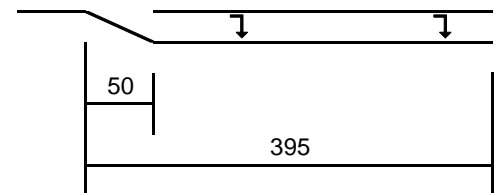


(1341CB-SB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - SB RT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: PM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	50 MPH	Storage Length (Adj) =	250 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	145 feet
Turning Volume =	157 VPH	Turn Lane Length =	395 feet
# of Turning Lanes =	1		
Advancing Volume =	1613 VPH		
Turning % (>10% HIGH)	9.7% LOW		
Design Condition =	B or C		
Vehicles per Cycle =	5.2		
Storage Length (Calc) =	250 feet		

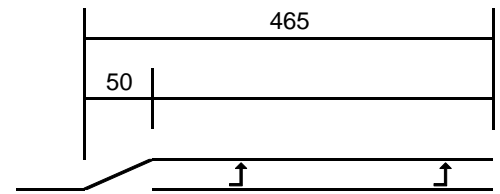
Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



(1341INB-EB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - EB LT - 2044 'NO BUILD' (INCOMPLETE NETWORK)

Critical Analysis Period: AM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	350 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	247 VPH	Turn Lane Length =	465 feet
# of Turning Lanes =	1		
Advancing Volume =	719 VPH		
Turning % (>10% HIGH)	34.4% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	8.2		
Storage Length (Calc) =	350 feet		

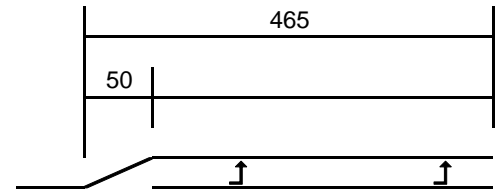


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341IB-EB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - EB LT - 2044 INCOMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	350 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	266 VPH	Turn Lane Length =	465 feet
# of Turning Lanes =	1		
Advancing Volume =	712 VPH		
Turning % (>10% HIGH)	37.4% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	8.9		
Storage Length (Calc) =	350 feet		

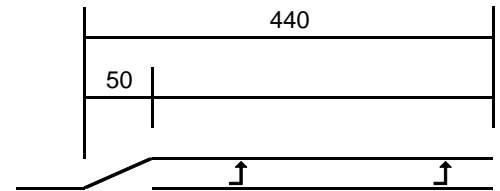


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341CNB-EB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - EB LT - 2044 'NO BUILD' (COMPLETE NETWORK)

Critical Analysis Period: AM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	325 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	217 VPH	Turn Lane Length =	440 feet
# of Turning Lanes =	1		
Advancing Volume =	702 VPH		
Turning % (>10% HIGH)	30.9% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	7.2		
Storage Length (Calc) =	325 feet		

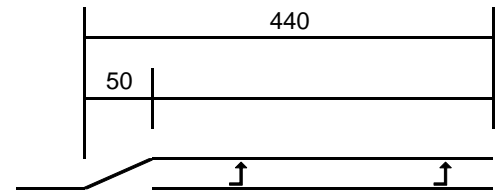


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(1341CB-EB) FUTURE SCENARIO E CONNECTION/HILLS MILLER ROAD & US 23 - EB LT - 2044 COMPLETE NETWORK FULL 'BUILD' W/ DIVERTED

Critical Analysis Period: AM PEAK

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	325 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	236 VPH	Turn Lane Length =	440 feet
# of Turning Lanes =	1		
Advancing Volume =	695 VPH		
Turning % (>10% HIGH)	34.0% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	7.9		
Storage Length (Calc) =	325 feet		

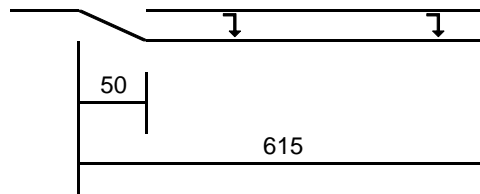


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

Critical Analysis Period: AM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	500 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	394 VPH	Turn Lane Length =	615 feet
# of Turning Lanes =	1		
Advancing Volume =	676 VPH		
Turning % (>10% HIGH)	58.3% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	13.1		
Storage Length (Calc) =	500 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.



Critical Analysis Period: AM Peak

Type =	Signalized	Design Condition (Rev)=	C
Speed =	40 MPH	Storage Length (Adj) =	500 feet
Cycle Length =	120 seconds	Deceleration/Div. Taper =	115 feet
Turning Volume =	394 VPH	Turn Lane Length =	615 feet
# of Turning Lanes =	1		
Advancing Volume =	695 VPH		
Turning % (>10% HIGH)	56.7% HIGH		
Design Condition =	B or C		
Vehicles per Cycle =	13.1		
Storage Length (Calc) =	500 feet		

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

