pennsylvania
DEPARTMENT OF TRANSPORTATION

EXHIBIT A-44A

Date: 10/11/2019

Subject: Highway Occupancy Permit Application No. 196830, Cycle No.1 - Returned For Revisions

To: Toll PA XVIII, L.P.
250 Gibraltar Road
Horsham, PA 19044

From: PennDOT Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Drew Sirianni, at (215) 254-7893.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 10/11/2019
Application Number: 196830, Cycle No.1

Form Letter Notes

(1) * Upon resubmission, the applicant's engineer must prepare a letter that describes how each comment has been addressed and where each can be found in the plan set.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE, PTOE of Pennoni at 215.254.7893 or DSirianni@Pennoni.com.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

General

(1) This project must be coordinated with the Department project for improvements to the intersection of SR 0202 and SR 0926 (MPMS No. 95430). Contact the Department's consultant project manager, Paul Valliere, for coordination.
(2) PLEASE SUBMIT A CHECK FOR $100.00 MADE PAYABLE TO PENNDOT-ATTN: MARY ELLEN CULHANE, PERMITS SUPERVISOR, 7000 GEERDES BLVD. KING OF PRUSSIA, PA. 19406. PLEASE INCLUDE THE APPLICATION NUMBER ON THE CHECK FOR OUR REFERENCE.
(3) PennDOT Form M-950MPC, Land Use Questionnaire, must be completed and submitted with all Highway Occupancy Permit applications. (Sections 619.2 and 1105 of the Municipal Planning Code and PennDOT Publication 282, Chapter 3.3)

Application

(1) The application must be submitted in the name of the person who holds fee title to the land or a person who holds an estate or other legal interest in property, such as an easement, a lease, a license, subsurface rights, or an equitable interest under a sales agreement or option to purchase. Submit the supporting documentation with the next submission. (Pa Code Title 67, Chapter 441.3(b) and 441.5(b))
(2) The proposed access must be revised from a driveway to a local road classification on the

ePermitting application. Please contact Mary Ellen Culhane, District 6 Permits Supervisor, at (610) 205-6825 to have the application modified.

(3) Please note that consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The EPS BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. After an EPS BPID is obtained and activated by the applicant's system administrator, a user ID will then need to be created in order to ensure that the EPS BPID is integrated into EPS and searchable through the "looking glass" feature. Once this has been established, please provide the following information in the applicant contact information tab under "Applicant Team":

- BPID
- Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)
- Contact information (name/title/phone/email) for a billing contact person (person that typically deals with the Highway Occupancy Permit invoicing process)

For information on obtaining an EPS BPID, you may visit: https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp (follow the instructions that are in the pink shaded row) or contact the ECMS Help Desk. Please be aware that having an ECMS BPID does not guarantee the establishment of an EPS BPID as they are not reciprocal to one another.

Free online tutorials are also available detailing BPID registration at: http://www.dot14.state.pa.us/epsTraining/BPID%20Registration%20for%20Municipalities%20and%20Planning%20Commissions.html

Please note that there are two applicable tutorials on the webpage (tabs on the left side bar), one providing info on ECMS registration and one providing info on creating an EPS user.

Transportation Impact Study/Transportation Impact Assessment

(1) MITIGATION

a. The intersection of Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is projected to have an increase in delay due to diverted traffic in conjunction with the new connector road required for this development. Provide mitigation.

b. Concept plans of full mitigation must be prepared with sufficient detail to describe their feasibility. The plans must also show right-of-way lines. The plan scale should be 50-scale unless otherwise agreed to at the scoping meeting. Ensure that the travel lane and shoulder widths are in accordance with PennDOT's Resurfacing, Restoration and Rehabilitation (3-R) Design Criteria

found in PennDOT Publication 13M, Design Manual Part 2. Please note that the concept plan will be reviewed to determine if the recommended improvements are feasible. A full review of the plans will be completed upon submission of the Highway Occupancy Permit (HOP) package.

(2) INTERSECTION CONTROL EVALUATION (ICE) POLICY

a. This HOP application is expected to include the creation of a medium volume or high volume local road, the addition of a leg to an existing intersection (SR 0926 and Bridlewood Blvd), the addition of a turning lane at an existing intersection (SR 0926 and Bridlewood Blvd), and modification of control at an existing intersection (SR 0926 and Bridlewood Blvd). As such, the applicant shall comply with PennDOT's Intersection Control Evaluation (ICE) Policy. Please refer to Appendix AI of Publication 10X (DM-1X) and the ICE portion of PennDOT's Traffic Signal Portal for additional information, guidance, and standard forms.

(3) TURN LANE WARRANTS

a. Based on the submitted turn lane warrant analysis, left turn lanes are needed on all 4 approaches at the intersection of Street Road (SR 0926) and New Street. Revise the TIS to provide this improvement and include a conceptual plan to show how it will be constructed.

b. Based on the turn lane warrant analysis, a right turn deceleration lane is needed on the southbound approach of Wilmington Pike (SR 0202) at W Pleasant Grove Rd. Please update the "Committed Improvements" section of the TIS to identify that the lane will be constructed by the applicant.

c. The report should include a traffic signal warrant analysis and turn lane warrant analysis section along with summary of results.

d. Please include the input page of the traffic signal warrant analysis in the appendices.

(4) Side-by-side eastbound and westbound left turn lanes must be provided on W Pleasant Grove Road between Collector Road and Orvis Road.

(5) A dedicated right-turn lane along westbound Street Road (SR 0926) along the Robinson Tract property frontage is proposed but not shown on the Synchro files. Please verify and revise.

(6) TRAFFIC SIGNAL WARRANTS

a. The report indicates that a signal is warranted at the site driveway access with Street Road, however all Traffic Signal Warrant analyses in Appendix G (all Alternatives) do not indicate whether volumes utilized are for the 2030 Design Year or 2025 Build-Out Year. Please clarify.

b. If signalization is the chosen alternative for the intersection of Street Road (SR 0926) and Bridlewood Boulevard/ Site Access, it is likely that signalization won't meet warrants for several years while the site is built out. As such, traffic volumes must be monitored during development to determine when a traffic signal is warranted. An intersection monitoring condition statement will

be required.

(7) MUNICIPAL COORDINATION

a. Provide documentation from Westtown Township indicating their review/acceptance of the study.

b. Provide documentation from Thornbury Township indicating their review/acceptance of the study showing a signalized access along Street Rd (SR 0926) opposite Bridlewood Blvd.

(8) TRIP DIVERSIONS

a. 50 percent of southbound Wilmington Pike (SR 0202) right turns to eastbound Street Road (SR 0926) were diverted to Orvis Way. Provide justification for such a substantial amount of trips.

(9) MULTI-MODAL

a. In the Executive Summary and study recommendations, indicate that all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. Describe how these connections connect to existing non-motorized facilities (e.g., Township Trails Plan). If pedestrian accommodations are not proposed, engineering justification must be provided in accordance with PennDOT Publications 236, 46, and 149. Walking school children and school bus stops shall also be noted.

b. The study must describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations.

(10) Provide an updated site plan and/or conceptual improvement plan that reflects all the latest findings of the study and developer commitments.

(11) Provide photographs at all study intersections, including the proposed access driveways. Photos must be in color, 4"X6" in size, and two views of each approach must be provided (approximately 200 feet from the intersection and approximately 50 feet from the intersection showing the opposite approach).

(12) CRASH DATA AND ANALYSIS

a. Contact the municipality to obtain non-reportable crash data for the study area intersections. Include this crash data in the analysis if it is available.

b. The traffic crash data analyses for several of the study area intersections/corridors indicate that crash trends exist, particularly at signalized intersections within the study area. Discuss how traffic generated from the development may impact these locations, and if any improvements would be beneficial in mitigating these trends.

(13) QUEUE ANALYSIS

a. The available storage for eastbound left turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development is 478 feet. This

will block the through and right turn movements. Please revise the analysis and recommendations to address this queue.

b. The available storage for southbound right turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development of southbound traffic is 700 feet. This will block the right turn movements. Please revise the analysis and recommendations to address this queue.

c. The available storage for southbound left turns at Street Road (SR 0926) and Bridlewood Boulevard/Collector Road is 150 feet. The future queue with development of southbound through/right traffic is 360 feet. This will block the left turn movements. Please revise the analysis and recommendations to address this queue.

Sight Distance- Driveways/Local Roads

(1) Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.

Signal Section (Publication 46, 148 And 149)

(1) a. The Peak Hour warrant would not apply for this location.

b. Provide signal plans for review.

c. Provide a TE-160 form and resolution.

d. Provide a Traffic Signal Design Report.

e. Interconnect proposed signal at Street/Bridlewood and Street/New signal, and provide communications back to the District Office.

f. The intersection of SR 0202 and SR 0926 is scheduled to be adaptive under an active state project. The 165-second cycle being proposed is not realistic, even for an adaptive system. This intersection has capacity concerns.

g. Refer to the TIS comments regarding the left turn warrants at the intersection of Street Road (SR 0926) and New Street.

Drainage

(1) Please be aware that the installation of drainage facilities within the Legal Right-of-Way may

necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in Publication 282.

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EXHIBIT A-44B

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 12/30/2019

Subject: Highway Occupancy Permit Application No. 196830, Cycle No.2 - Returned For Revisions

To: Toll PA XVIII, L.P.
250 Gibraltar road
Horsham, PA 19044

From: PennDOT Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE, PTOE of Pennoni at 215.254.7893 or DSirianni@Pennoni.com.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 12/30/2019
Application Number: 196830, Cycle No.2

Form Letter Notes

(1) * Upon resubmission, the applicant's engineer must prepare a letter that describes how each comment has been addressed.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE, PTOE of Pennoni at 215.254.7893 or DSirianni@Pennoni.com.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

General

(1) When available, attach a copy of the conditional use approval to the Form M-950MPC and resubmit it in the ePermitting System.

Application

(1) Permit applications shall be submitted in the name of the owner of the property (Title 67 Chapter 441.1 and 441.3(b)). Chapter 441 and Publication 282 were amended in August 2018, and new forms of documentation are now required when the applicant is not the fee title holder. If/Since the applicant for this Permit does not hold fee title to the property, the procedure outlined in Publication 282, Change No. 1, Section 2.2, pages 19-20, 236A and 247-249 must be followed (e.g. Forms M-950 CFO, M-950 IFO, and M-950 IC). Submit the required documentation with the next submission. For reference, these forms are also available in EPS under the "Application Setup" section in the "Reference Material and Forms" link.

(2) As previously indicated, please provide the following information in the applicant contact information tab under "Applicant Team":

- BPID
- Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)

- Contact information (name/title/phone/email) for a billing contact person (person that typically deals with the Highway Occupancy Permit invoicing process)

Please be aware that this information needs to be manually entered on the "Applicant Team" page in the ePermitting System every time the application is resubmitted.

Transportation Impact Study/Transportation Impact Assessment

(1) The turn lane warrant analyses for W. Pleasant Grove Road between Collector Road (site access) and Orvis Way, that were referenced in the engineer's response to the Cycle 1 comments (Commment #4), weren't included in the revised TIS. Please include the turn lane warrant analysis with the resubmission. As previously indicated, the Department is interested in side-by-side left turn lanes at this location, especially to mitigate any possible concern for queueing back onto US-202/US-322 (SR 0202).

(2) Separate the US-202/US-322 (SR 0202) right-turn volumes and the "to jughandle" volumes on all figures at the intersection of US-202/US-322 (SR 0202) and Skiles Boulevard/Stetson School Drive.

(3) As indicated previously, the study must describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations.

(4) Upon receipt of non-reportable crash data, update the crash analysis accordingly.

(5) Provide further information regarding the Orvis Way and the Collector Road diversions. The descriptions of the diversion in the TIS don't match with the volumes presented in Appendix K. Provide additional figure(s) showing the diversion percentages due to Orvis Way and the Collector Road.

(6) SYNCHRO

a. Model the intersection of US-202/US-322 (SR 0202) and Skiles Boulevard correctly. The volumes to the jughandles should not be modeled as right turns.

b. Include the proposed off-site improvements in the 2025 with Development Synchro files.

c. Incorporate existing No Turn On Red bans at the Street Road (SR 0926) and New Street intersection in all models.

(7) As previously indicated, concept plans of full mitigation must be prepared with sufficient detail to describe their feasibility. The plans must also show right-of-way lines. The plan scale should be 50-scale unless otherwise agreed to at the scoping meeting. Ensure that the travel lane and shoulder widths are in accordance with PennDOT's Resurfacing, Restoration and Rehabilitation (3-R) Design Criteria found in PennDOT Publication 13M, Design Manual Part 2. Please note that the concept plan will be reviewed to determine if the recommended improvements are feasible. A full review of

the plans will be completed upon submission of the Highway Occupancy Permit (HOP) package.

(8) INTERSECTION CONTROL EVALUATION (ICE) POLICY

a. As previously indicated, this HOP application is expected to include the creation of a medium volume or high volume local road, the addition of a leg to an existing intersection (SR 0926 and Bridlewood Blvd), the addition of a turning lane at an existing intersection (SR 0926 and Bridlewood Blvd), and modification of control at an existing intersection (SR 0926 and Bridlewood Blvd). As such, the applicant shall comply with PennDOT's Intersection Control Evaluation (ICE) Policy. Please refer to Appendix AI of Publication 10X (DM-1X) and the ICE portion of PennDOT's Traffic Signal Portal for additional information, guidance, and standard forms.

Left Turn Lanes

(1) Left turn lanes are needed on the westbound and eastbound approaches of SR 0926 at the New Street intersection. Begin the necessary coordination with the property owner(s) to secure any Required Right-of-Way.

Signal Section (Publication 46, 148 And 149)

(1) a. Coordinate all reviews with both Westtown and Thornbury Twps.

b. Add new roadway (Orvis Way) with recent development at Pleasant Grove Road (New Count Info).

c. Left turn lanes are needed on Pleasant Grove Road for your access to development.

d. Submit layout for US-202/US-322 (SR 0202) and the W. Pleasant Grove Road intersection. Control movements on US-202/US-322 (SR 0202) properly.

e. Submit all TE-160s for signalized intersections separately with warrant analysis/study for each intersection.

f. Continue to coordinate with the PennDOT project that is now in construction for signal upgrades along US-202/US-322 (SR 0202).

g. Provide fiber optic interconnect plans for the Street/Bridlewood and Street/New signals. Integrate into the Department's UCC software.

h. There may be additional comments upon receipt of signal plans.

i. There is currently a temporary traffic signal in operation at the intersection of US-202/US-322 (SR 0202) and W. Pleasant Grove Road. Please contact Charlie Hall of Lenni Electric for timeline to determine if this temporary signal needs to be accounted for in your traffic analysis.

EXHIBIT A-45A

McMAHON ASSOCIATES, INC.
835 Springdale Drive, Suite 200
Exton, PA 19341
p 610-594-9995 | f 610-594-9565

PRINCIPALS
Joseph J. DeSantis, P.E., PTOE
John S. DePalma
Casey A. Moore, P.E.
Gary R. McNaughton, P.E., PTOE
Christopher J. Williams, P.E.

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Dean A. Carr, P.E.
Jason T. Adams, P.E., PTOE
Christopher K. Bauer, P.E., PTOE

FOUNDER
Joseph W. McMahon, P.E.

December 2, 2019

Mr. Francis J. Hanney
Pennsylvania Department of Transportation
District Traffic Services Manager, Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

RE: **Robinson Tract Residential Development**
EPS No. 196830
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Hanney:

McMahon Associates, Inc. is in receipt of the Department's comment letter, dated October 11, 2019, in regards to the T*ransportation Impact Study for the Robinson Tract*, prepared by our office and dated August 13, 2019. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

General

Comment #1: *This project must be coordinated with the Department project for improvements to the intersection of SR 0202 and SR 0926 (MPMS No. 95430). Contact the Department's consultant project manager, Paul Valliere, for coordination.*

Response: Complies. The applicant has and will continue to coordinate with the Department with regard to the intersection project.

Comment #2: *PLEASE SUBMIT A CHECK FOR $100.00 MADE PAYABLE TO PENNDOT-ATTN: MARY ELLEN CULHANE, PERMITS SUPERVISOR, 7000 GEERDES BLVD. KING OF PRUSSIA, PA. 19406. PLEASE INCLUDE THE APPLICATION NUMBER ON THE CHECK FOR OUR REFERENCE.*

Response: Complies. A check will be provided with a future HOP submission when appropriate.

Comment #3: *PennDOT Form M-950MPC, Land Use Questionnaire, must be completed and submitted with all Highway Occupancy Permit applications. (Sections 619.2 and 1105 of the Municipal Planning Code and PennDOT Publication 282, Chapter 3.3)*

Response: Complies. The form is included in this submission.

Application

Comment #1: *The application must be submitted in the name of the person who holds fee title to the land or a person who holds an estate or other legal interest in property, such as an easement, a lease, a license, subsurface rights, or an equitable interest under a sales agreement or option to purchase. Submit the supporting documentation with the next submission. (Pa Code Title 67, Chapter 441.3(b) and 441.5(b))*

Response: Complies. A copy of the Agreement of Sale is included in this submission.

Comment #2: *The proposed access must be revised from a driveway to a local road classification on the ePermitting application. Please contact Mary Ellen Culhane, District 6 Permits Supervisor, at (610) 205-6825 to have the application modified.*

Response: Complies. The application has been revised.

Comment #3: *Please note that consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The EPS BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. After an EPS BPID is obtained and activated by the applicant's system administrator, a user ID will then need to be created in order to ensure that the EPS BPID is integrated into EPS and searchable through the "looking glass" feature. Once this has been established, please provide the following information in the applicant contact information tab under "Applicant Team":*
- BPID
- Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)
For information on obtaining an EPS BPID, you may visit: https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp (follow the instructions that are in the pink shaded row) or contact the ECMS Help Desk. Please be aware that having an ECMS BPID does not guarantee the establishment of an EPS BPID as they are not reciprocal to one another.

Free online tutorials are also available detailing BPID registration at: http://www.dot14.state.pa.us/epsTraining/BPID%20Registration%20for%20Municipalities%20and%20Planning%20Commissions.html Please note that there are two applicable tutorials on the

webpage (tabs on the left side bar), one providing info on ECMS registration and one providing info on creating an EPS user.

Response: Complies. The applicant has completed the BPID registration process. (BPID #015032)

Transportation Impact Study/ Transportation Impact Assessment

Comment #1a: *The intersection of Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is projected to have an increase in delay due to diverted traffic in conjunction with the new connector road required for this development. Provide mitigation.*

Response: Based on the revised traffic counts and traffic analysis (as shown in Table 8) with the proposed development and Collector Road diversions, there is no overall impact at the intersection of Wilmington Pike (U.S. Route 202) and Skiles Boulevard / Stetson School per PennDOT criteria. However, as requested by the Township and detailed in the revised TIS, the applicant is committed to providing capacity improvements at the intersection to mitigate the Township's Collector Road traffic impact, subject to the ability to acquire any necessary additional right-of-way. These improvements are described in the Executive Summary of the revised TIS, and documented in the traffic analysis results.

Comment #1b: *Concept plans of full mitigation must be prepared with sufficient detail to describe their feasibility. The plans must also show right-of-way lines. The plan scale should be 50-scale unless otherwise agreed to at the scoping meeting. Ensure that the travel lane and shoulder widths are in accordance with PennDOT's Resurfacing, Restoration and Rehabilitation (3-R) Design Criteria found in PennDOT Publication 13M, Design Manual Part 2. Please note that the concept plan will be reviewed to determine if the recommended improvements are feasible. A full review of the plans will be completed upon submission of the Highway Occupancy Permit (HOP) package.*

Response: Acknowledged. Conceptual roadway improvement plans for the proposed Collector Road intersection along Street Road (S.R. 0926) will be provided in a future submission.

Comment #2a: *This HOP application is expected to include the creation of a medium volume or high volume local road, the addition of a leg to an existing intersection (SR 0926 and Bridlewood Blvd), the addition of a turning lane at an existing intersection (SR 0926 and Bridlewood Blvd), and modification of control at an existing intersection (SR 0926 and Bridlewood Blvd). As such, the applicant shall comply with PennDOT's Intersection Control Evaluation (ICE) Policy. Please refer to Appendix AI of Publication 10X (DM-1X) and the ICE portion of PennDOT's Traffic Signal Portal for additional information, guidance, and standard forms.*

Response: Acknowledged. The ICE Policy evaluation will be provided in a future submission with the conceptual roadway improvement plans.

Comment #3a: *Based on the submitted turn lane warrant analysis, left turn lanes are needed on all 4 approaches at the intersection of Street Road (SR 0926) and New Street. Revise the TIS to provide this improvement and include a conceptual plan to show how it will be constructed.*

Response: Based on the new traffic counts and revised traffic projections for this intersection, left-turn lanes are not warranted on the northbound or southbound New Street approaches under any condition. Left-turn lanes along Street Road (S.R. 0926) are warranted under existing conditions. As illustrated in the graphic provided within the revised study in Appendix I, additional right-of-way is required along properties which the applicant does not control in order to provide eastbound and westbound Street Road (S.R. 0926) left-turn lanes. The applicant will contact these property owners in order to determine the feasibility of acquiring the necessary right-of-way. As stated in the revised TIS, the applicant is committed to provide a dedicated westbound Street Road (S.R. 0926) right-turn lane, which can be completed with additional right-of-way from the subject property. It is further noted that the development has no traffic impact at this intersection, as illustrated in Table 6 of the TIS.

Comment #3b: *Based on the turn lane warrant analysis, a right turn deceleration lane is needed on the southbound approach of Wilmington Pike (SR 0202) at W Pleasant Grove Rd. Please update the "Committed Improvements" section of the TIS to identify that the lane will be constructed by the applicant.*

Response: Complies. While not required for mitigation, the applicant will provide a dedicated southbound Wilmington Pike (U.S. Route 202) right-turn lane at the West Pleasant Grove Road intersection, which is included in the revised study.

Comment #3c: *The report should include a traffic signal warrant analysis and turn lane warrant analysis section along with summary of results.*

Response: Complies. Tables 2,3 and 5 of the revised TIS includes a summary of the traffic signal warrant and turn lane warrant analyses.

Comment #3d: *Please include the input page of the traffic signal warrant analysis in the appendices.*

Response: Complies. The traffic signal warrant analysis input page has been provided in Appendix G.

Comment #4: *Side-by-side eastbound and westbound left turn lanes must be provided on W Pleasant Grove Road between Collector Road and Orvis Road.*

Response: Left-turn lanes are not warranted and are not needed to achieve acceptable traffic operations, and therefore, are not proposed.

Comment #5: *A dedicated right-turn lane along westbound Street Road (SR 0926) along the Robinson Tract property frontage is proposed but not shown on the Synchro files. Please verify and revise.*

Response: Complies. The future with-development analysis includes a dedicated westbound Street Road (S.R. 0926) right-turn lane at the New Street intersection. Additionally, the off-site improvements section of the TIS has been revised to include the provision of this lane.

Comment #6a: *The report indicates that a signal is warranted at the site driveway access with Street Road, however all Traffic Signal Warrant analyses in Appendix G (all Alternatives) do not indicate whether volumes utilized are for the 2030 Design Year or 2025 Build-Out Year. Please clarify.*

Response: Complies. The traffic signal warrant analysis has been revised to indicate that the 2025 build-out year volumes were utilized in the analysis.

Comment #6b: *If signalization is the chosen alternative for the intersection of Street Road (SR 0926) and Bridlewood Boulevard/ Site Access, it is likely that signalization won't meet warrants for several years while the site is built out. As such, traffic volumes must be monitored during development to determine when a traffic signal is warranted. An intersection monitoring condition statement will be required.*

Response: The intersection is not a Site Access, but rather a Collector Road as requested by Westtown Township, which will serve non-development traffic. Therefore, the revised study includes a traffic signal warrant analysis with only the diverted traffic volumes to the Collector Road (no site traffic), which satisfies the four-hour warrant for signalization.

Comment #7a: *Provide documentation from Westtown Township indicating their review/acceptance of the study.*

Response: Complies. A copy of the Township Traffic Engineer's review letter, dated October 15, 2019 is provided in Appendix A.

Comment #7b: *Provide documentation from Thornbury Township indicating their review/acceptance of the study showing a signalized access along Street Road (SR 0926) opposite Bridlewood Blvd.*

Response: The study was submitted to Thornbury Township. No review letter has been received to date.

Comment #8: *50 percent of southbound Wilmington Pike (SR 0202) right turns to eastbound Street Road (SR 0926) were diverted to Orvis Way. Provide justification for such a substantial amount of trips.*

Response: Complies. As stated in the revised TIS, all diversion assumptions are based on vehicular travel times along the traditional and diverted routes, in which the diversions were

determined by equalizing these travel times. The details regarding the travel times and diversion assumptions are provided in Appendix K of the revised study.

Comment #9a: *In the Executive Summary and study recommendations, indicate that all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. Describe how these connections connect to existing nonmotorized facilities (e.g., Township Trails Plan). If pedestrian accommodations are not proposed, engineering justification must be provided in accordance with PennDOT Publications 236, 46, and 149. Walking school children and school bus stops shall also be noted.*

Response: Complies. The study has been revised.

Comment #9b: *The study must describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations.*

Response: Complies. The study has been revised.

Comment #10: *Provide an updated site plan and/or conceptual improvement plan that reflects all the latest findings of the study and developer commitments.*

Response: Acknowledged. Conceptual roadway improvement plans will be provided in a future submission.

Comment #11: *Provide photographs at all study intersections, including the proposed access driveways. Photos must be in color, 4"X6" in size, and two views of each approach must be provided (approximately 200 feet from the intersection and approximately 50 feet from the intersection showing the opposite approach).*

Response: Complies. Photographs for each of the study intersections has been provided in Appendix B.

Comment #12a: *Contact the municipality to obtain non-reportable crash data for the study area intersections. Include this crash data in the analysis if it is available.*

Response: Complies. Our office is coordinating with the Westtown East Goshen Regional Police Department in order to obtain non-reportable crash information for the study area. At this time, a summary of the total number of crashes at each intersection was provided, which does not provide enough detail to complete a comprehensive crash evaluation. We have requested detailed crash reports from the police department, but have yet to receive the information at the time of submission.

Comment #12b: *The traffic crash data analyses for several of the study area intersections/corridors indicate that crash trends exist, particularly at signalized intersections within the study area. Discuss how*

traffic generated from the development may impact these locations, and if any improvements would be beneficial in mitigating these trends.

Response: Complies. The crash data for three study intersections along U.S. Route 202 indicate crash trends exist, which include Street Road (S.R. 0926), Skiles Boulevard/Stetson School Drive and West Pleasant Grove Road. Within the crash data, nearly 75 percent of all crashes at these intersections are rear-end crashes. With construction of the Collector Road through the site, and with no direct site access along U.S. Route 202, the development traffic will be limited along the U.S. Route 202 through these intersections.

Comment #13a: *The available storage for eastbound left turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development is 478 feet. This will block the through and right turn movements. Please revise the analysis and recommendations to address this queue.*

Response: As shown in Table 9 of the revised TIS, with implementation of the improvements proposed by the applicant to mitigate the Township's Collector Road traffic impact, the maximum eastbound left-turn queues under future 2030 with-development with improvements are 238 feet and 210 feet, while 200 feet of storage is provided for two left-turn lanes. A graphic illustration of the queues is provided in Appendix U.

Comment #13b: *The available storage for southbound right turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development of southbound traffic is 700 feet. This will block the right turn movements. Please revise the analysis and recommendations to address this queue.*

Response: As shown in Table 7 of the revised TIS, the maximum projected southbound Wilmington Pike (U.S. Route 202) right-turn queue at Skiles Boulevard under 2030 future with-development conditions is 215 feet, which is less than one vehicle length greater than the existing available storage.

Comment #13c: *The available storage for southbound left turns at Street Road (SR 0926) and Bridlewood Boulevard/Collector Road is 150 feet. The future queue with development of southbound through/right traffic is 360 feet. This will block the left turn movements. Please revise the analysis and recommendations to address this queue.*

Response: As shown in Table 7 of the revised TIS, the maximum projected Collector Road southbound through/right-turn queue is 415 feet and, due to the relatively low volume of this movement, the southbound left-turn queue is 25 feet. Providing more storage for this lane would result in an excessively long storage area and additional pavement which must be maintained by the Township. The geometric details for the intersection design can be discussed with PennDOT and the Township upon completion of the conceptual improvement plans in a future submission.

Sight Distance – Driveways / Local Roads

Comment #1: *Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.*

Response: Acknowledged.

Signal Section (Publication 46, 148 And 149)

Comment #1a: *The peak hour warrant would not apply for this location.*

Response: Complies. The traffic signal warrant analysis provided in Appendix G includes an evaluation of the four-hour warrant only.

Comment #1b: *Provide signal plans for review.*

Response: Acknowledged. Traffic signal permit plans will be provided for review in a future submission.

Comment #1c: *Provide a TE-160 form and resolution.*

Response: Acknowledged. A TE-160 form and Township resolution will be provided for review in a future submission.

Comment #1d: *Provide a Traffic Signal Design Report.*

Response: Acknowledged. A Traffic Signal Design Report will be provided for review in a future submission

Comment #1e: *Interconnect proposed signal at Street/Bridlewood and Street/New signal, and provide communications back to the District Office.*

Response: Complies. The traffic analyses and improvement descriptions within the revised study include interconnection.

Comment #1f: *The intersection of SR 0202 and SR 0926 is scheduled to be adaptive under an active state project. The 165-second cycle being proposed is not realistic, even for an adaptive system. This intersection has capacity concerns.*

Response: Complies. Based on coordination with the Department, the cycle length utilized for the Wilmington Pike (U.S. Route 202) intersections, which will be equipped with traffic adaptive signal equipment, has been reduced to 120 seconds under future conditions within the revised study. Correspondence with the Department has been provided in Appendix A.

Comment #1g: *Refer to the TIS comments regarding the left turn warrants at the intersection of Street Road (SR 0926) and New Street.*

Response: Acknowledged.

Drainage

Comment #1: *Please be aware that the installation of drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in Publication 282.*

Response: Acknowledged. Details regarding the installation of drainage facilities within the Legal Right-of-Way will be provided in a future submission.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

EXHIBIT A-45B

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FOUNDER
Joseph W. McMahon, P.E.

February 4, 2020

Mr. Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

RE: **Robinson Tract Residential Development**
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Russell:

McMahon Associates, Inc. is in receipt of the Township's comment letter, prepared by Albert Federico Consulting, LLC in their capacity as the Township traffic engineer, dated January 29, 2020, in regards to the T*ransportation Impact Study for the Robinson Tract*, prepared by our office and last revised December 2, 2019. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

Comment #1ai: *As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.*

Response: West Pleasant Grove Road does not meet the Collector Road standards under the Township's road specifications. The applicant has agreed to widen along the property frontage to meet the Township's Collector Road half-width requirement of 14 feet.

Comment #1aii: *The sections of the TIS discussing improvements should note that the internal Collector Road provides access to the property.*

Response: Complies. The Collector Road is not necessary for access to the site, but does provide secondary access locations. The TIS has been revised accordingly.

Comment #1aiii: *As previously noted, the Crash Summary only includes data for State "Reportable" collisions. In order to provide a more complete assessment of transportation safety within the study area "Nonreportable" collisions should be included. Note that the Traffic Safety Office is unaware* of *an outstanding request for "more detailed information". The applicant should resubmit the*

request to the Traffic Safety Office and Township Traffic Engineer, including the specific details being requested.

Response: Complies. Our office contacted Westtown-East Goshen Regional Police Department in October 2019 to request more detailed non-reportable crash data for evaluation. We contacted them again in January 2020 in order to request the information. The police department has indicated that pulling the reports will be very time intensive, and therefore, we have requested that the Township determine if this is necessary.

Comment #1aiv: *As previously noted, the scope of physical improvements required to provide acceptable sight distance to public roads should be clearly indicated on the plans.*

Response: Based on existing conditions, the available sight distances at the site accesses meet or exceed the Township and PennDOT requirements, as applicable. A detailed sight distance evaluation will be provided during detailed engineering, with consideration of all features along the property frontages with the development.

Comment #1v: *As previously noted, confirm that the sight distance measurements consider the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. {§149-903.A(2)}*

Response: The sight distance measurements in Table 4 of the submitted TIS reflect existing roadway geometry. As noted in the submitted TIS, the available sight distances for each of the accesses will be provided upon detailed engineering. The applicant is responsible to ensure adequate sight distance is provided at the site accesses.

Comment #1vi: *Provide calculations supporting the assumed diversions associated with Orvis Way and the proposed Collector Road. Additionally, cross reference the Collector Road diversions within the body of the study with the figures in Appendix K.*

Response: Complies. As noted within the submitted TIS, the assumed diversions along Orvis Way were applied based on the Arborview TIA, which was previously approved by the Township. Calculations detailing travel times for diversions along the proposed Collector Road were provided in Appendix K of the submitted TIS. The revised TIS provides clarification of the diversions within the report and the figures provided in Appendix K.

Comment #1vii: *The Travel Time Comparisons presented in Appendix K should be revised to address the following:*
(1) Verify the assumed route lengths. The Diversion Routes generally appear to be shorter than the Base conditions.
(2) Ensure that the impacts of the regular queueing along US Route 202 North during the morning peak, extending from the interchange into the study area, is included.

(3) The evaluation of diversions should include an alternate that considerations operations following the completion of the PennDOT improvements planned for US Route 202 and PA Route 926.
(4) The traffic calming anticipated to be installed along Bridlewood Boulevard should be considered.

Response: (1) Complies. The route lengths have been verified. The lengths provided in Appendix K of the submitted TIS are accurate.
(2) Complies. Based on a review of video collected at the Wilmington Pike (U.S. Route 202) and Skiles Boulevard intersection during the traffic count period, the vehicular queuing along northbound Wilmington Pike (U.S. Route 202) did not extend into the study area, and therefore, no revisions have been applied to the diversion assumptions.
(3) Complies. Appendix K includes an alternative set of diversion travel time calculations with PennDOT's proposed improvements at the Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) intersection. As shown in these calculations, the diverted route travel time is nearly identical or shorter than the base route, and therefore, the diversion assumptions are unchanged with completion of PennDOT's project.
(4) As noted in the calculations provided in Appendix K, Diversion G, which utilizes Bridlewood Boulevard, is 185.2 seconds faster than the base route. While the type of traffic calming along Bridlewood Boulevard is unknown, it is anticipated that any traffic calming treatment would add significantly less than 185.2 seconds of delay per vehicle, and therefore, the traffic diversions remain unchanged.

Comment #viii: *As previously noted, the anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of vehicular conflicts. It is noted that*
(1) The applicant has indicated a willingness to widen the roadway along the property frontage, but additional clarification regarding the specific scope of work is warranted.
(2) West Pleasant Grove Road is designated as a Collector Road and the total Right-of-way shall be 60 feet and cartway width shall be 28 feet. {§149-903.A(2)}

Response: West Pleasant Grove Road does not meet the Collector Road standards under the Township's road specifications for Right-of-Way and roadway width. The applicant has agreed to widen along the property frontage to meet the Township's Collector Road half-width requirement of 14 feet, and to provide 30 feet of Right-of-Way on center along the property frontage.

Comment #ix: *As previously noted, the future operations presented for PA Route 926 and New Street rely primarily on "optimized" traffic signal timings that appear unlikely to be approved by PennDOT. Written confirmation from PennDOT should be provided that the assumed "optimized" timings can be implemented. If confirmation cannot be provided an alternative analysis utilizing a timing approved by the Township should be provided.*

Response: The optimized timings utilized within the submitted TIS resulted in a significant 25 to 50 percent reduction in overall intersection delay, while minimally impacting the through movements along Street Road (S.R. 0926). In addition to signal optimization, as indicated in the TIS, the applicant proposes to provide traffic signal coordination along Street Road (S.R. 0926) as requested by PennDOT, which will further improve traffic flow and platooning along the corridor. This signal system and the signal detection will ultimately govern the green time allocation between Street Road (S.R. 0926) and New Street. PennDOT issued a TIS comment letter dated December 30, 2019. There were no comments regarding the signal timings at this intersection.

Comment #x: *As previously noted, the Cross-Section Assumptions Exhibit for PA Route 926 and New Street in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.*

Response: There is no narrowing of lanes or reasonable intersection alignment that would eliminate the need for right-of-way outside the applicant's control. The applicant is not required to obtain private property for off-site improvements by Township criteria. If the Township and/or PennDOT want the right-of-way, these entities have the means to acquire it.

Comment #xi: *As previously noted, Cost Estimates for necessary improvements to accommodate future traffic should be provided. {§149-804.A(10)}*

Response: Will comply. Cost estimates for improvements to be constructed by the applicant will be provided upon concurrence of the improvements between the applicant, PennDOT, and the Township.

Comment #xii: *As previously noted, an Implementation Strategy for necessary improvements to accommodate future traffic should be provided. {§149-804.A(11)}*

Response: Will comply. An implementation strategy for improvements to be constructed by the applicant will be provided upon concurrence of the improvements between the applicant, PennDOT, and the Township.

Comment #2a: *The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 continues to be based in large part on assumed diversions. As noted above, additional supporting information and analyses should be provided.*

Response: As noted within the submitted TIS, the proposed collector road provides an alternate route to motorists and provides relief at the Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) intersection, which was the Township's intent in requiring it as we

understand it. As detailed in Appendix K, the diversions are based on vehicular travel times, which is the best available data upon which to assess route choice in the future. Even with considerably less traffic diversions than currently assumed, the project does not adversely impact the intersection of US Route 202 and PA Route 926 based on overall delay in accordance with PennDOT criteria.

Comment #2b: *The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans:*
i. US Route 202 at Pleasant Grove Road – Southbound Right Turn
ii. PA Route 926 at New Street – Eastbound Left Turn

Response: The comment above references an eastbound left-turn lane, which is incorrect. As stated in the TIS, the applicant proposes to provide a southbound right-turn lane along Wilmington Pike (U.S. Route 202) at West Pleasant Grove Road and a westbound right-turn lane along Street Road (S.R. 0926) at New Street. Plans will be provided upon concurrence of the improvements between the applicant, PennDOT and the Township.

Comment #2ci: *Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):*
(1) Collector Road at PA Route 926 (grading)
(2) Road M at West Pleasant Grove Road (grading and/or roundabout)
(3) Collector Road at West Pleasant Grove Road (grading and/or roundabout)

Response: Based on existing conditions, the available sight distances at the site accesses meet or exceed the Township and PennDOT requirements, as applicable. A detailed sight distance evaluation will be provided during detailed engineering, with consideration of all features along the property frontages with the development.

Comment #2cii: *In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:*
(1) Road M should be removed
(2) Roads L and N should be extended to form a single road

Response: The proposed internal roadway design is safe and has sufficient internal connectivity. Removing Road M and extending roads L and N does not create any additional internal connectivity or enhance safety, rather it unnecessarily adversely impacts the environmentally sensitive areas in the northern portion of the property.

Comment #2ciii: *The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.*

Response: The design of the Collector Road will be determined during land development.

Comment #2iv: *The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, in particular the exit-only driveway from the Westminster Presbyterian Church.*

Response: The exit-only driveway from Westminster Presbyterian Church is on the plan.

Comment #2v: *The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.*

Response: PennDOT has yet to fully engineer the project. The applicant is proposing an 8-foot increase along US Route 202 and a 15-foot increase along PA Route 926 from the existing Right-of-Way along the property frontages.

Comment #2vi: *The following internal roadways should be reconfigured to remove geometric irregularities:*
(1) Road E and Road F (provide a curve)
(2) Road F and Road G (provide a curve)
(3) Road I and Road J (remove the jog within the intersection)

Response: The internal intersection design complies with section 149-907.A of the Township SALDO, which does not apply during the conditional use process.

Comment #vii: *Additional facilities should be provided to address non-vehicular connectivity, including:*
(1) A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}
(2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
(3) Sidewalks along proposed roads, including accessible crossings. {§149-916}
(4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}

Response: Not required.

Comment #viii: *Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.*

Response: Not required

Comment #ix: *Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.*

Response: During land development, the applicant will coordinate with the school district with respect to school bus stops.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

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EXHIBIT A-45C

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Joseph W. McMahon, P.E.

February 21, 2020

Mr. Albert Federico, P.E., PTOE
Albert Federico Consulting, LLC
133 Rutgers Avenue
Swarthmore, PA 19081

RE: Robinson Tract Residential Development – Traffic Diversions
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Federico:

As requested, this letter provides additional information and clarification regarding the methodology utilized to develop the traffic diversions presented in the *Transportation Impact Study for the Robinson Tract*, last revised December 2, 2019.

Orvis Way: West Pleasant Grove Road to Stetson School Collector Road

In conjunction with the Arborview (Fair Share Properties) development, Orvis Way connects West Pleasant Grove Road to Stetson School. In accordance with the Township approved *Arborview Transportation Impact Assessment*, prepared by Traffic Planning & Design and dated January 26, 2015, and based on our review of those assumptions and traffic data collected in the fall of 2019, traffic in the area is estimated to divert to utilize Orvis Way as follows:

- Diversion A: 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion B: 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion C: 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was decreased from the approved Arborview

study as the majority of traffic currently making this movement during the peak hours is generated by Stetson Middle School, and the school service area ends just to the west of New Street.

Table 1 below provides a comparison of the resulting diverted traffic volumes from the approved Arborview study versus the current Robinson Tract TIS.

Table 1. Orvis Way Diverted Traffic Volume Comparison

	Arborview Study (1)	**Robinson Tract TIS (2)**
Diversion A	AM: 25 PM: 21	AM: 28 PM: 24
Diversion B	AM: 4 PM: 2	AM: 2 PM: 2
Diversion C	AM: 30 PM: 23	AM: 8 PM: 16
Total	***AM: 59 PM: 46***	***AM: 38 PM: 42***

(1) As shown in Figures 9 and 10 of the *Arborview Transportation Impact Assessment*, prepared by Traffic Planning and Design, Inc., and dated January 26, 2015.
(2) As shown in Appendix K of the Transportation Impact Assessment for the Robinson Tract, prepared by McMahon Associates, Inc., and last revised December 2, 2019.

Robinson Tract: Street Road (S.R. 0926) to West Pleasant Grove Road Collector Road

Based on the vision for this Collector Road by Westtown Township, the submitted Transportation Impact Study incorporates diversions for several existing movements, as detailed below, as an alternative to the congested Wilmington Pike (U.S. Route 202) and Street Road (PA 926) intersection for local traffic. Travel time comparisons were completed for each peak hour and for each diversion route individually in order to determine an appropriate percentage of vehicles, beyond site traffic, to utilize the Collector Road that would result in more balanced travel times along the route options. This was completed in an iterative process, resulting in the percentage diversions listed below.

As shown in the travel time calculations provided in Appendix K, the travel times are not perfectly balanced, in favor of the existing base route, in order to provide a conservative estimate of traffic operations at the off-site study intersections. The travel time comparisons alone support diverting more traffic from the existing base routes to the Collector Road. Diverting more traffic would further reduce development traffic impact at the Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) intersection. Regardless of travel times, some drivers will not deviate from their existing route for various reasons.

Additionally, it is noted that existing travel patterns were considered when evaluating the Collector Road traffic diversion potential. Specifically, traffic currently traveling south along U.S. Route 202 (Wilmington Pike) has two route options within the study area to travel westbound along Street Road (S.R. 0926). During the weekday morning peak hour, 45 percent utilizes West Pleasant Grove Road and 55 percent utilizes Street Road (S.R. 0926) directly. In the weekday afternoon peak hour when

congestion is greater, 62 percent utilizes West Pleasant Grove Road and 38 percent utilizes Street Road (S.R. 0926) directly. As delay and travel times increase, drivers are more likely to utilize alternate route options, but some continue on their primary course regardless.

- Diversion D: This diversion further increases Diversion A (above under Orvis Way discussion), by diverting an additional 5 percent of the weekday morning and an additional 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) which will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.

- Diversion E: 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.

- Diversion F: 66 percent (two-thirds) of the northbound Bridlewood Boulevard right-turns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).

- Diversion G: 50 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to westbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).

- Diversion H: 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

Table 2 below provides a summary of the approximate travel distances, between the base route and the diverted route. Additional details regarding travel distance is provided in Appendix K of the submitted TIS, which is also attached.

Table 2. Approximate Travel Distance

Diversion	Base Route	Diverted Route
Diversion D	6,800′	6,200′
Diversion E	7,200′	6,700′
Diversion F	6,800′	6,200′
Diversion G	6,800′	6,200′
Diversion H	7,700′	10,300′

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart
Jeff Madden, Eastern States Engineering

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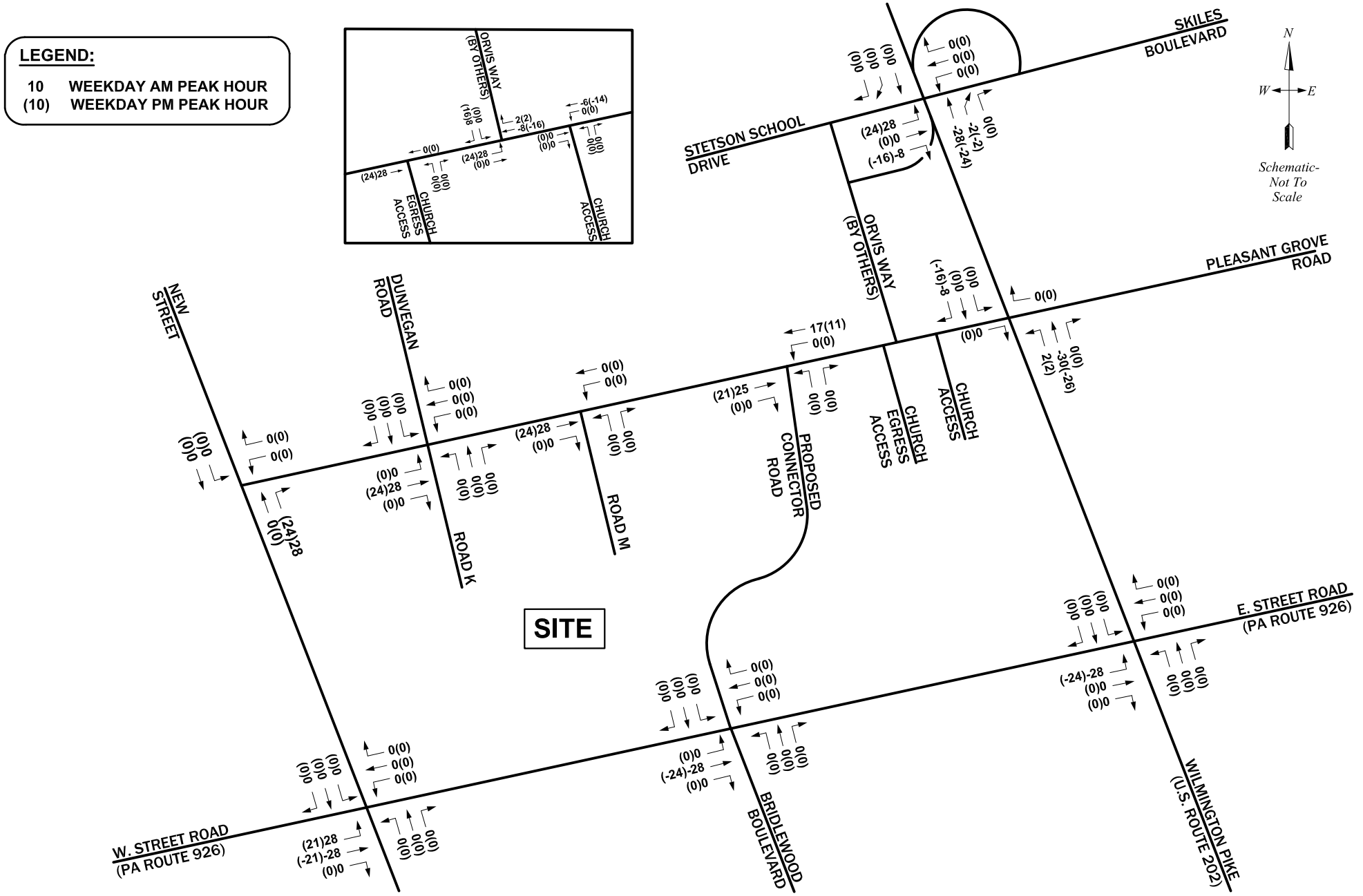
McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix K

Traffic Diversions

Without Development Diversions



Diversions A, B, and C

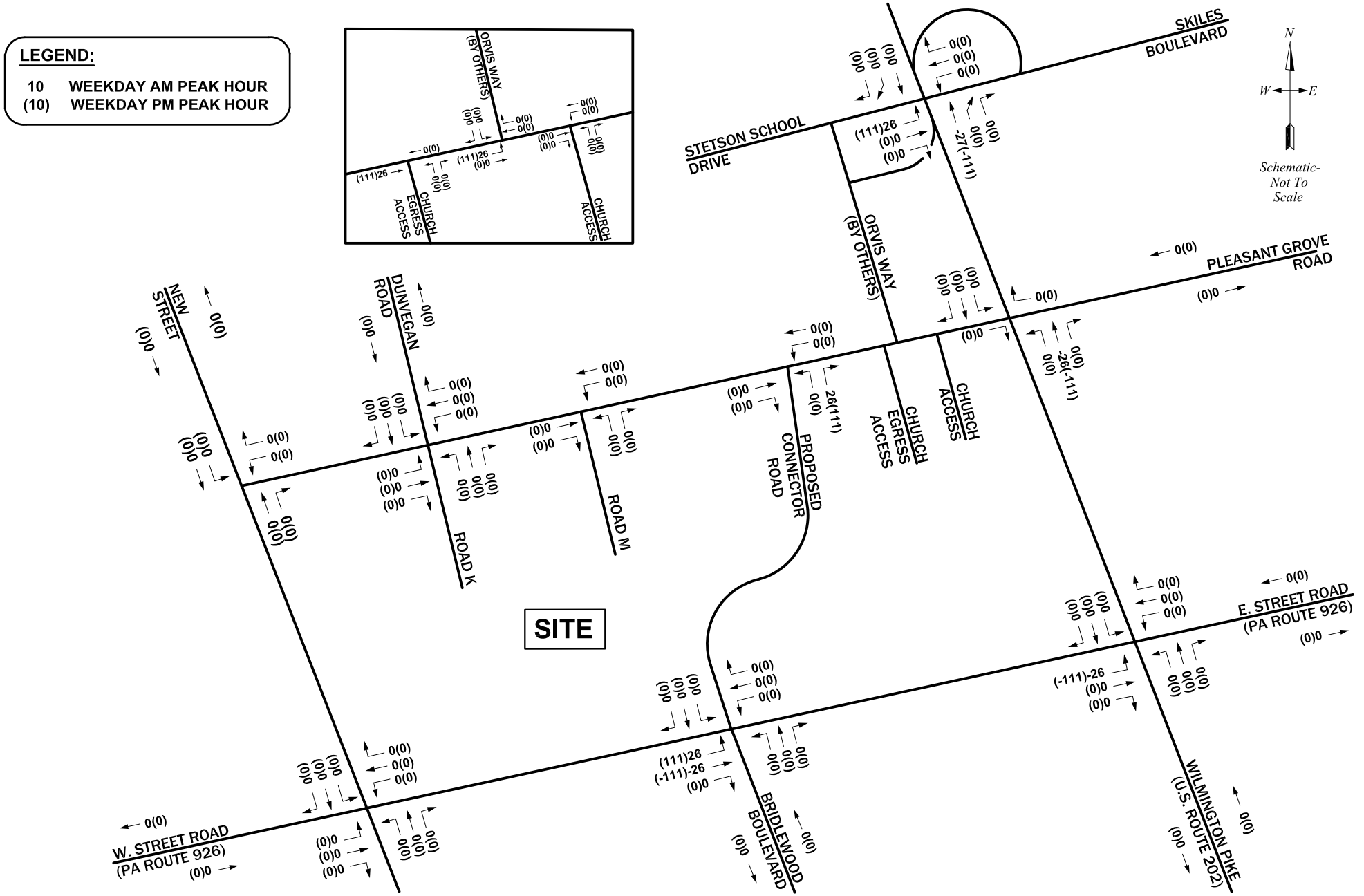
ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K3.dwg

With Development Diversions



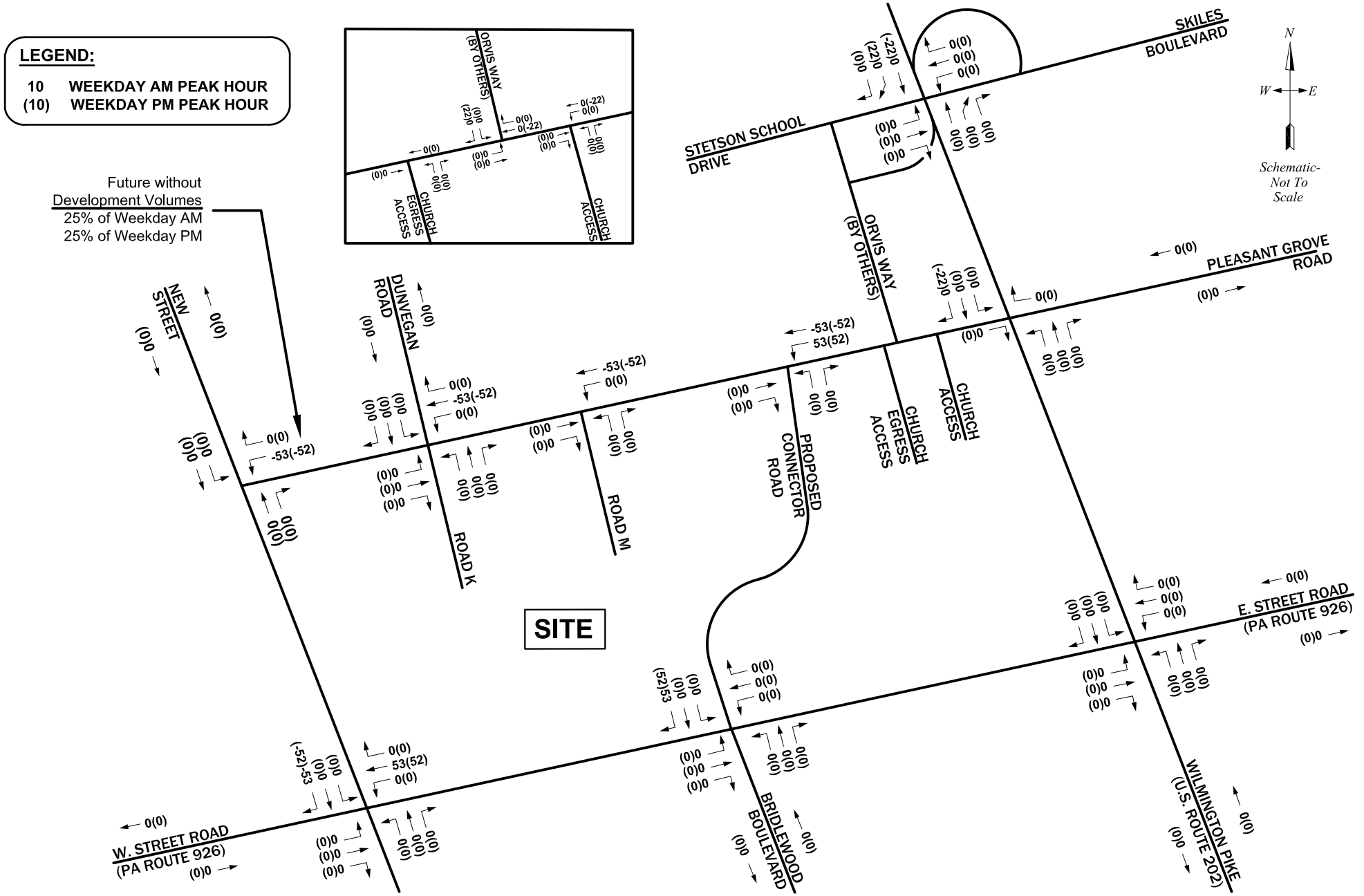
2025 with Development Diversions
Diversion D - SR 926 EBL to NB US 202

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K1.dwg



2025 with Development Diversions

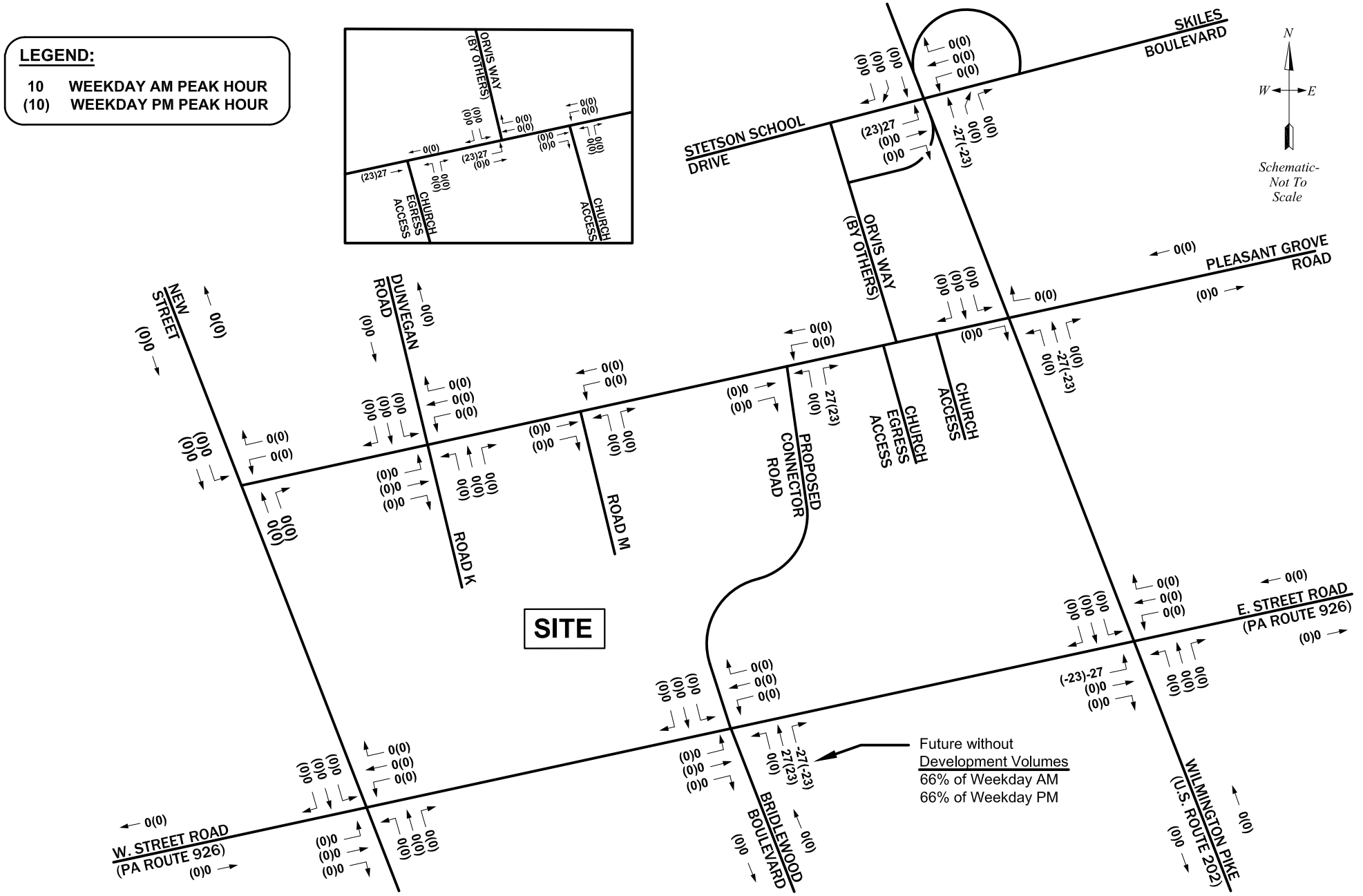
Diversion E - SBR US 202 to W. Pleasant Grove Road / New Street

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K2.dwg



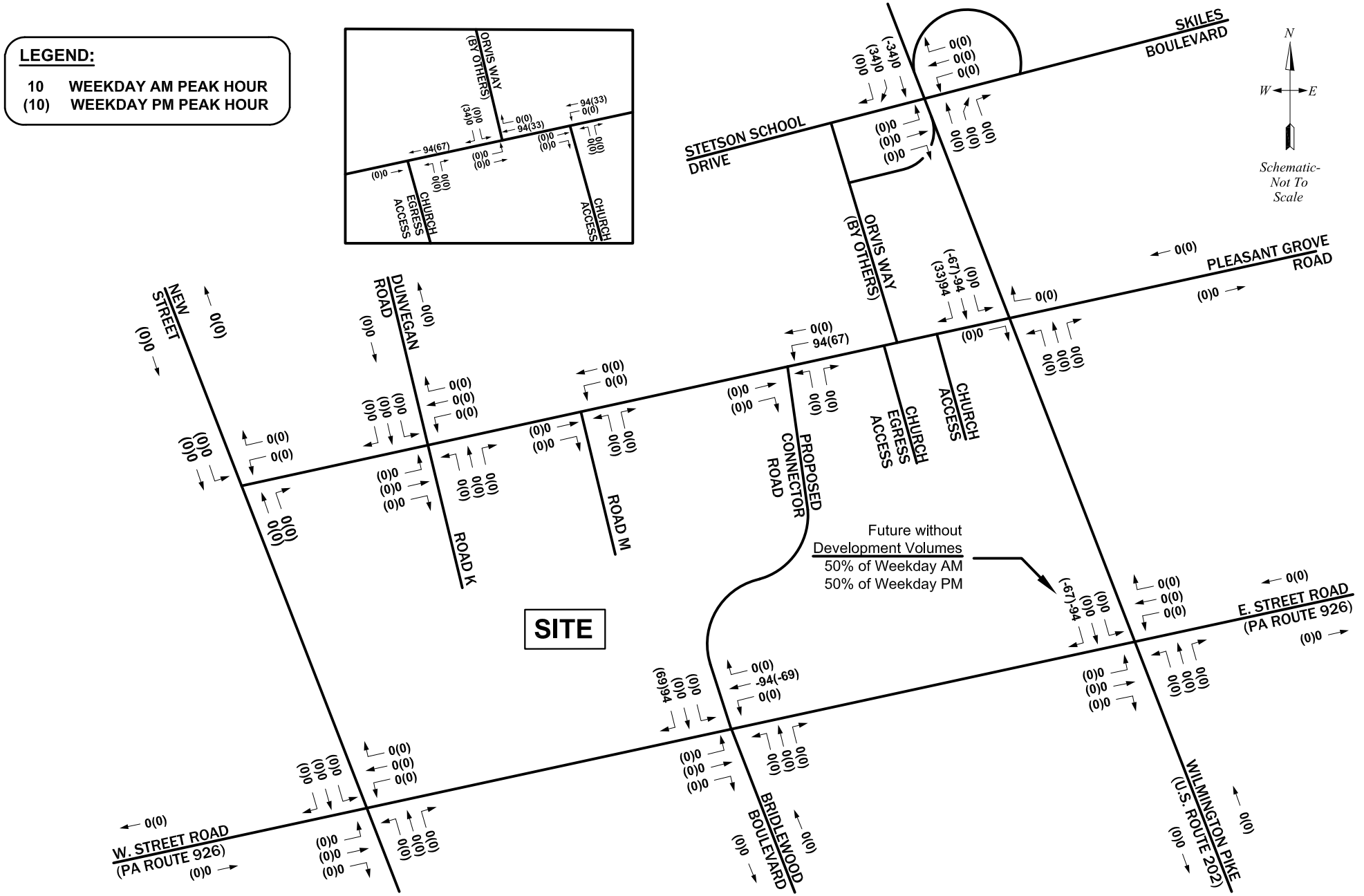
2025 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K4.dwg



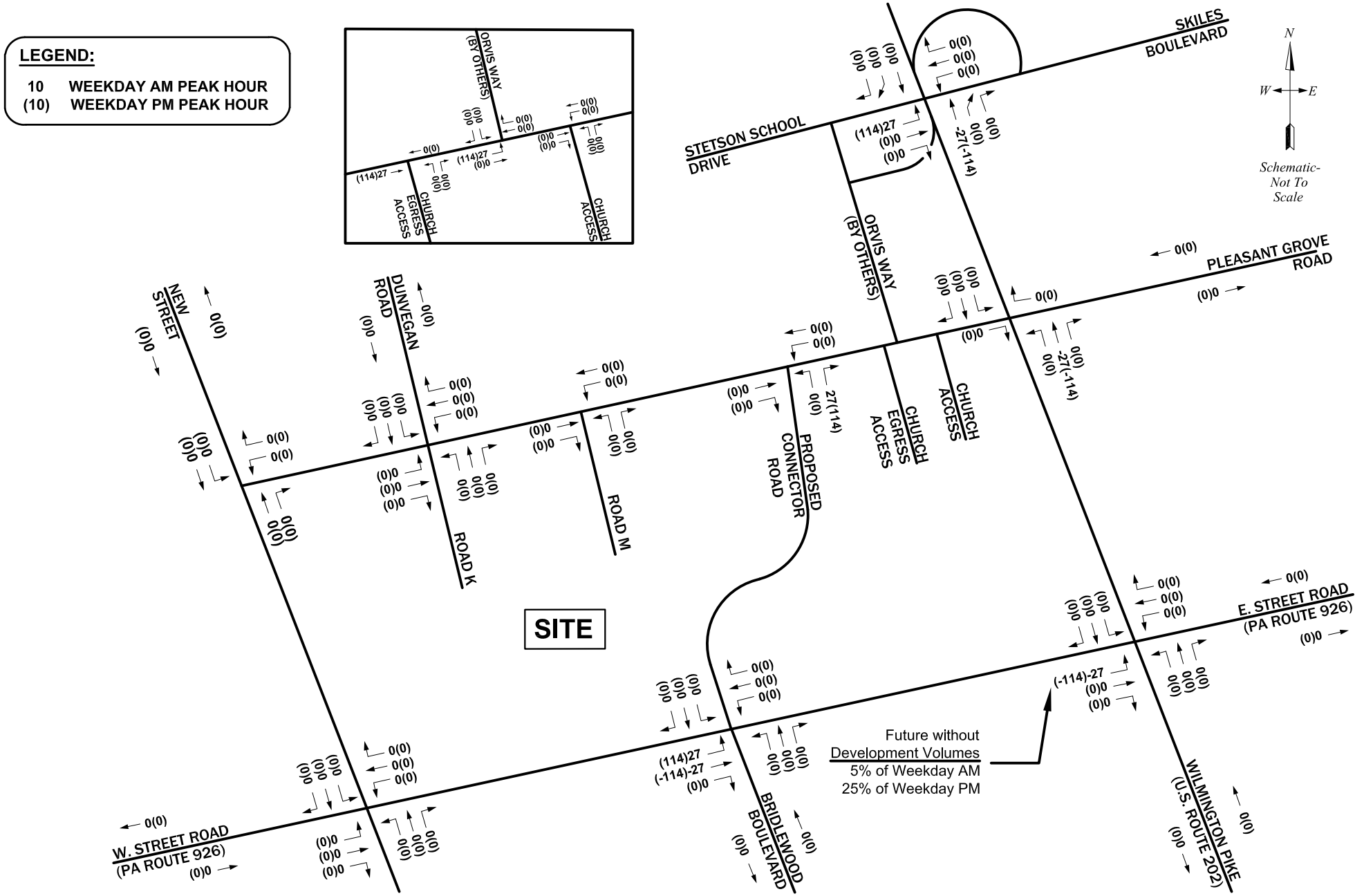
2025 with Development Diversions
Diversion G - SBR US 202 to WB SR 926

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K5.dwg



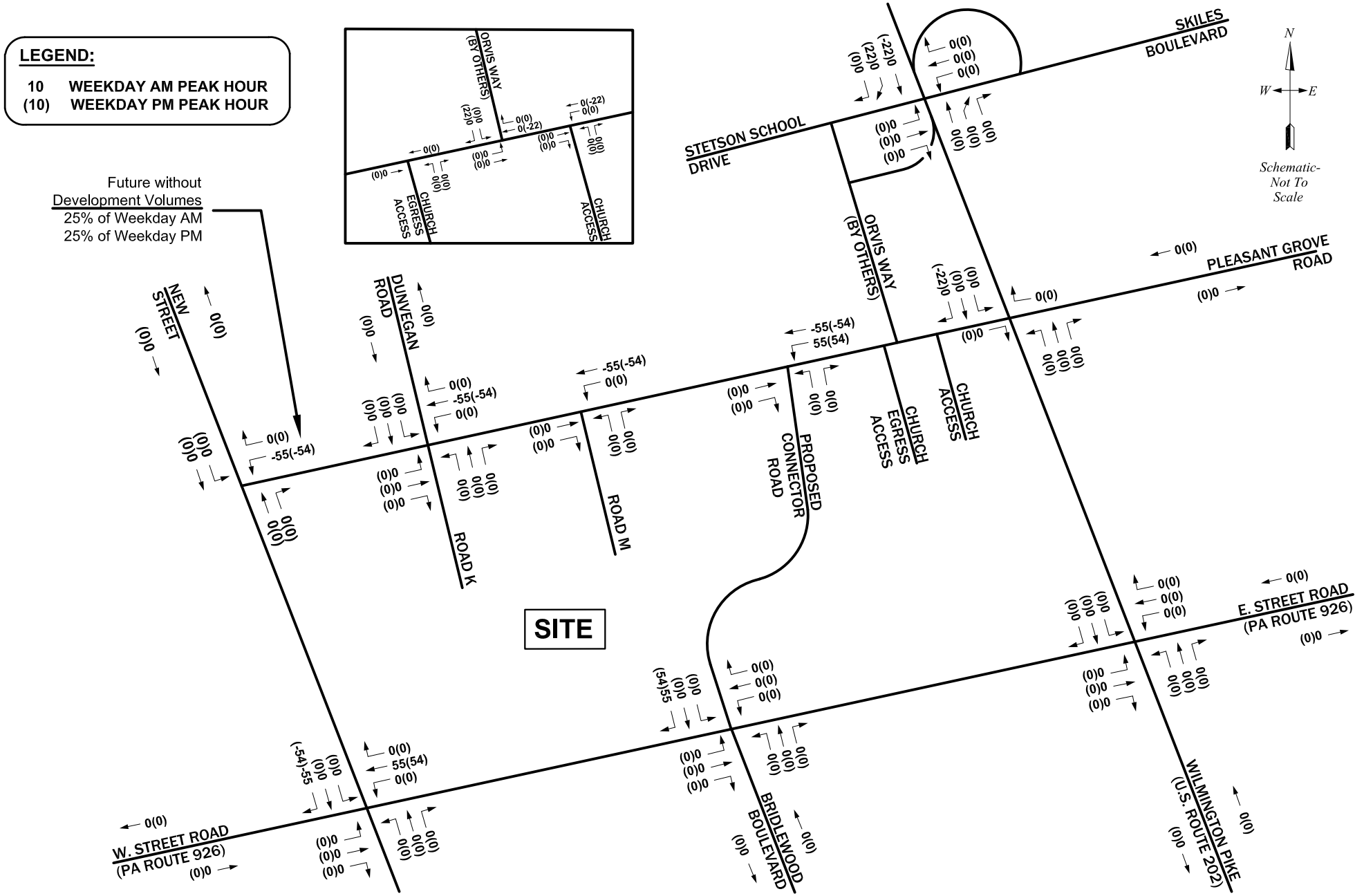
2030 with Development Diversions
Diversion D - SR 926 EBL to NB US 202

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-05) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K7.dwg



2030 with Development Diversions

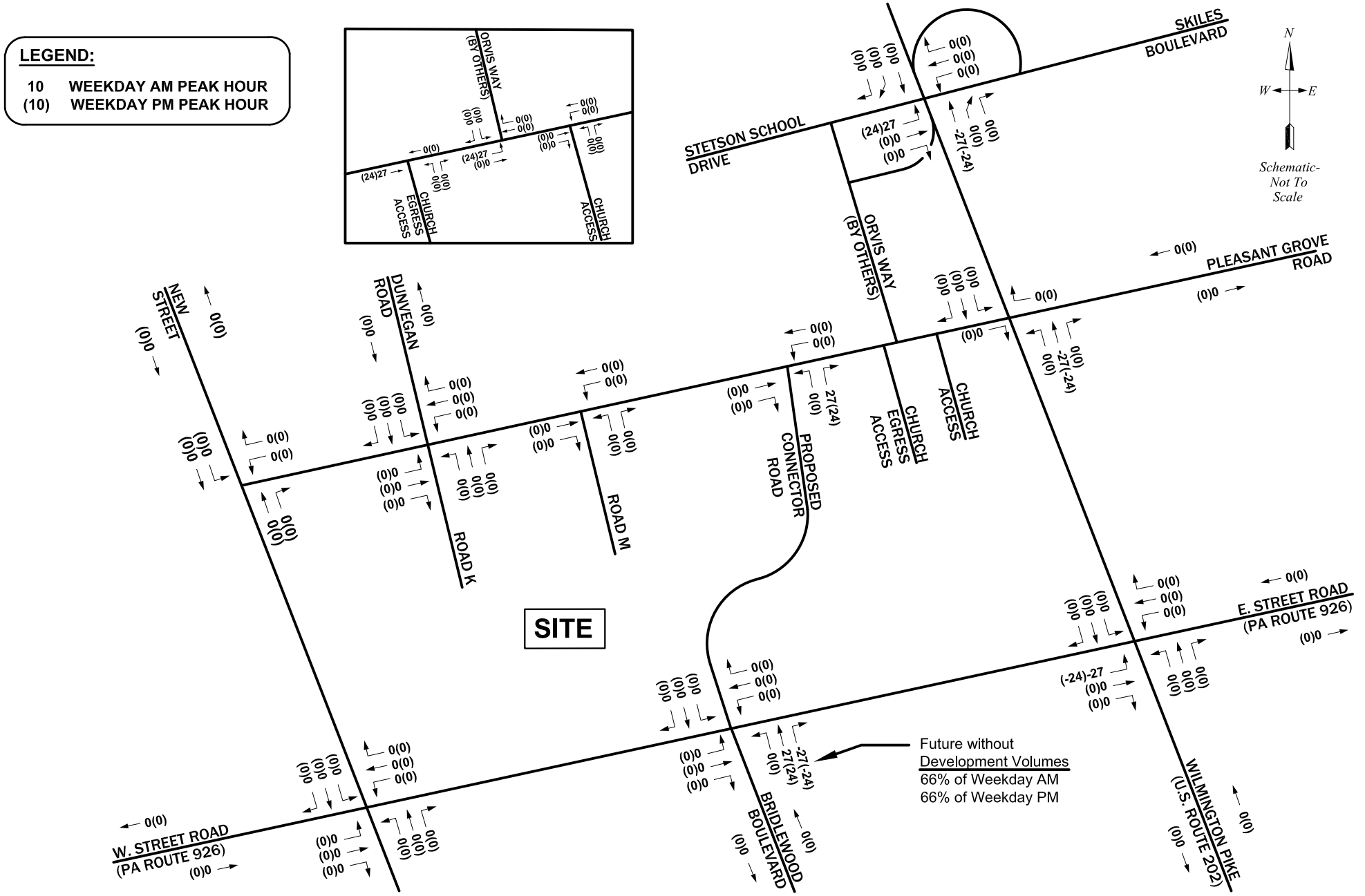
Diversion E - SBR US 202 to W. Pleasant Grove Road / New Street

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K8.dwg



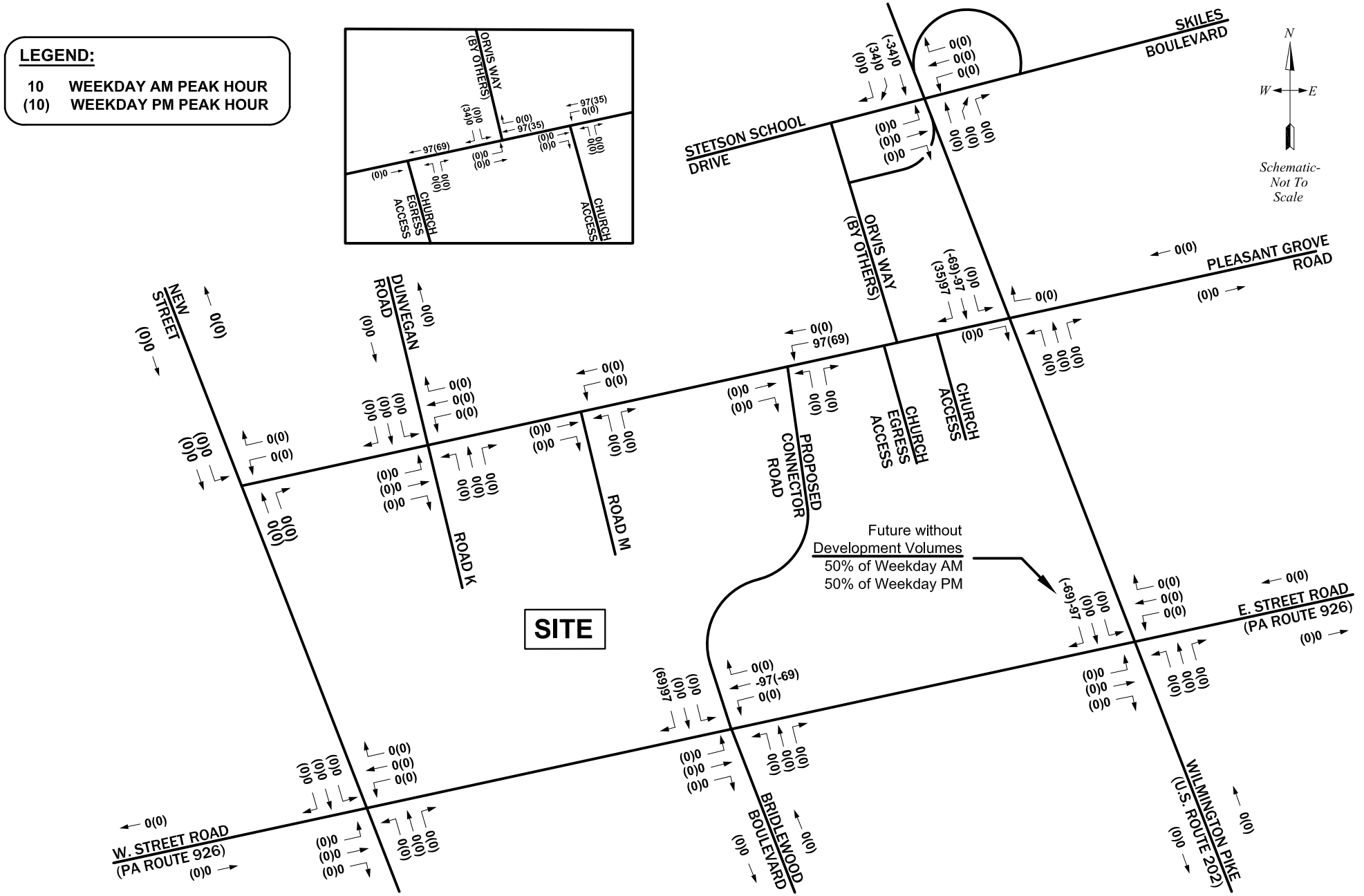
2030 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K10.dwg



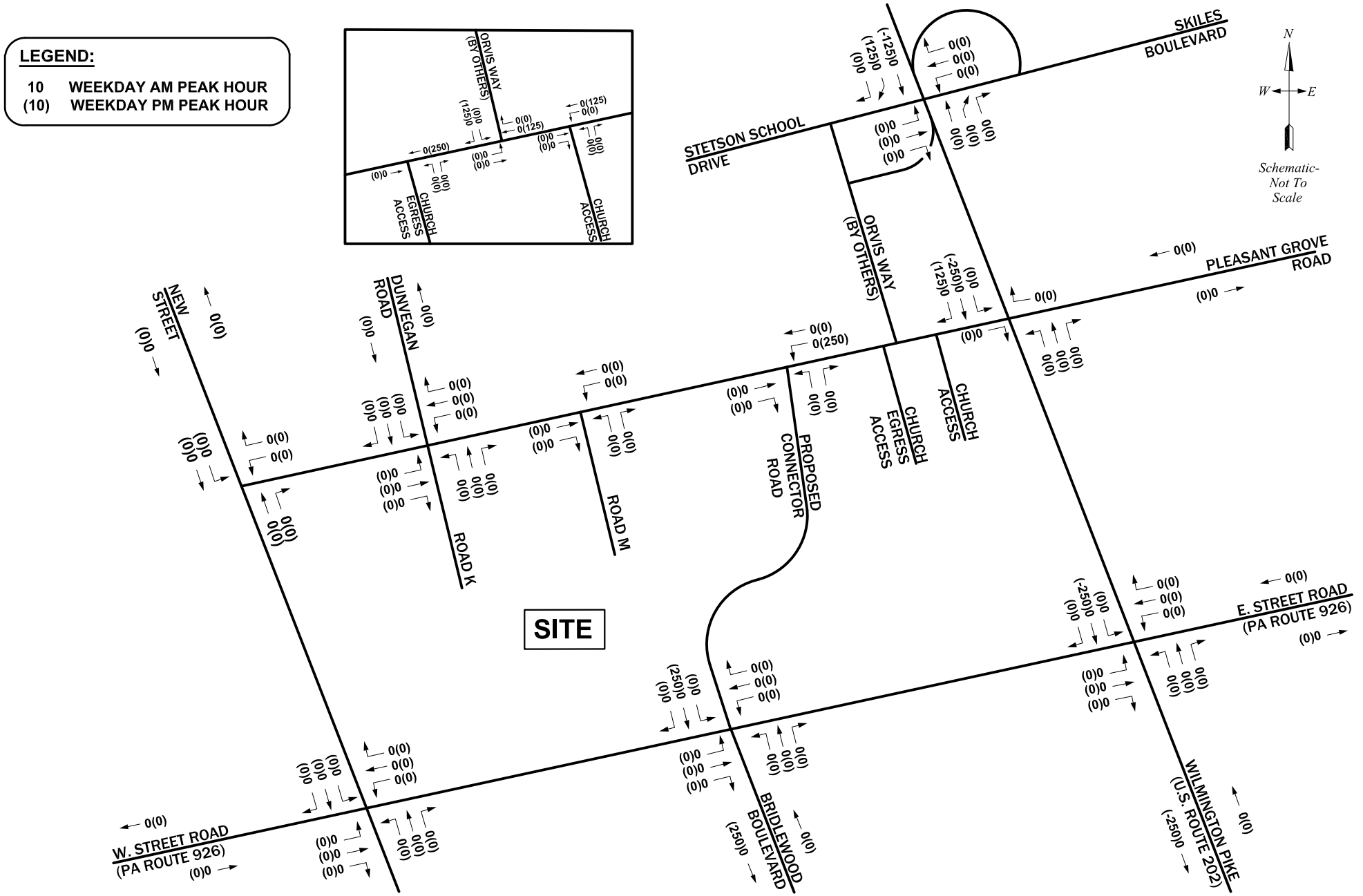
2030 with Development Diversions
Diversion G - SBR US 202 to WB SR 926

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K11.dwg



2025 & 2030 with Development Diversions
Diversion H - US 202 Southbound Through Traffic

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K13.dwg

TRAVEL TIME COMPARISON
2030 Future with Development Conditions

DIVERSION D

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	EBT @ Collector / PA 926			1.8	7.0
	PA 926 | Collector to US 202	2300	45	35	35
	EBL @ US 202/PA 926			187.2	167.0
	US 202 | PA 926 TO SKILES	4300	45	65	65
	NBT @ US 202 / SKILES			52.2	30.6
			TOTAL	***341.2***	***304.6***
DIVERTED	EBL @ PA 926 / Collector			0.2	6.1
	Collector | PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
	Pleasant Grove | Collector to Orvis	400	35	8	8
	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***218.1***	***201.7***

DIVERSION E

SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	Pleasant Grove | Collector to New	3700	35	72	72
	WBL @ New / Pleasant Grove			13	13.8
	New | Pleasant Grove to PA 926	3400	35	66	66
	SBR @ PA 926 / New			37.1	39
			TOTAL	***188.4***	***191.1***
DIVERTED	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
	PA 926 | Collector to New	2400	45	36	36
	WBT @ PA 926 / New			2.9	0.9
			TOTAL	***182.3***	***180.3***

DIVERSION F

NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	NBR @ PA 926 / Bridlewood			33.4	27.0
	PA 926 | Bridlewood to US 202	2300	35	45	45
	EBL @ US 202 / PA 926			187.2	167.0
	US 202 | PA 926 to Skiles	4300	45	65	65
	NBT @ US 202 / Skiles			52.2	30.6
			TOTAL	***382.8***	***334.6***
DIVERTED	NBT @ PA 926 / Bridlewood			33.4	27
	Collector |PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
	Pleasant Grove | Collector to Orvis	400	35	7.8	7.8
	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***251.3***	***222.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions

DIVERSION G

SB US ROUTE 202 RIGHT-TURN TO WB PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	SBT @ US 202 / Pleasant Grove			0	0
	US 202 | Pleasant Grove to PA 926	3100	45	47	47
	SBR @ US 202 / PA 926			103.1	359.3
	PA 926 | US 202 to Collector	2300	45	35	35
	WBT @ PA 926 / Collector			3.0	8.6
			TOTAL	***187.9***	***449.7***
DIVERTED	SBR @ US 202 / Pleasant Grove			0	0
	Pleasant Grove | US 202 to Collector	600	35	12	12
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
			TOTAL	***154.7***	***154.7***

DIVERSION H

US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	SBT @ US 202 / Skiles			29.2	20.5
	US 202 | PA 926 to Skiles	4320	45	66	66
	SBT @ US 202 / PA 926			98.3	379.4
	US 202 | Bridlewood to PA 926	2770	45	42	42
			TOTAL	***235***	***507.4***
DIVERTED (PM ONLY)	SBR @ US 202 / Skiles			9.9	10.6
	Orvis | Pleasant to Skiles	1100	25	30	30
	SBR @ Pleasant Grove / Orvis			14.0	17.6
	Pleasant Grove | Orvis to Collector	400	35	8	7.8
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	81.8
	SBT @ PA 926 / Collector			52.1	49.9
	Bridlewood | US 202 to PA 926	4150	25	113	113.2
			TOTAL	***317.9***	***322.2***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions
With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

DIVERSION D

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	EBT @ Collector / PA 926			1.8	7.0
	PA 926 | Collector to US 202	2300	45	35	35
	EBL @ US 202/PA 926			63.6	61.2
	US 202 | PA 926 TO SKILES	4300	45	65	65
	NBT @ US 202 / SKILES			52.2	30.6
			TOTAL	***217.6***	***198.8***
DIVERTED	EBL @ PA 926 / Collector			0.2	6.1
	Collector | PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
	Pleasant Grove | Collector to Orvis	400	35	8	8
	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***218.1***	***201.7***

DIVERSION E

SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	Pleasant Grove | Collector to New	3700	35	72	72
	WBL @ New / Pleasant Grove			13	13.8
	New | Pleasant Grove to PA 926	3400	35	66	66
	SBR @ PA 926 / New			37.1	39
			TOTAL	***188.4***	***191.1***
DIVERTED	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
	PA 926 | Collector to New	2400	45	36	36
	WBT @ PA 926 / New			2.9	0.9
			TOTAL	***182.3***	***180.3***

DIVERSION F

NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	NBR @ PA 926 / Bridlewood			33.4	27.0
	PA 926 | Bridlewood to US 202	2300	35	45	45
	EBL @ US 202 / PA 926			63.6	61.2
	US 202 | PA 926 to Skiles	4300	45	65	65
	NBT @ US 202 / Skiles			52.2	30.6
			TOTAL	***259.2***	***228.8***
DIVERTED	NBT @ PA 926 / Bridlewood			33.4	27
	Collector |PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
	Pleasant Grove | Collector to Orvis	400	35	7.8	7.8
	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***251.3***	***222.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions
With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

DIVERSION G

SB US ROUTE 202 RIGHT-TURN TO WB PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	SBT @ US 202 / Pleasant Grove			0	0
	US 202 | Pleasant Grove to PA 926	3100	45	47	47
	SBR @ US 202 / PA 926			56.3	301.8
	PA 926 | US 202 to Collector	2300	45	35	35
	WBT @ PA 926 / Collector			3.0	8.6
			TOTAL	***141.1***	***392.2***
DIVERTED	SBR @ US 202 / Pleasant Grove			0	0
	Pleasant Grove | US 202 to Collector	600	35	12	12
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
			TOTAL	***154.7***	***154.7***

DIVERSION H

US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	SBT @ US 202 / Skiles			29.2	20.5
	US 202 | PA 926 to Skiles	4320	45	66	66
	SBT @ US 202 / PA 926			56.3	301.8
	US 202 | Bridlewood to PA 926	2770	45	42	42
			TOTAL	***193***	***429.8***
DIVERTED (PM ONLY)	SBR @ US 202 / Skiles			9.9	10.6
	Orvis | Pleasant to Skiles	1100	25	30	30
	SBR @ Pleasant Grove / Orvis			14.0	17.6
	Pleasant Grove | Orvis to Collector	400	35	8	7.8
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	81.8
	SBT @ PA 926 / Collector			52.1	49.9
	Bridlewood | US 202 to PA 926	4150	25	113	113.2
			TOTAL	***317.9***	***322.2***

EXHIBIT A-45C

McMAHON ASSOCIATES, INC.
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Exton, PA 19341
p 610-594-9995 | f 610-594-9565

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FOUNDER
Joseph W. McMahon, P.E.

May 15, 2020

Mr. Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

RE: **Robinson Tract Residential Development**
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Russell:

McMahon Associates, Inc. is in receipt of the Township's comment letter, prepared by Albert Federico Consulting, LLC in their capacity as the Township traffic engineer, dated March 13, 2020, in regards to the T*ransportation Impact Study for the Robinson Tract*, prepared by our office and last revised December 2, 2019. It is noted that the applicant was not sent a copy of this letter for review. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

Comment #1ai: *As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.*

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

Response: West Pleasant Grove Road does not meet the Collector Road standards under the Township's road specifications. The applicant has agreed to widen along the property frontage to meet the Township's Collector Road half-width requirement of 14 feet. Table 1 has been revised to note that the applicant will widen West Pleasant Grove Road along the property frontage to meet the Township's half-width requirement for Collector Roads.

Comment #1aii: *The sections of the TIS discussing improvements should note that the internal Collector Road provides access to the property.*

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

Response: Complies. The Collector Road is not necessary for access to the site, but does provide secondary access locations. Page 3 of the TIS has been revised accordingly.

Comment #1aiii: *As previously noted, the Crash Summary only includes data for State "Reportable" collisions. In order to provide a more complete assessment of transportation safety within the study area "Nonreportable" collisions should be included. Note that the Traffic Safety Office is unaware* of *an outstanding request for "more detailed information". The applicant should resubmit the request to the Traffic Safety Office and Township Traffic Engineer, including the specific details being requested.*

Status: Supplemental information has been provided to the applicant. Based on coordination with the Applicant it is anticipated that this information will be considered in the revised TIS.

Response: The Westtown-East Goshen Township Regional Police Department provided additional non-reportable crash data. This data was summarized and provided to the Township Traffic Engineer.

Comment #1aiv: *As previously noted, the scope of physical improvements required to provide acceptable sight distance to public roads should be clearly indicated on the plans.*

Status: The submitted correspondence requests deferring this item until "detailed engineering' is completed.

Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements.

Comment #1v: *As previously noted, confirm that the sight distance measurements consider the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. {§149-903.A(2)}*

Status: The submitted correspondence indicates that the measurements are based on the existing roadway.

Response: No further response required.

Comment #1vi: *Provide calculations supporting the assumed diversions associated with Orvis Way and the proposed Collector Road. Additionally, cross reference the Collector Road diversions within the body of the study with the figures in Appendix K.*

Status: Supplemental materials have been submitted in response to this comment. Coordination is on-going.

Response: As documented in the TIS within the conditional use application, based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic diversions in the applicant's studies.

Comment #1vii: *The Travel Time Comparisons presented in Appendix K should be revised to address the following:*
(1) Verify the assumed route lengths. The Diversion Routes generally appear to be shorter than the Base conditions.
(2) Ensure that the impacts of the regular queueing along US Route 202 North during the morning peak, extending from the interchange into the study area, is included.
(3) The evaluation of diversions should include an alternate that considerations operations following the completion of the PennDOT improvements planned for US Route 202 and PA Route 926.
(4) The traffic calming anticipated to be installed along Bridlewood Boulevard should be considered.

Status: Supplemental materials have been submitted which address these comments.

Response: No further response is needed.

Comment #viii: *As previously noted, the anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of vehicular conflicts. It is noted that*
(1) The applicant has indicated a willingness to widen the roadway along the property frontage, but additional clarification regarding the specific scope of work is warranted.
(2) West Pleasant Grove Road is designated as a Collector Road and the total Right-of-way shall be 60 feet and cartway width shall be 28 feet. {§149-903.A(2)}

Status: The submitted correspondences indicates that the Applicant will widen West Pleasant Grove Road along the frontage to Collector Road standards.

Response: No further response needed.

Comment #ix: *As previously noted, the future operations presented for PA Route 926 and New Street rely primarily on "optimized" traffic signal timings that appear unlikely to be approved by PennDOT. Written confirmation from PennDOT should be provided that the assumed "optimized" timings can be implemented. If confirmation cannot be provided an alternative analysis utilizing a timing approved by the Township should be provided.*

Status: Based on direction from PennDOT, it is anticipated that this analysis will be modified in the revised TIS.

Response: Based on a meeting February 11, 2020, PennDOT required the applicant to revise the signal timings at PA 926 and New Street to provide a minimum of 63 seconds of green time along PA 926. This revision is included in the revised TIS, and results in no changes to the mitigation requirements or recommendations.

Comment #x: *As previously noted, the Cross-Section Assumptions Exhibit for PA Route 926 and New Street in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.*

Status: The Applicant committed to PennDOT (and represented to the Planning Commission) that revised improvement concept(s) would be prepared for PennDOT and Township review and would be used to coordinate with the potentially affected property owners.

Response: The applicant has submitted a conceptual plan and is continuing to coordinate with PennDOT, Westtown Township, and Thornbury Township regarding improvements at the intersection of Street Road (S.R. 0926) and New Street. Traffic analysis worksheets documenting the results with the additional intersection improvements illustrated in the conceptual plans are attached.

Comment #xi: *As previously noted, Cost Estimates for necessary improvements to accommodate future traffic should be provided. {§149-804.A(10)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

Response: No further response needed.

Comment #xii: *As previously noted, an Implementation Strategy for necessary improvements to accommodate future traffic should be provided. {§149-804.A(11)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

Response: The applicant will provide an implementation strategy upon final land development approval and the HOP process. The transportation improvements will be completed prior to occupancy, as required.

Comment #2a: *The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 continues to be based in large part on assumed diversions. As noted above, additional supporting information and analyses should be provided.*
Status: Supplemental materials have been submitted and coordination is on-going. The Applicant has yet to submit a revised TIS.

Response: As documented in the revised TIS, based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic diversions in the applicant's studies.

Comment #2b: *The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans:*
i. US Route 202 at Pleasant Grove Road – Southbound Right Turn
Status: The submitted correspondences indicates that the Applicant will make this improvement and that plans will be provided there is "concurrence" regarding the scope of improvements.
ii. PA Route 926 at New Street – Eastbound Left Turn
Status: The submitted correspondence offers an opinion that this improvement is unwarranted. Based on direction from PennDOT it is anticipated that the analysis will be modified in the revised TIS.

Response: i. No further response is required.
ii. As documented in the TIS, the development has no traffic impact at this intersection, based on PennDOT overall intersection mitigation criteria. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements.

Comment #2ci: *Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):*

(1) Collector Road at PA Route 926 (grading)
(2) Road M at West Pleasant Grove Road (grading and/or roundabout)
(3) Collector Road at West Pleasant Grove Road (grading and/or roundabout)

Status: The submitted correspondences requests deferring addressing these items until "detailed engineering" is completed.

Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements. For the intersection of West Pleasant Grove Road and the Connector Road, the transportation impact study demonstrates that this intersection satisfies industry standard PennDOT traffic operations criteria and safety with stop-control on Collector Road approach. Aesthetics are not required by code. However, the applicant offers to install a mini roundabout at the Collector Road/West Pleasant Grove Road intersection, provided the Township acquires any necessary right-of-way to install. Traffic analysis worksheets for a mini roundabout at this location are attached.

Comment #2cii: *In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:*
(1) Road M should be removed
(2) Roads L and N should be extended to form a single road

Status: The submitted "Alternate" plan removed the external access without connecting the internal roadways. It has been conveyed to the Applicant on several occasions that these items are intended to be addressed together: connect the internal roads (to remove the cul-de-sacs) and remove the external access.

Response: There is no requirement under the ordinance for these two items to be addressed together. The proposed internal roadway design is safe and has sufficient internal connectivity. Removing Road M and extending roads L and N does not create any additional internal connectivity or enhance safety, rather it unnecessarily adversely impacts the environmentally sensitive areas in the northern portion of the property. This comment violates Section 170-1617.C.(2) of the Zoning Ordinance which provides that "potential development areas also shall be delineated so as to minimize intrusion into secondary conversation areas.

Comment #2ciii: *The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.*

Status: The submitted correspondences requests deferring this item until Land Development.

Response: No further response required.

Comment #2iv: *The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, in particular the exit-only driveway from the Westminster Presbyterian Church.*

Status: The driveway is reflected on the plan but is difficult to discern due to drafting. It appears the proposed site access to West Pleasant Grove Road (via the Collector Road) will impact the

Church Driveway. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road at a mutually agreed upon location.

Response: As documented in the alternate plan dated February 13, 2020, the applicant is providing an easement for the church to connect an access along the Connector Road.

Comment #2v: *The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.*

Status: The submitted correspondences indicates that right-of way is being offered. The Applicant does correctly note that the PennDOT project is not fully engineered. The plans should include a note indicating that other reasonable right-of-way and/or easement required for the improvements will be provided to PennDOT as needed.

Response: No further response needed.

Comment #2vi: *The following internal roadways should be reconfigured to remove geometric irregularities:*
(1) Road E and Road F (provide a curve)
(2) Road F and Road G (provide a curve)
(3) Road I and Road J (remove the jog within the intersection)

Status: The submitted materials do not adequately address these comments. The Applicant has represented to the Planning Commission that Stop signs will be used to compensate for these irregular designs. To date no information has been provided documenting that the signs would meet accepted warrants.

Response: The internal intersection design complies with section 149-907.A of the Township SALDO, which does not apply during the conditional use process.

Comment #vii: *Additional facilities should be provided to address non-vehicular connectivity, including:*
(1) A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}
(2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
(3) Sidewalks along proposed roads, including accessible crossings. {§149-916}
(4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}

Status: The submitted materials do not adequately address these comments. It is noted that a supplemental plan was presented to the Planning Commission which included a partial connection to Arborview and a trail from an internal roadway to the intersection of US Route 202 and PA Route 926.

Response: As documented in the conditional use application, the applicant is providing non-vehicular facilities from the development to the edge of the right-of-way at the Arborview property boundary. Connection to the Arborview trail is an offsite improvement that is not required. As required by PennDOT, non-vehicular facilities will be provided in conjunction with the PA 926 Connector Road/Bridlewood Boulevard signalized intersection within the right-of-way. As documented in the alternate plan, the applicant is provided non-vehicular facilities to connect the development to US 202/PA 926.

Comment #viii: *Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.*
Status: The Alternate Plan does indicate a location for potential access. To date there is no information indicating that this location has been reviewed with the Church. Based on initial coordination with the Church a location further south along the Collector Road may be preferred.

Response: As documented in the conditional use application plans, the applicant is providing an easement for the church to connect an access along the Connector Road.

Comment #ix: *Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.*
Status: The submitted correspondences requests deferring this item until Land Development.

Response: School Bus Stops are not required pursuant to Township code. However, the applicant is providing designated school bus areas within the development, as documented in the conditional use application on the alternate plan.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

ATTACHMENTS

Street Road (S.R. 0926) and New Street

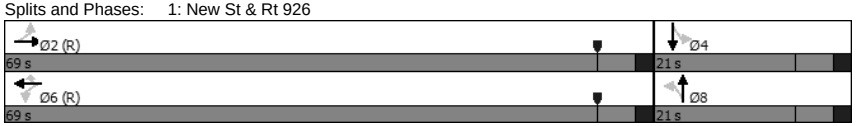
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	175		0	150		150	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.963			0.929	
Flt Protected	0.950			0.950				0.997			0.999	
Satd. Flow (prot)	1580	1630	0	1588	1562	1379	0	1586	0	0	1530	0
Flt Permitted	0.503			0.332				0.910			0.991	
Satd. Flow (perm)	837	1630	0	555	1562	1379	0	1448	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1				39						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	689	0	12	405	39	0	164	0	0	306	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%	76.7%	23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	-1.0		0.0	-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	5.0		6.0	5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
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	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	746	1281	9	479	1206	1040	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	985	1802	13	763	1696	1485	47	1240	487	17	756	859
Grp Volume(v), veh/h	87	0	689	12	405	39	164	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	985	0	1815	763	1696	1485	1773	0	0	1632	0	0
Q Serve(g_s), s	2.8	0.0	15.9	0.4	1.7	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	15.9	16.3	1.7	0.2	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
V/C Ratio(X)	0.12	0.00	0.53	0.03	0.34	0.04	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.99	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	0.0	6.1	4.0	0.8	0.9	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.6	0.1	0.7	0.1	1.1	0.0	0.0	44.5	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(95%),veh/ln	0.9	0.0	8.1	0.1	1.0	0.1	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	0.0	7.6	4.1	1.5	1.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		7.4			1.5			34.8			82.2	
Approach LOS		A			A			C			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	69.0	21.0	69.0	21.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	15.0	63.0	15.0
Max Q Clear Time (g_c+I1), s	17.9	17.0	18.3	9.6
Green Ext Time (p_c), s	7.4	0.0	3.5	0.2

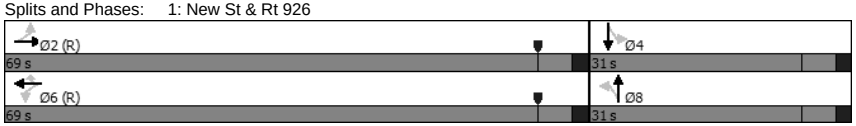
Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	175		0	150		150	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	75			75			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850		0.960			0.958	
Flt Protected	0.950			0.950				0.997			0.992	
Satd. Flow (prot)	1580	1628	0	1588	1562	1379	0	1579	0	0	1547	0
Flt Permitted	0.488			0.279				0.970			0.928	
Satd. Flow (perm)	812	1628	0	466	1562	1379	0	1536	0	0	1448	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2				33						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	721	0	24	395	33	0	149	0	0	345	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%	69.0%	31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-1.0		-2.0	-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.0	5.0		4.0	5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
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	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	742	1181	23	408	1128	972	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	1000	1776	35	741	1696	1485	53	1184	518	197	930	507
Grp Volume(v), veh/h	68	0	721	24	395	33	149	0	0	345	0	0
Grp Sat Flow(s),veh/h/ln	1000	0	1811	741	1696	1485	1755	0	0	1634	0	0
Q Serve(g_s), s	2.4	0.0	22.2	1.1	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	22.2	23.3	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		1.00	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	742	0	1204	408	1128	972	469	0	0	442	0	0
V/C Ratio(X)	0.09	0.00	0.60	0.06	0.35	0.03	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	742	0	1204	408	1128	972	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.8	0.0	9.3	3.8	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.2	0.3	0.8	0.1	0.4	0.0	0.0	7.4	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(95%),veh/ln	0.8	0.0	12.2	0.2	0.5	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	0.0	11.5	4.1	0.8	0.1	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	A	A	B	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		789			452			149			345	
Approach Delay, s/veh		11.1			0.9			32.4			44.3	
Approach LOS		B			A			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	71.5	28.5	71.5	28.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	25.0	63.0	25.0
Max Q Clear Time (g_c+I1), s	24.2	22.1	25.3	9.0
Green Ext Time (p_c), s	7.4	0.4	3.5	0.4

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

West Pleasant Grove Road and Collector Road
Mini Roundabout

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	1	165	118	4	93
Future Volume (vph)	71	1	165	118	4	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.871	
Flt Protected				0.972	0.998	
Satd. Flow (prot)	1712	0	0	1676	1534	0
Flt Permitted				0.972	0.998	
Satd. Flow (perm)	1712	0	0	1676	1534	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1878			318	459	
Travel Time (s)	36.6			6.2	8.9	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	2%	2%	3%	2%	2%
Adj. Flow (vph)	101	1	236	169	6	133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	405	139	0
Sign Control	Yield			Yield	Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

Intersection	
Intersection Delay, s/veh	4.9
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	102	405	139
Demand Flow Rate, veh/h	102	415	142
Vehicles Circulating, veh/h	241	6	101
Vehicles Exiting, veh/h	180	237	242
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.2	5.4	3.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	102	415	142
Cap Entry Lane, veh/h	1079	1371	1245
Entry HV Adj Factor	1.000	0.976	0.979
Flow Entry, veh/h	102	405	139
Cap Entry, veh/h	1079	1338	1218
V/C Ratio	0.095	0.303	0.114
Control Delay, s/veh	4.2	5.4	3.9
LOS	A	A	A
95th %tile Queue, veh	0	1	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	65	4	414	220	3	162
Future Volume (vph)	65	4	414	220	3	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.867	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1528	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1528	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	552	293	4	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	845	220	0
Sign Control	Yield			Yield	Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

McMahon Associates, Inc. Robinson Tract
8: Collector Road & Pleasant Grove Rd 2030 with Dev Weekday Afternoon Peak Hour

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	92	845	220
Demand Flow Rate, veh/h	92	859	224
Vehicles Circulating, veh/h	563	4	87
Vehicles Exiting, veh/h	300	307	568
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.8	10.1	4.4
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	92	859	224
Cap Entry Lane, veh/h	777	1374	1263
Entry HV Adj Factor	1.000	0.984	0.982
Flow Entry, veh/h	92	845	220
Cap Entry, veh/h	777	1352	1240
V/C Ratio	0.118	0.625	0.177
Control Delay, s/veh	5.8	10.1	4.4
LOS	A	B	A
95th %tile Queue, veh	0	5	1

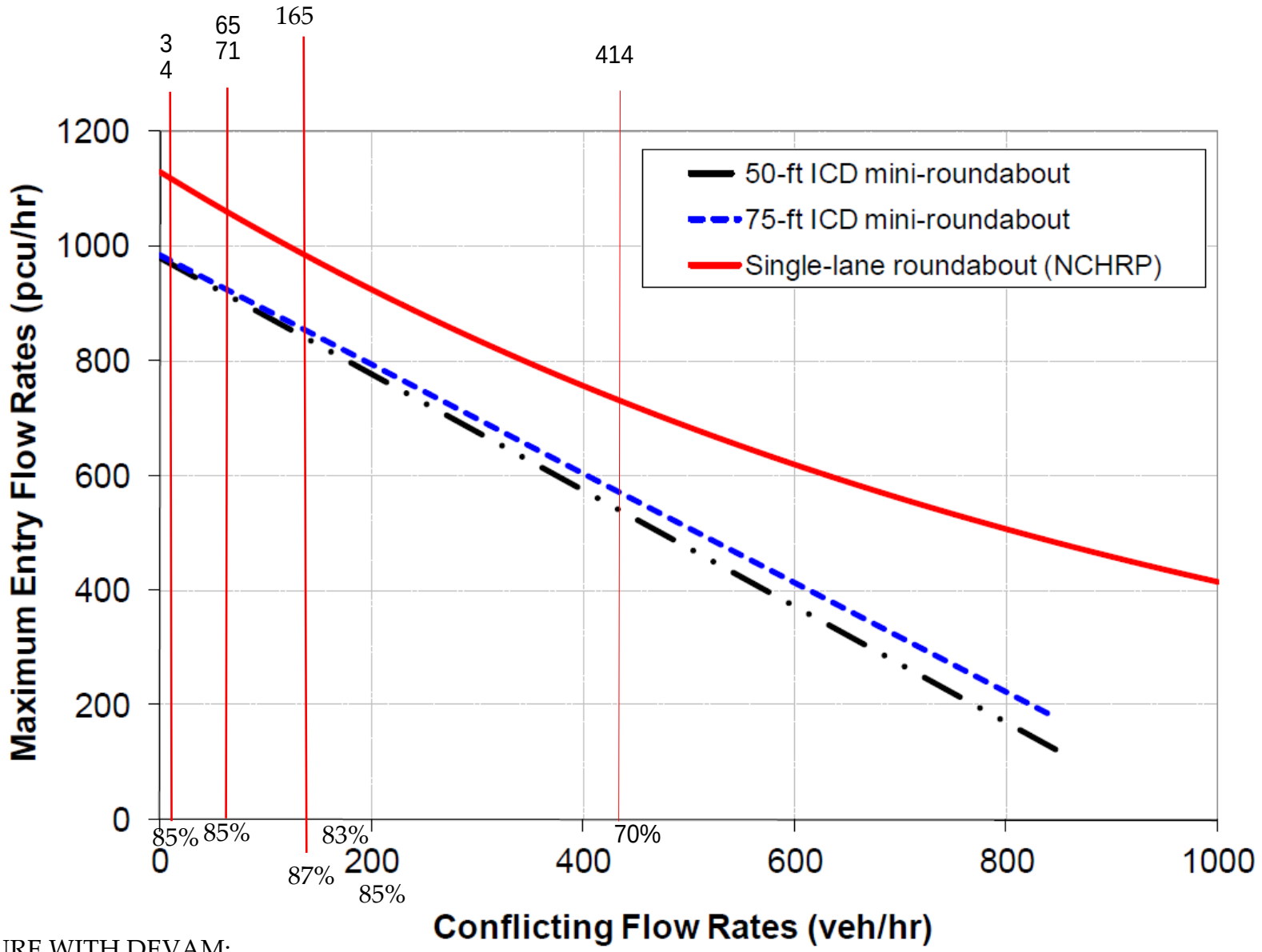
Table 1. Mini Roundabout Delay Calculation - 2030 Future with Development

	Weekday AM			Weekday PM		
	Northbound	Eastbound	Westbound	Northbound	Eastbound	Westbound
Single Lane Roundabout Delay [1]	3.9	4.2	5.4	4.4	5.8	10.1
Capacity Compared to Single Lane [2]	85%	87%	85%	85%	70%	85%
Mini Roundabout Approach Delay	4.5	4.7	6.2	5.1	7.5	11.6
Approach Volume	97	72	283	165	69	634
Mini Roundabout Overall Delay & LOS	5.6		A	10.0		B

(1) Based on HCM 6th Edition Methodology for a traditonal roundabout.

(2) See Figure 1.

FIGURE A



2030 FUTURE WITH DEVAM:
NB = 97 entering, 71 conflicting
EB = 72 entering, 165 conflicting
WB = 283 entering, 4 conflicting

2030 FUTURE WITH DEVPM:
NB = 165 entering, 65 conflicting
EB = 69 entering, 414 conflicting
WB = 634 entering, 3 conflicting

Source: *Determination of Mini-Roundabout Capacity in the United States,* as published within the Journal of Transportation Engineering Volume 140 Issue 10

EXHIBIT A-45E

McMAHON ASSOCIATES, INC.
835 Springdale Drive, Suite 200
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FOUNDER
Joseph W. McMahon, P.E.

May 27, 2020

Mr. Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

RE: **Robinson Tract Residential Development**
Stetson School Drive Afternoon School Peak Traffic Operations
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Hatton:

In response to the comment from the Township's Traffic Engineer from the May 20, 2020 Planning Commission Meeting, McMahon Associates, Inc. has prepared this letter to describe the traffic operations at the intersection of Wilmington Pike (U.S. Route 202) and Skiles Boulevard / Stetson School Drive during the weekday afternoon school peak hour, as related to the intersection improvements proposed by the applicant. This comment was not included in the Township Traffic Engineer's review letters. All of the traffic count data presented in this letter is included in the applicant's submitted transportation impact studies, but is organized here to directly address the Township Traffic Engineer's comment from the May 20, 2020 Planning Commission Meeting.

In order to complete this evaluation, the following school operations were considered:

Stetson Middle School

- Approximately 1,000 total students
- School dismissal occurs at 2:50 PM

Starkweather Elementary School

- Approximately 600 total students
- School dismissal occurs at 3:40 PM
- ITE trip generation data indicates the elementary school generates more traffic during the weekday afternoon peak of the generator, as compared to the middle school peak hour of the generator. Therefore, the peak of the elementary school (dictated by the dismissal time) will result in the highest trips.

The elementary school dismissal time was correlated to the traffic count data collected at the intersection, as contained in the TIS. The counted afternoon school entering and exiting traffic is summarized below in **Table 1** in 15-minute intervals. The traffic count sheets are provided in **Attachment 1**.

Table 1. School Traffic by 15-Minute Intervals (1)

	Entering	Exiting	Total
4:00-4:15 PM	32	32	82
4:15-4:30 PM	**38**	**46**	**102**
4:30-4:45 PM	**53**	**61**	**134**
4:45-5:00 PM	**47**	**86**	**148**
5:00-5:15 PM	**23**	**65**	**105**
5:15-5:30 PM	25	33	71

(1) Based on intersection turning movement counts conducted on October 10, 2019.

As shown in Table 1, the school peak hour occurs from 4:15 PM to 5:15 PM. During this period, 489 total vehicles (entering and exiting the schools) were counted.

For further comparison purposes and validation of the data, the counted trips were compared to ITE trip generation data for the elementary and middle school land uses. Based on the ITE trip generation calculations for the weekday afternoon peak hour of the generator, the elementary school would generate 204 total trips and the middle school would generate 321 total trips during their respective dismissal hour. This equates to approximately 525 trips in total for both schools, if the dismissal periods coincided. However, given the staggered dismissal times of the schools, less trips occur during the weekday afternoon school peak hour. This ITE data comparison validates the counted traffic volumes represented in the afternoon school peak hour, since 489 total vehicles were counted (entering and exiting the schools with offset dismissal times) and ITE predicts 525 total trips if the school dismissal periods coincided, only seven (7) percent higher than the counted traffic volumes with dismissal periods approximately one hour apart.

Traffic Operations

The weekday afternoon school peak hour (4:15 to 5:15 PM) has been analyzed at the intersection of Wilmington Pike (U.S. Route 202) and Skiles Boulevard / Stetson School Drive under 2030 future with-development conditions, which includes the traffic diversions resulting from the Township required Collector Road.

As detailed in the submitted TIS, the applicant is proposing the following improvements at the intersection:

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.

- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

The results of the weekday afternoon school peak hour with-development traffic conditions, both without and with the improvements proposed by the applicant, as listed above, are illustrated in **Table 2** below.

Table 2. Wilmington Pike (U.S. Route 202) and Skiles Boulevard / Stetson School Drive
2030 Future with Development and Collector Road Diversions
Level-of-Service and Delay (in seconds) for Stetson School Drive

	Stetson School Eastbound Left	**Stetson School Eastbound Thru**	**Stetson School Eastbound Right**	**Stetson School Approach**	**Overall Intersection**
Afternoon School Peak Hour Existing Intersection Geometry	F 106.5	D 35.1	C 32.0	E 77.2	C 31.6
Afternoon School Peak Hour With Applicant Improvements	D 49.6	D 36.1		D 44.1	C 29.2

As shown in Table 2, with the significant volume increase along Stetson School Drive as a result of the traffic diversions from the Township's required Collector Road, the eastbound left-turn movement results in failing conditions with the existing intersection geometry. However, with the improvements proposed by the applicant, the delay for this movement is reduced by 53 percent resulting in acceptable LOS D conditions, and therefore, the applicant's improvements at the intersection will have a substantial benefit to capacity for traffic along Stetson School Drive compared to the existing intersection geometry. The delay on the Stetson School approach (combination of all movements) is decreased by 43 percent, and the overall intersection delay (PennDOT standard measurement of operations) is decreased by 8 percent. The capacity level-of-service analysis worksheets are provided in **Attachment 2**.

Conclusions

The improvements proposed by the applicant clearly provide additional capacity along Stetson School Drive, substantially benefiting traffic operations during the weekday afternoon school peak hour with the proposed development and the diverted traffic as a result of the Township required Collector Road.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
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Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

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ATTACHMENT 1

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound			Skiles Boulevard Westbound			Route 202 Northbound			Skiles Boulevard Eastbound			
Start Time	To Jughandle	Thru	Right	Left	Thru	Right	To Jughandle	Thru	Right	Left	Thru	Right	Int. Total
07:00	17	495	25	9	14	13	7	542	1	9	12	3	1147
07:15	15	493	44	11	13	11	3	557	0	10	16	2	1175
07:30	42	441	35	12	41	15	4	471	1	29	33	7	1131
07:45	28	445	50	18	66	15	9	466	4	33	80	19	1233
Total	102	1874	154	50	134	54	23	2036	6	81	141	31	4686
08:00	0	493	23	15	34	17	0	460	4	34	42	16	1138
08:15	0	480	28	13	9	16	0	465	3	18	12	3	1047
08:30	0	452	22	8	21	17	0	486	6	29	27	10	1078
08:45	0	460	31	13	24	14	0	481	8	45	21	18	1115
Total	0	1885	104	49	88	64	0	1892	21	126	102	47	4378
16:00	0	400	16	11	16	11	0	464	11	20	23	7	979
16:15	0	494	18	8	20	9	0	484	9	17	34	13	1106
16:30	0	431	23	5	30	5	0	492	3	34	38	9	1070
16:45	0	461	18	10	29	7	0	465	3	42	45	14	1094
Total	0	1786	75	34	95	32	0	1905	26	113	140	43	4249
17:00	17	521	12	4	11	16	6	502	3	18	47	17	1174
17:15	13	490	21	9	4	12	3	497	9	21	21	4	1104
17:30	17	479	20	7	20	14	5	500	6	26	32	20	1146
17:45	15	435	16	7	8	17	7	494	7	55	29	20	1110
Total	62	1925	69	27	43	59	21	1993	25	120	129	61	4534
Grand Total	164	7470	402	160	360	209	44	7826	78	440	512	182	17847
Apprch %	2	93	5	21.9	49.4	28.7	0.6	98.5	1	38.8	45.1	16	
Total %	0.9	41.9	2.3	0.9	2	1.2	0.2	43.9	0.4	2.5	2.9	1	
Passenger Vehicles	164	7003	387	153	344	204	44	7391	75	421	494	174	16854
% Passenger Vehicles	100	93.7	96.3	95.6	95.6	97.6	100	94.4	96.2	95.7	96.5	95.6	94.4
Heavy Vehicles	0	467	15	7	16	5	0	435	3	19	18	8	993
% Heavy Vehicles	0	6.3	3.7	4.4	4.4	2.4	0	5.6	3.8	4.3	3.5	4.4	5.6

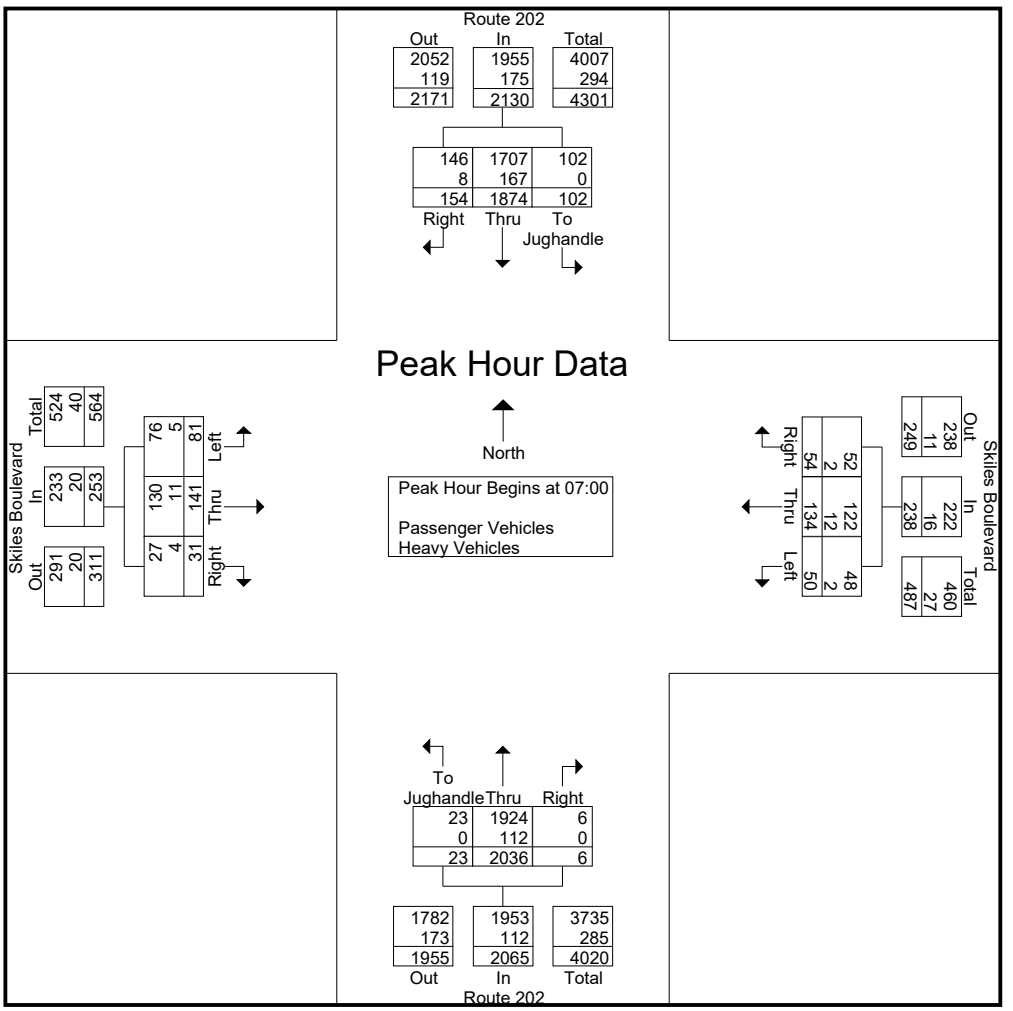
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 2

	Route 202 Southbound				Skiles Boulevard Westbound				Route 202 Northbound				Skiles Boulevard Eastbound				
Start Time	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	17	**495**	25	537	9	14	13	36	7	542	1	550	9	12	3	24	1147
07:15	15	493	44	**552**	11	13	11	35	3	**557**	0	**560**	10	16	2	28	1175
07:30	**42**	441	35	518	12	41	**15**	68	4	471	1	476	29	33	7	69	1131
07:45	28	445	**50**	523	**18**	**66**	15	**99**	**9**	466	**4**	479	**33**	**80**	**19**	**132**	**1233**
Total Volume	102	1874	154	2130	50	134	54	238	23	2036	6	2065	81	141	31	253	4686
% App. Total	4.8	88	7.2		21	56.3	22.7		1.1	98.6	0.3		32	55.7	12.3		
PHF	.607	.946	.770	.965	.694	.508	.900	.601	.639	.914	.375	.922	.614	.441	.408	.479	.950
Passenger Vehicles	102	1707	146	1955	48	122	52	222	23	1924	6	1953	76	130	27	233	4363
% Passenger Vehicles	100	91.1	94.8	91.8	96.0	91.0	96.3	93.3	100	94.5	100	94.6	93.8	92.2	87.1	92.1	93.1
Heavy Vehicles	0	167	8	175	2	12	2	16	0	112	0	112	5	11	4	20	323
% Heavy Vehicles	0	8.9	5.2	8.2	4.0	9.0	3.7	6.7	0	5.5	0	5.4	6.2	7.8	12.9	7.9	6.9



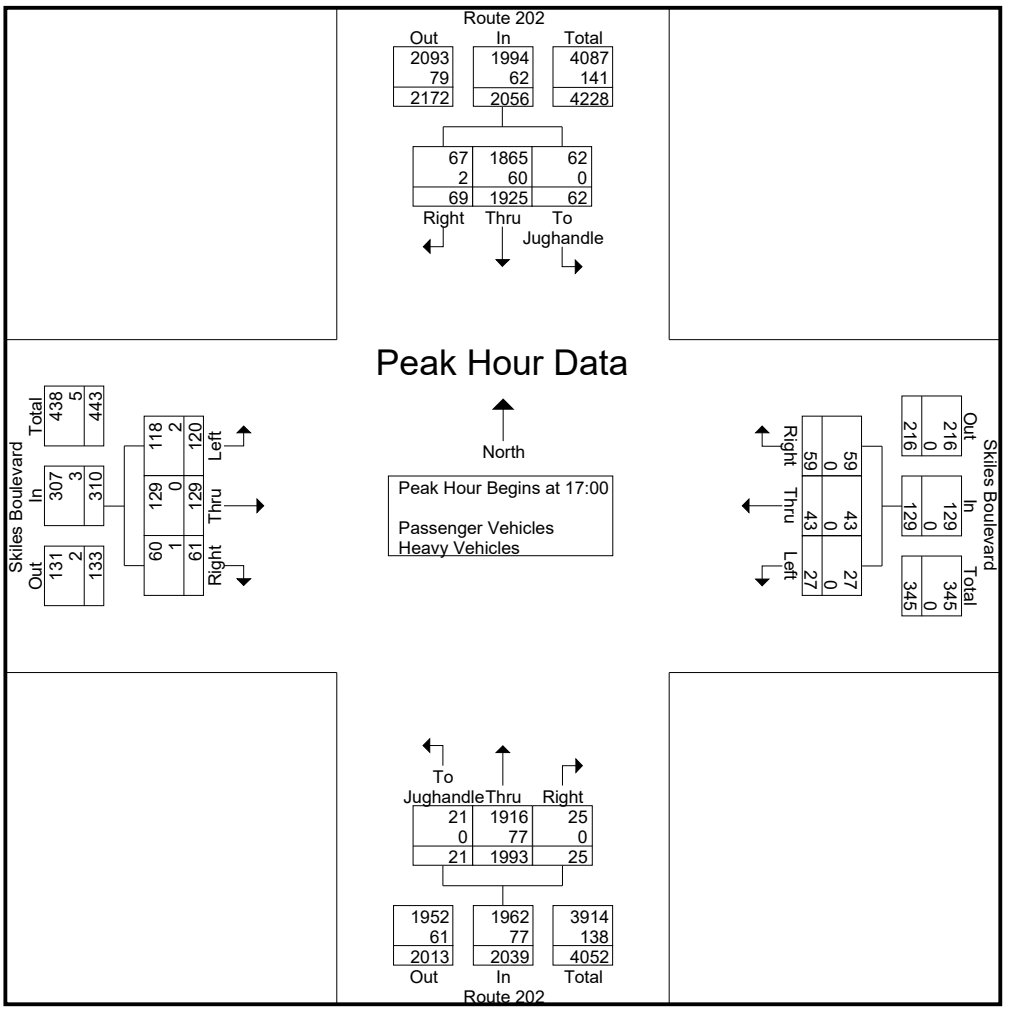
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 3

	Route 202 Southbound				Skiles Boulevard Westbound				Route 202 Northbound				Skiles Boulevard Eastbound				
Start Time	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**17**	**521**	12	**550**	4	11	16	31	6	**502**	3	**511**	18	**47**	17	82	**1174**
17:15	13	490	**21**	524	**9**	4	12	25	3	497	**9**	509	21	21	4	46	1104
17:30	17	479	20	516	7	**20**	14	**41**	5	500	6	511	26	32	**20**	78	1146
17:45	15	435	16	466	7	8	**17**	32	**7**	494	7	508	**55**	29	20	**104**	1110
Total Volume	62	1925	69	2056	27	43	59	129	21	1993	25	2039	120	129	61	310	4534
% App. Total	3	93.6	3.4		20.9	33.3	45.7		1	97.7	1.2		38.7	41.6	19.7		
PHF	.912	.924	.821	.935	.750	.538	.868	.787	.750	.993	.694	.998	.545	.686	.763	.745	.966
Passenger Vehicles	62	1865	67	1994	27	43	59	129	21	1916	25	1962	118	129	60	307	4392
% Passenger Vehicles	100	96.9	97.1	97.0	100	100	100	100	100	96.1	100	96.2	98.3	100	98.4	99.0	96.9
Heavy Vehicles	0	60	2	62	0	0	0	0	0	77	0	77	2	0	1	3	142
% Heavy Vehicles	0	3.1	2.9	3.0	0	0	0	0	0	3.9	0	3.8	1.7	0	1.6	1.0	3.1



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 1

Groups Printed- Heavy Vehicles

	Route 202 Southbound			Skiles Boulevard Westbound			Route 202 Northbound			Skiles Boulevard Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	37	0	0	0	0	0	22	0	1	2	0	62
07:15	0	56	0	1	0	0	0	29	0	1	0	0	87
07:30	0	32	2	0	3	0	0	27	0	0	0	0	64
07:45	0	42	6	1	9	2	0	34	0	3	9	4	110
Total	0	167	8	2	12	2	0	112	0	5	11	4	323
08:00	0	35	0	1	1	1	0	37	0	3	2	0	80
08:15	0	27	0	2	0	1	0	36	1	2	0	1	70
08:30	0	41	2	0	1	0	0	43	2	1	2	0	92
08:45	0	48	3	0	2	1	0	36	0	4	3	1	98
Total	0	151	5	3	4	3	0	152	3	10	7	2	340
16:00	0	27	0	0	0	0	0	19	0	0	0	0	46
16:15	0	24	0	1	0	0	0	28	0	1	0	1	55
16:30	0	15	0	0	0	0	0	25	0	1	0	0	41
16:45	0	23	0	1	0	0	0	22	0	0	0	0	46
Total	0	89	0	2	0	0	0	94	0	2	0	1	188
17:00	0	18	1	0	0	0	0	24	0	0	0	0	43
17:15	0	11	1	0	0	0	0	12	0	0	0	0	24
17:30	0	13	0	0	0	0	0	22	0	0	0	1	36
17:45	0	18	0	0	0	0	0	19	0	2	0	0	39
Total	0	60	2	0	0	0	0	77	0	2	0	1	142
Grand Total	0	467	15	7	16	5	0	435	3	19	18	8	993
Apprch %	0	96.9	3.1	25	57.1	17.9	0	99.3	0.7	42.2	40	17.8	
Total %	0	47	1.5	0.7	1.6	0.5	0	43.8	0.3	1.9	1.8	0.8	

U.S. Route 202 and Skiles Boulevard / Stetson School

Combined

	US 202 Southbound			US 202 Northbound			Skiles Westbound			Stetson Eastbound				
	Jughandle	**Thru**	**Right**	**Jughandle**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**TOTAL**	
16:15	18	476	18	10	474	9	8	20	9	17	34	13	1106	
16:30	20	411	23	4	488	3	5	30	5	34	38	9	1070	
16:45	15	446	18	4	461	3	10	29	7	42	45	14	1094	
17:00	17	521	12	6	502	3	4	11	16	18	47	17	1174	
Total	70	1854	71	24	1925	18	27	90	37	111	164	53	4444	**PHF**
														0.95

Heavy Vehicles

	US 202 Southbound			US 202 Northbound			Skiles Westbound			Stetson Eastbound		
	Jughandle	**Thru**	**Right**	**Jughandle**	**Thru**	**Right**	**Left**	**Thru**	**Right**	**Left**	**Thru**	**Right**
16:15		24	0		28	0	1	0	0	1	0	1
16:30		15	0		25	0	0	0	0	1	0	0
16:45		23	0		22	0	1	0	0	0	0	0
17:00		18	1		24	0	0	0	0	0	0	0
Total		80	1		99	0	2	0	0	2	0	1
		4%	1%		5%	0%	7%	0%	0%	2%	0%	2%

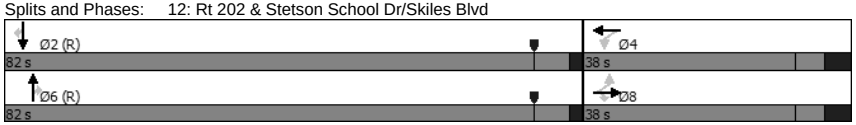
ATTACHMENT 2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	183	54	60	95	43	0	1896	72	0	1827	392
Future Volume (vph)	347	183	54	60	95	43	0	1896	72	0	1827	392
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.953				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1582	1811	0	0	3225	1616	0	3338	1743
Flt Permitted	0.612			0.531								
Satd. Flow (perm)	1070	1906	1589	884	1811	0	0	3225	1616	0	3338	1743
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	2%	7%	0%	0%	0%	5%	0%	0%	4%	1%
Adj. Flow (vph)	365	193	57	63	100	45	0	1996	76	0	1923	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	365	193	57	63	145	0	0	1996	76	0	1923	413
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0			82.0	82.0		82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	31.7%			68.3%	68.3%		68.3%	68.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0			75.0	75.0		75.0	75.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	347	183	54	60	95	43	0	1896	72	0	1827	392
Future Volume (veh/h)	347	183	54	60	95	43	0	1896	72	0	1827	392
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	1958	2066	2036	1679	1849	1849	0	1707	1849	0	1855	1973
Adj Flow Rate, veh/h	365	193	57	63	100	45	0	1996	76	0	1923	413
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	2	7	0	0	0	5	0	0	4	1
Cap, veh/h	353	568	489	274	332	149	0	2082	1005	0	2261	1073
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.25	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	1374	2066	1726	1071	1208	543	0	3330	1567	0	3617	1672
Grp Volume(v), veh/h	365	193	57	63	0	145	0	1996	76	0	1923	413
Grp Sat Flow(s),veh/h/ln	1374	2066	1726	1071	0	1751	0	1622	1567	0	1762	1672
Q Serve(g_s), s	25.6	9.0	2.9	6.0	0.0	7.9	0.0	68.8	2.2	0.0	51.6	14.1
Cycle Q Clear(g_c), s	33.0	9.0	2.9	15.0	0.0	7.9	0.0	68.8	2.2	0.0	51.6	14.1
Prop In Lane	1.00		1.00	1.00		0.31	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	353	568	489	274	0	482	0	2082	1005	0	2261	1073
V/C Ratio(X)	1.03	0.34	0.12	0.23	0.00	0.30	0.00	0.96	0.08	0.00	0.85	0.38
Avail Cap(c_a), veh/h	353	568	489	274	0	482	0	2082	1005	0	2261	1073
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	49.4	34.8	31.9	40.8	0.0	34.8	0.0	20.0	8.1	0.0	17.0	10.2
Incr Delay (d2), s/veh	57.1	0.4	0.1	0.4	0.0	0.3	0.0	12.2	0.1	0.0	4.3	1.0
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(95%),veh/ln	23.5	8.2	2.3	2.9	0.0	6.3	0.0	33.5	1.3	0.0	26.2	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.5	35.1	32.0	41.2	0.0	35.1	0.0	32.2	8.2	0.0	21.2	11.3
LnGrp LOS	F	D	C	D	A	D	A	C	A	A	C	B
Approach Vol, veh/h		615			208			2072			2336	
Approach Delay, s/veh		77.2			37.0			31.3			19.5	
Approach LOS		E			D			C			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s		7.0		8.0		7.0		8.0				
Max Green Setting (Gmax), s		75.0		30.0		75.0		30.0				
Max Q Clear Time (g_c+I1), s		54.1		17.5		71.3		35.5				
Green Ext Time (p_c), s		20.8		0.7		3.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			31.6									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	347	183	54	60	95	43	0	1896	72	0	1827	392
Future Volume (vph)	347	183	54	60	95	43	0	1896	72	0	1827	392
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	125		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.966				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3223	1833	0	1582	1901	1616	0	3225	1616	0	3338	1743
Flt Permitted	0.950			0.604								
Satd. Flow (perm)	3223	1833	0	1006	1901	1616	0	3225	1616	0	3338	1743
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	2%	7%	0%	0%	0%	5%	0%	0%	4%	1%
Adj. Flow (vph)	365	193	57	63	100	45	0	1996	76	0	1923	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	365	250	0	63	100	45	0	1996	76	0	1923	413
Number of Detectors	1	1		1	1	1		5	1		5	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	69		40	69	40		40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	30.0	50.0		20.0	20.0	20.0		70.0	70.0		70.0	70.0
Total Split (%)	25.0%	41.7%		16.7%	16.7%	16.7%		58.3%	58.3%		58.3%	58.3%
Maximum Green (s)	24.0	42.0		12.0	12.0	12.0		63.0	63.0		63.0	63.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	0.0		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	3.0	5.0		5.0	5.0	8.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	347	183	54	60	95	43	0	1896	72	0	1827	392
Future Volume (veh/h)	347	183	54	60	95	43	0	1896	72	0	1827	392
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	1958	2066	2066	1679	1849	1849	0	1707	1849	0	1855	1973
Adj Flow Rate, veh/h	365	193	57	63	100	45	0	1996	76	0	1923	413
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	0	0	7	0	0	0	5	0	0	4	1
Cap, veh/h	544	428	126	171	192	123	0	2068	999	0	2247	1066
Arrive On Green	0.15	0.28	0.29	0.10	0.10	0.08	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	3617	1532	452	1071	1849	1567	0	3330	1567	0	3617	1672
Grp Volume(v), veh/h	365	0	250	63	100	45	0	1996	76	0	1923	413
Grp Sat Flow(s),veh/h/ln	1809	0	1984	1071	1849	1567	0	1622	1567	0	1762	1672
Q Serve(g_s), s	11.4	0.0	12.4	6.7	6.2	3.3	0.0	69.6	2.2	0.0	52.2	14.3
Cycle Q Clear(g_c), s	11.4	0.0	12.4	6.7	6.2	3.3	0.0	69.6	2.2	0.0	52.2	14.3
Prop In Lane	1.00		0.23	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	544	0	554	171	192	123	0	2068	999	0	2247	1066
V/C Ratio(X)	0.67	0.00	0.45	0.37	0.52	0.36	0.00	0.97	0.08	0.00	0.86	0.39
Avail Cap(c_a), veh/h	814	0	744	194	231	157	0	2068	999	0	2247	1066
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	0.0	35.6	51.2	51.0	52.4	0.0	20.5	8.3	0.0	17.4	10.5
Incr Delay (d2), s/veh	1.4	0.0	0.6	1.3	2.2	1.8	0.0	13.1	0.1	0.0	4.5	1.1
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(95%),veh/ln	9.1	0.0	10.3	3.4	5.4	2.4	0.0	34.2	1.3	0.0	26.6	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.6	0.0	36.1	52.5	53.1	54.2	0.0	33.6	8.4	0.0	21.8	11.5
LnGrp LOS	D	A	D	D	D	D	A	C	A	A	C	B
Approach Vol, veh/h		615			208			2072			2336	
Approach Delay, s/veh		44.1			53.2			32.7			20.0	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	2	3	4		6		8					
Phs Duration (G+Y+Rc), s	81.5	21.1	17.4		81.5		38.5					
Change Period (Y+Rc), s	7.0	6.0	8.0		7.0		8.0					
Max Green Setting (Gmax), s	63.0	24.0	12.0		63.0		42.0					
Max Q Clear Time (g_c+I1), s	54.7	13.9	9.2		72.1		14.4					
Green Ext Time (p_c), s	8.3	1.1	0.2		0.0		1.2					

Intersection Summary		
HCM 6th Ctrl Delay	29.2	
HCM 6th LOS	C	

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

EXHIBIT A-46A

Transportation Impact Study for the Robinson Tract

Westtown Township, Chester County, PA

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Prepared for
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Revised December 2, 2019
August 13, 2019
McMahon Project Number 816451.11

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Executive Summary

Toll Brothers, Inc. proposes a residential development on the Robinson Tract, located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania (**Figure 1**). The residential development consists of 319 total dwelling units, including 182 detached homes, 135 attached homes, and preservation of two existing homes on the property. With the development, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. Access to the site will be provided via the Collector Road, as well as two accesses along West Pleasant Grove Road. A site plan prepared by ESE Consultants, Inc., last revised November 22, 2019, is provided in **Figure 2**.

A Scoping Meeting Application was submitted to PennDOT and Westtown Township on November 7, 2016. A scoping meeting was held at the PennDOT Engineering District's offices on December 2, 2016. PennDOT provided scoping comments in a letter dated December 6, 2016. The scope of this transportation impact study is based on those comments, PennDOT's guidelines, per the Department's publication *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits*, dated July 2017, and the requirements of the Township ordinances. Correspondence is contained in **Appendix A**.

The purpose of this transportation impact study is to evaluate the traffic impacts of the proposed development. The scope of this study includes an evaluation of the existing weekday morning and weekday afternoon peak hours, as well as the future 2025 build-out year and 2030 design year, five years beyond the anticipated build-out year, both without and with the development at the following study intersections:

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)
- U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road
- U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School
- Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road
- Street Road (S.R. 0926) and New Street
- New Street and West Pleasant Grove Road
- West Pleasant Grove Road and Proposed Access (Road K)
- West Pleasant Grove Road and Proposed Access (Road M)
- West Pleasant Grove Road and Proposed Collector Road

Based on trip generation data compiled for Multifamily Housing – Low Rise (ITE Land Use Code 220) and Single Family Detached Housing (ITE Land Use Code 210) contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual,10th Edition,* the proposed development will generate a total of approximately 198 "new" trips during the weekday morning peak hour and 259 "new" trips during the weekday afternoon peak hour.

Committed Improvements

Per the traffic evaluation, the following on-site and off-site traffic improvements are committed by the applicant to mitigate the proposed development traffic impacts, pending further coordination and approvals from the Township and PennDOT. Since some of these improvements are within the state's right-of-way, or located at traffic signals under the jurisdiction of PennDOT, coordination with PennDOT will be required to implement these improvements. All improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. The Township will be included in all correspondence with PennDOT.

Site Accesses and On-Site Improvements

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- Collector Road is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- Provide a 150-foot left-turn lane along eastbound Street Road (S.R. 0926). Note that a 120-foot left-turn lane exists along westbound Street Road (S.R. 0926).
- Provide a 150-foot right-turn deceleration lane along westbound Street Road (S.R. 0926).
- Install a traffic signal.

West Pleasant Grove Road and Proposed Access (Road K)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Proposed Access (Road M)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Collector Road

- Collector Road is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.
- Provide stop-control on the Collector Road egress approach.

Collector Road

- The applicant will construct the Collector Road through the property between Street Road (S.R. 0926) and West Pleasant Grove Road, which will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate

route to avoid that delay. The overall delays at several study intersections decrease in the with-development conditions versus without-development conditions, due to the diversion of traffic to the Collector Road.

- Based on the estimated Collector Road weekday peak hour traffic volumes in this report, diverted traffic constitutes approximately 70 to 80 percent of the total, while approximately 20 to 30 percent is site traffic from the Robinson Tract.

Off-Site Traffic Improvements

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

The traffic analyses contained herein reveal that efficient access to and from the proposed development can be provided, and furthermore, site-generated traffic is mitigated at the study area intersections with the committed improvements. Detailed results of the level-of-service and queueing analysis are contained in the matrices provided in **Tables 8 and 9.**

Existing Transportation Settings and Conditions

Toll Brothers, Inc. proposes a residential development on the Robinson Tract, located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania (**Figure 1**). The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The study area roadway network and characteristics are summarized below in **Table 1**.

Table 1 - Existing Roadway Characteristics

Roadway Name (Jurisdiction)	Average Daily Traffic Volumes (vehicles per day)	Roadway Classification		Travel Lanes (per direction)	Posted Speed Limit (mph)
		Smart Transportation (1)	PennDOT/ Township (2)		
U.S. Route 202 (Wilmington Pike)	47,301 (3)	Regional Arterial	Urban – Principal Arterial	2	45
Street Road (S.R. 0926 – PA)	12,952 (3)	Community Arterial	Urban – Minor Arterial	1	45
New Street (Local)	5,056 (3)	Neighborhood Collector	Urban – Minor Collector	1	35
West Pleasant Grove Road (Local)	n/a	Local Road	Minor Street	1	35
Bridlewood Boulevard (Local)	n/a	Local Road	Local Road	1	25

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook*.
(2) Based on the roadway classifications provided on PennDOT's Traffic Information Repository (TIRe) website and the Westtown Township Comprehensive Plan Update, dated 2019
(3) Based on traffic data from PennDOT's Traffic Information Repository (TIRe) website.

The following key intersections in the vicinity of the site comprise the study area:

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)
- U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road
- U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School
- Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road
- Street Road (S.R. 0926) and New Street
- New Street and West Pleasant Grove Road
- West Pleasant Grove Road and Proposed Access (Road K)
- West Pleasant Grove Road and Proposed Access (Road M)
- West Pleasant Grove Road and Proposed Collector Road

The existing characteristics of the study intersections, including field sketches, and signal permit plans are provided in **Appendix B**.

Crash Summary

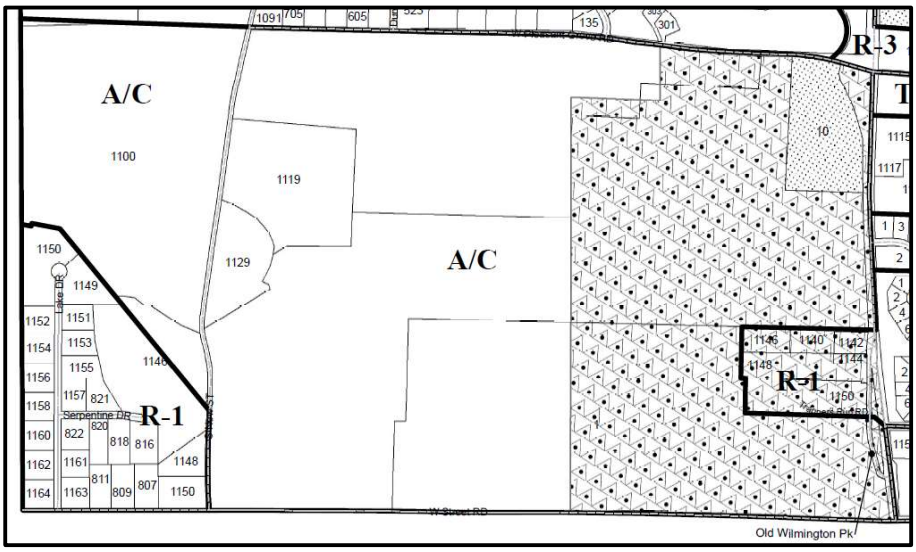
Reportable crash data was provided by the Pennsylvania Department of Transportation's Bureau of Highway Safety and Traffic Engineering for the five-year period from January 1, 2013 to December 31, 2017 throughout the study area. Reportable crashes are defined as crashes in which personal injuries occur or the vehicle must be towed from the scene. Tables summarizing the crash data by location, crashes per year, and type of crash are provided in Appendix B.

Based on the crash data, a total of 65 reportable crashes occurred at the study area intersections. The majority of the study area intersection crashes were rear-end incidents (45 crashes or 69 percent) and angle incidents (12 crashes or 17 percent). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) experienced twenty-six (26) crashes, with the majority of these crashes being rear-end incidents (18 crashes) occurring along both northbound (10 crashes) and southbound (8 crashes) U.S. Route 202 (Wilmington Pike). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard experienced fifteen (15) crashes, with the majority of these crashes being rear-end incidents (14 crashes) occurring along both southbound (9 crashes) and northbound (5 crashes) U.S. Route 202 (Wilmington Pike). The remaining crash was an angle incident which occurred along the eastbound approach. The unsignalized intersection of U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road experienced sixteen (16) crashes, with the majority of these crashes being rear-end incidents (10 crashes). Six (6) of the rear-end incidents occurred along southbound U.S. Route 202 (Wilmington Pike) with the remainder occurring along the eastbound Pleasant Grove Road approach.

Based on the crash data, a total of 56 reportable crashes occurred at midblock locations within the study area. The majority of the midblock crashes along U.S. Route 202 (Wilmington Pike) were rear-end incidents (25 crashes) and hit-fixed object incidents (9 crashes). Twenty-one (21) of the rear-end incidents occurred along southbound U.S. Route 202 (Wilmington Pike), which is likely associated with the congestion experienced at the signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). Seven (7) of the hit-fixed object incidents occurred along southbound U.S. Route 202 (Wilmington Pike), with vehicles striking guiderails, curbs, embankments, roadway obstructions, and utility poles. The majority of the midblock crashes along Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard were rear-end incidents (3 crashes) and angle incidents (2 crashes). Both of the angle incidents occurred at the existing CVS driveway along Street Road (S.R. 0926) with vehicles entering via left-turn, which is a prohibited movement. All three (3) of the rear-end incidents occurred along eastbound Street Road (S.R. 0926), which is likely associated with the congestion experienced at the signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926).

Land Use Context

The proposed development is located in Westtown Township within the A/C – Agriculture/Cluster Residential District, as well as the R-1 – Rural/Suburban Residential District. The development is located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), as shown below on a portion of the Westtown Township Zoning Map. Per Westtown Township's Zoning Ordinance, the proposed residential development is permitted through conditional use within the A/C – Agriculture/Cluster Residential District in accordance with Article V and Article IX.



Source: Westtown Township Zoning Map

Area Transit Services

Transit services are currently not provided within the study area. The nearest SEPTA bus stop (SEPTA Bus Route 92) is located just north of the S.R. 0322 (High Street) and U.S. Route 202 intersection, approximately a mile and a half north of the site.

Pedestrian-Bicycle Facilities

Currently, there are no sidewalks along U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) has limited pedestrian crossing amenities. There are pedestrian crosswalks, signals, and pushbuttons provided to cross the eastern leg of Street Road (S.R. 0926) and the southern leg of U.S. Route 202.

Sidewalk is currently provided along the north side of Hidden Pond Way within the Arborview neighborhood and on the west side of Bridlewood Boulevard within the Bridlewood neighborhood. Pedestrian facilities are also provided on the west side of Orvis Way, which was recently completed.

Traffic Count Data

Daily traffic counts were obtained from PennDOT's Traffic Information Repository (TIRe) website. The traffic count data is provided in **Appendix C**. Manual turning movement traffic counts were conducted in accordance with Westtown Township's Ordinance Chapter 149-804.A(3)(g). The majority of the traffic counts were collected in October 2019, with the two church accesses and Dunvegan intersection along West Pleasant Grove Road being collected in August 2019. The results of these traffic counts are tabulated by 15-minute intervals in **Appendix D**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis

The resultant peak hour traffic volumes are depicted in **Figure 3A** for the weekday morning and weekday afternoon peak hours. The traffic volumes in Figure 3A were then analyzed to determine the existing operating conditions, and the results of this analysis are shown in **Figure 3B.** Specific details regarding the analysis results and traffic operations are provided later in this report.

Existing Queue Observations

At the intersection of U.S. Route 202 (Wilmington Pike) and PA Route 926 (Street Road) under existing conditions during the weekday morning and weekday afternoon commuter peak periods, oversaturation occurs on some movements. In accordance with the methodology contained in the *Highway Capacity Manual, 6th Edition*, queue observations were completed at the beginning of the weekday morning and weekday afternoon peak hours in order to account for these initial queues. The initial queues have been included in the detailed capacity/level-of-service analyses. Documentation of the queue observations is provided in **Appendix E**.

Site Characteristics

This section presents the details regarding the proposed site, including the incremental increase in traffic volumes generated by the development during the peak hours and the distribution of site traffic to the study area roadways, as well as the proposed site access configurations, traffic control, and sight distance requirements.

Trip Generation

Traffic volumes generated by the proposed development were prepared based on trip generation data compiled from numerous studies contained in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 10th Edition*. **Table 2** presents the anticipated vehicular trip generation, and the detailed trip generation calculations are contained in **Appendix F.**

Table 2. Vehicular Trip Generation

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Robinson Tract Residential Development (1)	319 units	2,802	47	151	198	163	96	259

(1) Consisting of 182 detached homes, 135 attached homes, and preserving 2 existing homes on the property.

Trip Distribution and Assignment

Site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site accesses. The location of the dwelling units, the presence of the Collector Road, and the roadway connections throughout the proposed development were also considered within the site trip distributions. The distribution percentages for the anticipated directions of approach and departure, as well as the traffic assignment percentages at each intersection are illustrated in **Figure 4A**. Application of the percentages illustrated in **Figure 4A** to the new peak hour trips contained in Table 2, provides an estimate of site traffic to be added to the study area. The site-generated trips assignments are provided in **Figure 4B** for the weekday morning and weekday afternoon peak hours.

Site Access Configuration and Traffic Control

With the development, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. The Collector Road will intersect Street Road (S.R. 0926) opposite Bridlewood Boulevard, as required by PennDOT, with installation of a traffic signal. The

Collector Road will intersect West Pleasant Grove Road near the eastern boundary of the Robinson Tract as an unsignalized intersection. Access to the site will be provided via the Collector Road, as well as two unsignalized accesses along West Pleasant Grove Road, with one located opposite Dunvegan Drive and one located approximately 625 feet west of Hidden Pond Way.

The recommendations for the proposed access designs, including auxiliary turn lanes, traffic control, and geometric design, were based on industry accepted criteria and guidelines. Specifically, the need for left- and right-turn deceleration lanes was based on the current PennDOT guidelines in accordance with *Publication 46, Chapter 11 – Traffic Studies*. In addition, a preliminary traffic signal warrant analysis was conducted in accordance with PennDOT criteria contained in the Department's *Publication 212, Official Traffic Control Devices*, for the Four-Hour Volume Warrants, which is based on the guidelines contained in the Federal Highway Administration's, *Manual on Uniform Traffic Control Devices (MUTCD)*. The various warrant/guideline analysis worksheets are contained in **Appendix G**.

Tables 2 and 3 below provide a summary of the traffic signal and turn lane warrant analyses.

Table 2. Traffic Signal Warrant Analysis Summary
Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Scenario	Warrant Evaluated	Warrant Met?
2025 with Collector Road Diversions Only	Four-Hour Vehicular Volume	**YES** (4 Hours Satisfied)
2025 with Collector Road Diversions and Site Traffic	Four-Hour Vehicular Volume	**YES** (4 Hours Satisfied)

Table 3. Site Access Turn Lane Warrant Analysis Summary

Intersection	Lane Evaluated	Warranted Length (ft)
W. Pleasant Grove Road and Dunvegan Road / Road K	WBL	Not Warranted
	EBR	Not Warranted
W. Pleasant Grove Road and Road M	WBL	Not Warranted
	EBR	Not Warranted
W. Pleasant Grove Road and Collector Road	WBL	Not Warranted
	EBR	Not Warranted
Street Road (S.R. 0926) and Collector Road / Bridlewood Boulevard	EBL	250
	WBR	150

Additionally, the geometric design of the proposed site accesses were preliminarily evaluated based on guidelines contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*, as well as local PennDOT District policies.

Based on the results of this evaluation, the following access configurations and traffic controls are recommended, subject to the detailed engineering of the site accesses:

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- The Average Daily Traffic for the Collector Road (site traffic and traffic diversions) is estimated as 1,432 vehicles per day, and therefore is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- A left-turn lane is warranted along eastbound Street Road (S.R. 0926) based on PennDOT guidelines, and therefore, provide a 150-foot long left-turn lane.
- A right-turn deceleration lane is warranted along westbound Street Road (S.R. 0926) based on PennDOT guidelines, and therefore, provide a 150-foot right-turn deceleration lane.
- Install a traffic signal, which is preliminarily warranted in the build-out year based on the criteria for Warrant 2 (Four-Hour Vehicular Volume).

West Pleasant Grove Road and Proposed Access (Road K)

- The Average Daily Traffic for the site access (Road K) is 196 vehicles per day, and therefore is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

West Pleasant Grove Road and Proposed Access (Road M)

- The Average Daily Traffic for the site access (Road M) is 140 vehicles per day, and therefore is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

West Pleasant Grove Road and Proposed Collector Road

- The Average Daily Traffic for the Collector Road is estimated as 1,152 vehicles per day, and therefore, is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

Sight Distance

Sight distance field measurements and an evaluation were performed at each of the proposed site accesses. Generally, the prevailing (85th percentile) travel speed, roadway grades and profiles, and the number of travel lanes play a role in determining if safe sight distances are available for egress and ingress at the proposed accesses. The existing sight distances at the proposed accesses were measured and compared to PennDOT's sight distance requirements. These sight distance requirements are contained in *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*. **Table 4** summarizes the available sight distance measurements, as well as PennDOT's sight distance requirements at the proposed access locations.

Table 4. Sight Distance Evaluation
Street Road (S.R. 0926) and Collector Road opposite Bridlewood Boulevard (proposed signal)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]	
Exiting	Looking Left	45	-8.0%	635′	45 mph=472′	466′ with vegetation clearing
	Looking Right	45	+8.6%	570′	N/A	700′+ with vegetation clearing
Left turn Entering	Looking Ahead	45	-8.0%	445′	N/A	430′ with vegetation clearing
	From the Rear	45	+8.6%	N/A	Meets over 70 mph=680′	700′+

West Pleasant Grove Road and Proposed Access (Road K)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)[(3)]	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+2.6%	440′	N/A	440′	630′
	Looking Right	35	-2.2%	350′	N/A	440′	1,000′+
Left turn Entering	Looking Ahead	35	+2.6%	300′	N/A	N/A	665′
	From the Rear	35	-2.2%	N/A	Meets over 75 mph=950′	N/A	1,000′+

West Pleasant Grove Road and Proposed Access (Road M)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)[(3)]	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+6.4%	440′	N/A	440′	800′+
	Looking Right	35	-3.0%	350′	N/A	440′	440′
Left turn Entering	Looking Ahead	35	+6.4%	300′	N/A	N/A	800′+
	From the Rear	35	-3.0%	N/A	Meets to 45 mph=415′	N/A	415′

West Pleasant Grove Road and Proposed Collector Road

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)(3)	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+2.1%	440′	N/A	440′	440′
	Looking Right	35	0.0%	350′	N/A	440′	495′
Left turn Entering	Looking Ahead	35	+2.1%	300′	N/A	N/A	415′
	From the Rear	35	0.0%	N/A	Meets to 60 mph=620′	N/A	650′

(1) Based on the desirable sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and the posted speed limit, unless otherwise noted.

(2) Based on the safe stopping sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and posted or travel speeds as noted.

(3) Based on the clear sight triangle requirements per Westtown Township Code Chapter 149 Article IX Section 149 -915, and the posted speed limit.

As shown in **Table 4**, the existing available sight distances at the proposed Collector Road and site access intersections along West Pleasant Grove Road, which is a Township roadway, meet PennDOT and Township requirements for all movements. For the intersection of the Collector Road and Street Road (S.R. 0926) opposite Bridlewood Boulevard with clearing of vegetation along the Robinson Tract property frontage, the existing available sight distances for exiting looking left and left-turn looking ahead are less than PennDOT desirable criteria; however, the intersection is proposed to be signalized.

Proper landscaping must be maintained along the site frontage along Street Road (S.R. 0926) and West Pleasant Grove Road for provision of adequate sight distance according to the above tables. The actual available sight distances should be verified during detailed engineering of the site access. The PennDOT M-950S forms are completed and provided in **Appendix H** for the State road Collector Road intersection.

Off-Site Intersection Turn Lane Warrants

Turn lane warrants were completed based on existing and future with-development peak hour traffic volumes at three off-site study intersections in accordance with PennDOT guidelines. The various warrant/guideline analysis worksheets are contained in **Appendix I**.

The following turn lanes are warranted under existing conditions:

- Street Road (S.R. 0926) and New Street
  - Eastbound Street Road (S.R. 0926) left-turn lane
  - Westbound Street Road (S.R. 0926) left- and right-turn lanes
  - Southbound New Street right-turn lane
  - Legal right-of-way does not currently exist to provide the above warranted lanes along Street Road (S.R. 0926) or New Street. Additional property from the Robinson Tract alone will not accommodate dedicated left-turn lanes or the southbound New Street right-turn lane. Although not necessary to mitigate traffic impact, as demonstrated later in this report, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.

- New Street and West Pleasant Grove Road
  - No turn lanes are warranted

- U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road
  - Southbound U.S. Route 202 (Wilmington Pike) right-turn lane

No additional turn lanes are warranted in the future 2030 conditions with the proposed development. A preliminary aerial exhibit and signal permit plan markup illustrating the conditions at the intersection of Street Road (S.R. 0926) and New Street is provided in Appendix I.

Table 5. Off-Site Intersection Turn Lane Warrant Analysis Summary

Intersection	Lane Evaluated	Warranted Length (ft)	
		Exiting	2030 Future with Development
Wilmington Pike (U.S. Route 202) and W. Pleasant Grove Road	SBR	225′	325′
New Street and W. Pleasant Grove Road	NBR	Not Warranted	Not Warranted
	SBL	Not Warranted	Not Warranted
	WBR	Not Warranted	Not Warranted
Street Road (S.R .0926) and New Street	EBL	150′	175′
	EBR	Not Warranted	Not Warranted
	WBL	150′	150′
	WBR	Not Warranted	150′
	NBR	Not Warranted	Not Warranted
	NBL	Not Warranted	Not Warranted
	SBR	175′	Not Warranted (Due to Diversions)
	SBL	Not Warranted	Not Warranted

Future Traffic Conditions

With an estimated opening in 2020, a five-year build out was assumed based on the proposed development, the residential market, and past projects. This assumption equates to an average delivery of five units per month. Therefore, the traffic analysis was completed for a future build-out year of 2025 and a future design year of 2030, or five years beyond the anticipated build-out year, both without and with the proposed development. The future 2025 build-out year and 2030 design year without-development traffic volumes were estimated by increasing the existing traffic volumes to account for regional growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the future 2025 build-out year and 2030 design year with-development traffic volumes.

Regional Traffic Growth

To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 0.52 percent per year compounded for six (6) years to 2025 and 11 years to 2030, or 3.16 percent total to 2025 and 5.87 percent total to 2030. This growth rate is consistent with the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2019 to July 2020* for similar, non-interstate urban roadways in Westtown Township.

Local Traffic Growth

To account for local traffic growth, the municipality was contacted to identify any other nearby future developments. Based upon coordination with Westtown Township, the existing traffic volumes were also increased by nearby approved developments in the vicinity of the proposed development. Specifically, the following developments were included and further information is provided in **Appendix J**:

- **The Malvern School:** 5,375 square-foot daycare/early learning center located on the northeast corner of the intersection of U.S. 202 (Wilmington Pike) and Pleasant Grove Road.

- **Arborview (Fair Share Properties):** 16,800 square feet of office space and 10,986 square-foot daycare center located on the west side of U.S. Route 202 (Wilmington Pike) between Skiles Boulevard and Pleasant Grove Road. As part of the development, a Collector road named Orvis Way between West Pleasant Grove Road and Stetson School will be provided, which is currently under construction.

- **Condominium Development:** 39 condominiums in two buildings remain to be occupied/constructed on the west side of Gilpin Drive just north of Skiles Boulevard.

Planned Roadway Improvements

Orvis Way: West Pleasant Grove Road to Stetson School Collector Road

In conjunction with the Arborview (Fair Share Properties) development, Orvis Way is currently being constructed to connect West Pleasant Grove Road to Stetson School. In accordance with the Township approved *Arborview Transportation Impact Assessment*, prepared by Traffic Planning & Design and dated January 26, 2015, traffic in the area is anticipated to divert to utilize Orvis Way as follows:

Orvis Way Traffic Diversions

- 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way.

- 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way.

- 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was conservatively decreased from the approved Arborview study.

The roadway improvements and associated traffic diversions for the Arborview (Fair Share Properties) development have been incorporated into the future without- and with-development conditions within this study. Details are provided in **Appendix K**.

Robinson Tract: Street Road (S.R. 0926) to West Pleasant Grove Road Collector Road

With the development of the Robinson Tract, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. Access to the site will be provided via the Collector Road. Additionally, as envisioned by Westtown Township for many years, the Collector Road will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate route to avoid that delay. With Orvis Way, currently under construction, this will provide a full connected roadway network on the west side of U.S. Route 202 (Wilmington Pike from Street Road S.R. 0926) to Stetson School, which will provide drivers with access to and from U.S. Route 202 via two signalized intersections.

In this analysis, traffic diversions with the Collector Road have been included in this study based on previous studies completed and accepted by the Township, as summarized below. The traffic diversions are provided in **Appendix K**.

Collector Road Traffic Diversions

- 5 percent of the weekday morning and 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.

- 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way.

- 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).

- 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).

- 66 percent (two-thirds) of the northbound Bridlewood Boulevard right-turns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).

- 50 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.

- 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

PennDOT U.S. Route 202, Section 100

Within this section of U.S. Route 202 (Wilmington Pike), designated as Section 100, several studies completed through PennDOT and the Delaware Valley Regional Planning Commission have identified the need for additional roadway capacity. At this time, PennDOT is underway with preliminary engineering for improvements at the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection. Based on the current State Transportation Improvement Program (TIP) and the Conceptual Intersection Layout prepared by Urban Engineers and dated June 5, 2014, the project will include improvements that will help reduce traffic congestion and increase safety at the intersection

through lane reconfigurations, striping, upgrades to the traffic signal, signal timing, and bicycle and pedestrian improvements. It is our understanding that the following roadway improvements are to be included:

- Southbound 130-foot right-turn deceleration lane on U.S. Route 202.
- Additional eastbound left-turn lane on PA Route 926, creating a double left-turn lane configuration with 380 feet of storage for each lane.
- Pedestrian and bicycle intersection improvements, including high-visibility crosswalks, ADA ramps, and sidewalk extension from the intersection east to Dalmally Drive.
- Traffic signal equipment upgrades, including pedestrian push buttons, countdown signal heads, and lighting.

Based on the TIP, the current project schedule indicates an estimated construction start date in September 2021, with a construction completion date by the end of 2022. However, this schedule is dependent on moving through the project development process, with activities such as evaluation of project effect on the Westtown Inn (eligible for the historic register), Consulting Parties consultations, approval of overall environmental document, preliminary plan approvals, utility coordination, property acquisitions, and preparation of design plans and construction bid package.

S.R. 0926 Bridge Replacement over Radley Run

Through coordination with PennDOT, the Street Road (S.R. 0926) bridge located approximately 700 feet west of Bridlewood Boulevard is scheduled to be replaced. Design activity has been completed, which is being combined with other locations in Bridge Group M (MPMS 102318). The bid was awarded in January 2019, and the entire bridge group is scheduled for estimated completion in November 2020. As with other bridge groups, there is some flexibility in scheduling any one particular bridge within the overall construction duration.

Future Traffic Conditions

The total background growth, nearby development traffic volumes, and Orvis Way traffic diversions were then added to the existing traffic volumes, resulting in the future 2025 and 2030 without-development traffic volumes. Next, the site generated traffic volumes, as shown in **Figure 4B** and the Collector Road traffic diversions were added to the future 2025 and 2030 without-development traffic volumes, resulting in the future 2025 and 2030 with-development traffic volumes.

The resultant future 2025 build-out year peak hour traffic volumes without-development are illustrated in **Figure 5A,** and the future 2025 build-out year with-development peak hour traffic volumes are illustrated in **Figure 5B**. These traffic volumes were then analyzed to determine the future 2025 without- and with-development operating conditions, and the results of this analysis are shown in **Figures 5C and 5D.** Detailed spreadsheets summarizing the 2025 traffic projections, including regional

growth, other development trip assignments, site trip assignments, and diversions for each intersection, are provided in **Appendix L.**

The resultant future 2030 design year peak hour traffic volumes without-development are illustrated in **Figure 6A,** and the future 2030 design year with-development peak hour traffic volumes are illustrated in **Figure 6B**. These traffic volumes were then analyzed to determine the future 2030 without- and with-development operating conditions, and the results of this analysis are shown in **Figures 6C and 6D.** Detailed spreadsheets summarizing the 2030 traffic projections, including regional growth, other development trip assignments, site trip assignments, and traffic diversions for each intersection, are provided in **Appendix M.**

Capacity/Level-of-Service Results

The peak hour traffic volumes were analyzed to determine the existing and future operating conditions, both without and with the proposed development, in accordance with the standard techniques contained in the current *Highway Capacity Manual, 6th Edition* for both signalized and unsignalized intersections. The HCM 6th Edition Methodology within Synchro 10.3 (build 122, rev. 0) traffic analysis software was utilized in the traffic analyses.

These standard capacity/level-of-service analysis techniques, which calculate total control delay, are described in **Appendix N** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type.

According to PennDOT's *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permit Plans,* the following procedures and assumptions were utilized:

- For signalized intersections, the Pennsylvania base saturation flow rate (Exhibit 10-9) and Pennsylvania traffic signal control calibration parameters (Exhibit 10-10) outlined in PennDOT's *Publication 46, Traffic Engineering Manual*, were used.

- For unsignalized intersections, the base critical headways at TWSC intersections (Exhibit 10-11) and base follow-up headways at TWSC intersections (Exhibit 10-12) outlined in PennDOT's *Publication 46, Traffic Engineering Manual*, were used.

- All traffic signal timings at signalized intersections were optimized in without-development conditions.

- If the evaluation of without-development to with-development indicates the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase is greater than 10 seconds. If the overall intersection delay increase is less than or equal to 10 seconds, mitigation of the intersection will not be required.

The existing, future build-out year (2025) and design year (2030) traffic conditions, both without and with the proposed development, are summarized in **Figures 3B, 5C, 5D, 6C and 6D** while the detailed capacity/level-of-service analysis worksheets are provided in **Appendices O through S.**

The proposed development has no traffic impact at the study area intersections. With the Collector Road and resulting traffic diversions, vehicle delays are decreased at several study intersections. **Tables 6 and 7** below summarize the overall intersection results of the level-of-service analyses for the off-site study intersections for both peak hours. Detailed results of the level-of-service and queueing analysis are contained in the matrices provided in **Tables 8 and 9.**

Table 6. Overall Intersection Level-of-Service
Weekday Morning Peak Hour

Intersection	Existing	Future 2030 Without Development (optimized)	Future 2030 With Development	Requires Mitigation?
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	F 87.4	F 113.6	F 106.8	NO
U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road	A 0.3	A 0.7	A 0.8	NO
U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School	C 28.4	D 37.4	D 45.2	NO
Street Road (S.R. 0926) and New Street	C 30.8	B 17.9	B 19.1	NO
Street Road (S.R. 0926) and Bridlewood Boulevard/Collector Road	A 1.0	A 1.1	B 12.1	NO
New Street and West Pleasant Grove Road	A 5.4	A 5.7	A 4.9	NO
West Pleasant Grove Road and Dunvegan Drive	A 0.3	A 0.2	A 1.0	NO
West Pleasant Grove Road and Orvis Way	-	A 2.2	A 3.9	NO

Table 7. Overall Intersection Level-of-Service
Weekday Afternoon Peak Hour

Intersection	Existing	Future 2030 Without Development (optimized)	Future 2030 With Development	Requires Mitigation?
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	F 200.4	F 223.7	F 179.9	NO
U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road	A 0.8	A 1.2	A 1.0	NO
U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School	B 16.8	C 23.4	C 30.9	NO
Street Road (S.R. 0926) and New Street	C 21.6	B 17.8	B 16.8	NO
Street Road (S.R. 0926) and Bridlewood Boulevard/Collector Road	A 0.9	A 0.9	B 19.0	NO
New Street and West Pleasant Grove Road	A 5.7	A 6.1	A 5.2	NO
West Pleasant Grove Road and Dunvegan Drive	A 0.2	A 0.2	A 0.8	NO
West Pleasant Grove Road and Orvis Way	-	A 2.0	A 7.3	NO

As shown in Tables 6 and 7 above, the proposed development does not have an overall level-of-service impact at any of the study intersections per PennDOT criteria. However, the applicant is committed to providing the following off-site intersection improvements:

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

Collector Road Access Analysis

Traffic analysis was completed at the proposed access intersections along the Collector Road through the Robinson Tract for the future 2030 with-development conditions. As shown in **Figure 7,** all of the proposed access intersections along the Collector Road will operate at highly acceptable LOS A overall and LOS B or better for all movements during both peak hours. The detailed traffic volume projections and traffic analysis worksheets are provided in **Appendix T**.

Queuing Analysis

A queuing analysis was completed at the study intersections based on the HCM 6th Edition methodology. The detailed results of the queuing analysis are provided in **Table 7** at the end of this report. Based on the results of the queuing analysis and with the recommended site access designs, as outlined previously in this report, the queues at the site access and Collector Road intersections with Street Road (S.R. 0926) and West Pleasant Grove Road are accommodated. Additionally, the queues

are accommodated within the available lane storages at the majority of the off-site study intersections. Significant queues occur at the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection during both peak hours. With the traffic diversions resulting from the construction of the Collector Road through the Robinson Tract as committed by the applicant, the queues are decreased at this intersection from without- to with-development conditions.

Significant queues occur along Stetson School drive at U.S. Route 202 (Wilmington Pike) due to the Collector Road traffic. These queues are accommodated with the intersection improvements the applicant is committed to providing to mitigate the Township's Collector Road traffic impact, subject to the ability to acquire any necessary additional right-of-way. A graphic illustration of the queues with the improvements is provided in **Appendix U**.

PennDOT U.S. Route 202, Section 100 Intersection Improvement Project

For informational purposes, traffic analysis has also been completed with construction of the PennDOT improvement project in preliminary engineering for the intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). In future 2030 with-development conditions and with implementation of PennDOT's project, the intersection is anticipated to operate at overall level of service E (62.2 seconds average overall delay) during the weekday morning peak hour and overall level of service F (137.4 seconds overall delay) during the weekday afternoon peak hour. Based on this analysis, PennDOT's project will further decrease overall intersection delay by approximately 20 to 40 percent during the peak hours. The detailed capacity/level-of-service worksheets are provided in **Appendix V**.

Conclusions and Recommendations

Based on trip generation data compiled for Multifamily Housing – Low Rise (ITE Land Use Code 220) and Single Family Detached Housing (ITE Land Use Code 210) contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual,10th Edition,* the proposed development will generate a total of approximately 198 "new" trips during the weekday morning peak hour and 259 "new" trips during the weekday afternoon peak hour.

Committed Improvements

Per the traffic evaluation, the following on-site and off-site traffic improvements are committed by the applicant to mitigate the proposed development traffic impacts, pending further coordination and approvals from the Township and PennDOT. Since some of these improvements are within the state's right-of-way, or located at traffic signals under the jurisdiction of PennDOT, coordination with PennDOT will be required to implement these improvements for issuance of a Highway Occupancy Permit. The Township will be included in all correspondence with PennDOT.

Site Accesses and On-Site Improvements

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- Collector Road is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- Provide a 150-foot left-turn lane along eastbound Street Road (S.R. 0926). Note that a 120-foot left-turn lane exists along westbound Street Road (S.R. 0926).
- Provide a 150-foot right-turn deceleration lane along westbound Street Road (S.R. 0926).
- Install a traffic signal.

West Pleasant Grove Road and Proposed Access (Road K)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Proposed Access (Road M)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Collector Road

- Collector Road is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.

- Provide stop-control on the Collector Road egress approach.

Collector Road

- The applicant will construct the Collector Road through the property between Street Road (S.R. 0926) and West Pleasant Grove Road, which will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate route to avoid that delay. The overall delays at several study intersections decrease in the with-development conditions versus without-development conditions, due to the diversion of traffic to the Collector Road.
- Based on the estimated Collector Road weekday peak hour traffic volumes in this report, diverted traffic constitutes approximately 70 to 80 percent of the total, while approximately 20 to 30 percent is site traffic from the Robinson Tract.

Off-Site Traffic Improvements

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

The traffic analyses contained herein reveal that efficient access to and from the proposed development can be provided, and furthermore, site-generated traffic is mitigated at the study area intersections with the committed improvements.

Table 8 - Level of Service Matricies

Street Road (S.R. 0926) and New Street

Time Period		Weekday Morning Peak Hour					Weekday Afternoon Peak Hour				
Design Year			2030 Design Year					2030 Design Year			
Development Condition		Existing	w/o Dev Base	w/o Dev[1] Optimized	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev Base	w/o Dev[1] Optimized	w/ Dev	w/ Dev w/ Impvts [2]
Street Road (S.R. 0926)	EB Left	A	A	B	B	B	B	B	B	B	B
	EB Thru	8.1	9.0	14.6	12.1	12.3	12.3	13.4	15.3	13.3	13.3
	EB Right										
	WB Left	A	A	A	B	A	A	A	A	A	A
	WB Thru	5.5	5.6	8.8	14.1	2.9	8.7	8.9	9.7	1.1	0.9
	WB Right					A 2.2					A 0.1
New Street	NB Left	C	C	C	C	C	C	C	C	C	C
	NB Thru	34.4	34.7	24.6	30.6	30.5	32.5	32.7	22.5	31.8	31.9
	NB Right										
	SB Left	F	F	C	D	D	D	D	C	D	D
	SB Thru	106.9	130.7	32.3	37.8	37.1	48.9	55.0	29.0	38.9	39.0
	SB Right										
Overall		C 30.8	D 36.4	B 17.9	B 19.1	B 16.0	C 21.6	C 23.7	B 17.8	B 16.8	B 16.8

(1) Future traffic signal timings have been optimized.

(2) Improvements include the provision of a dedicated westbound right-turn lane.

Table 8 - Level of Service Matricies

Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
Street Road (S.R. 0926)	EB	Left	-	-	A 0.2	-	-	A 6.1
		Thru	(1)	(1)	A 1.8	(1)	(1)	A 7.0
		Right	(1)	(1)	A 0.0	(1)	(1)	A 3.4
	WB	Left	B 10.5	B 10.6	A 3.3	B 10.7	B 10.8	B 16.6
		Thru	(1)	(1)	A 3.8	(1)	(1)	A 8.6
		Right	-	-	A 3.2	-	-	A 7.4
Bridlewood Boulevard	NB	Left	C 18.9	C 19.9	D 42.7	C 20.1	C 21.3	D 46.2
		Thru	-	-	C	-	-	C
		Right	B 13.4	B 13.7	33.4	B 13.7	B 14.0	27.0
Collector Road	SB	Left	-	-	C 35.0	-	-	C 28.1
		Thru			D			D
		Right			52.1			49.9
Overall			A 1.0	A 1.1	B 12.1	A 0.9	A 0.9	B 19.0

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev [1]	w/ Dev	Existing	w/o Dev [1]	w/ Dev
Street Road (S.R. 0926)	EB	Left	F 187.3	F 195.4	F 187.2	F 121.6	F 194.2	F 167.0
		Left Thru Right	F 196.8	F 206.9	F 187.3	F 142.9	F 211.2	F 162.5
	WB	Left	E 68.3	F 85.0	F 85.0	E 69.5	F 94.6	E 79.6
		Thru	E 69.5	F 94.3	F 99.5	E 72.9	F 109.3	F 109.0
		Right	E 61.0	D 51.8	D 51.8	E 59.5	D 48.8	D 47.8
U.S. Route 202 (Wilmington Pike)	NB	Left	F 84.7	E 67.8	E 66.8	F 82.5	E 63.7	E 60.9
		Thru	D 50.2	F 82.0	F 88.6	E 56.7	F 79.2 (v/c > 1.0)	F 79.2 (v/c > 1.0)
		Right	C 23.2	C 20.9	C 21.4	C 25.2	C 20.8	C 20.8
	SB	Left	F 86.1	E 64.3	E 67.2	F 142.8	E 74.3	E 68.4
		Thru	F 76.8 (v/c > 1.0)	F 111.6	F 98.3	F 438.2	F 445.0	F 379.4
		Thru Right	F 83.3	F 125.0	F 103.1	F 422.9	F 432.3	F 359.3
Overall			F 87.4	F 113.6	F 106.8	F 200.4	F 223.7	F 179.9

(1) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year				2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]
Pleasant Grove Road	EB	Right	C 20.3	C 16.0	C 15.6	C 15.6	C 20.0	C 15.6	B 12.6	B 12.6
	WB	Right	C 24.8	D 27.2	D 27.2	D 27.2	C 22.1	C 24.1	C 19.7	C 19.7
U.S. Route 202 (Wilmington Pike)	NB	Left	C 18.5	B 14.5	C 15.4	C 15.4	C 17.3	B 13.7	B 14.1	B 14.1
		Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	SB	Left	C 22.6	C 23.1	C 23.1	C 23.1	C 23.2	C 24.9	C 19.4	C 19.4
		Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Overall			A 0.3	A 0.7	A 0.8	A 0.8	A 0.8	A 1.2	A 1.0	A 1.0

(1) Movement operates at free-flow conditions.

(2) Improvements include the provision of a dedicated southbound right-turn lane.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Church Full-Movement Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
		Right						
	WB	Left	A	A	A	A	A	A
		Thru	8.1	8.1	8.2	8.1	8.1	8.2
Church Full-Movement Access	NB	Left	A	A	B	B	B	B
			9.4	9.9	11.4	10.1	10.5	12.9
		Right	A	A	A	A	A	A
			0.0	0.0	0.0	8.2	8.4	8.4
Overall			A	A	A	A	A	A
			0.4	0.3	0.2	0.3	0.3	0.2

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Orvis Way (By Others)

Time Period		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Design Year		2030 Design Year		2030 Design Year	
Development Condition		w/o Dev	w/ Dev	w/o Dev	w/ Dev
West Pleasant Grove Road	Left	A	B	A	B
EB	Thru	8.9	10.3	9.0	10.9
WB	Thru	(1)	(1)	(1)	(1)
	Right				
Orvis Way (By Others)	Left	B	B	B	C
SB	Right	10.0	14.0	10.6	17.6
Overall		A	A	A	A
		2.2	3.9	2.0	7.3

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Church Egress Only Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
	WB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
Church Egress Only Access	NB	Left	A	A	A	A	A	A
		Right	0.0	0.0	0.0	0.0	0.0	0.0
Overall			A	A	A	A	A	A
			0.0	0.0	0.0	0.0	0.0	0.0

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Collector Road

Time Period		Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year		2030 Design Year	2030 Design Year
Development Condition		w/ Dev	w/ Dev
West Pleasant Grove Road	EB Thru/ Right	(1)	(1)
	WB Left/ Thru	A 9.1	B 11.3
Collector Road	NB Left	A	B
	NB Right	9.5	11.2
Overall		A 5.4	A 7.5

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Road M

Time Period		Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year		2030 Design Year	2030 Design Year
Development Condition		w/ Dev	w/ Dev
West Pleasant Grove Road	EB Thru/ Right	(1)	(1)
	WB Left/ Thru	A 8.3	A 7.5
Road M	NB Left	A	A
	NB Right	8.7	9.1
Overall		A 0.6	A 0.6

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Dunvegan Road / Road K

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Left	A	A	A	A	A	A
		Thru	0.0	0.0		8.9	9.0	
		Right	-	-	0.0	-	-	8.8
	WB	Left	-	-	A	-	-	A
		Thru	(1)	(1)		(1)	(1)	
		Right			8.2			8.3
Road K	NB	Left	-	-	A	-	-	B
		Thru						
		Right			9.7			10.0
Dunvegan Road	SB	Left	B	B	B	B	B	B
		Thru						
		Right	10.0	10.5	10.4	10.0	10.3	10.1
Overall			A	A	A	A	A	A
			0.3	0.2	1.0	0.2	0.2	0.8

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

New Street and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	WB	Left	B	B	B	B	B	B
		Right	12.7	13.9	13.0	13.2	14.5	13.8
New Street	NB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
		Right						
	SB	Left	A	A	A	A	A	A
		Thru	8.7	8.9	8.9	8.5	8.6	8.7
Overall			A	A	A	A	A	A
			5.4	5.7	4.9	5.7	6.1	5.2

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School Drive

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year				2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev [1]	w/ Dev [1]	w/ Dev w/ Impvts [2]	Existing	w/o Dev [1]	w/ Dev [1]	w/ Dev w/ Impvts [2]
Stetson School Drive	EB	Left	D 43.5	E 68.9	F 158.4	E 78.5	D 38.2	D 55.0	F 87.4	D 53.9
		Thru	C 33.8	D 39.8	D 38.0	D	C 32.6	D 40.2	C 34.3	D
		Right	C 32.3	D 37.8	D 36.2	39.6	C 30.6	D 37.6	C 32.1	36.7
Skiles Boulevard	WB	Left	D 38.2	D 47.6	D 45.4	D 53.1	D 35.4	D 45.8	D 39.1	D 52.6
		Thru	D	D	D	E 67.0	C	D	C	D 50.6
		Right	36.6	44.0	41.4	D 51.8	33.4	40.8	34.9	E 58.2
U.S. Route 202 (Wilmington Pike)	NB	Thru (2)	F 37.9 (v/c > 1.0)	F 50.3 (v/c > 1.0)	F 54.0 (v/c > 1.0)	F 52.2 (v/c > 1.0)	B 18.1	C 25.5	C 33.5	C 30.6
		Right	A 6.0	A 7.0	A 7.8	A 7.6	A 4.5	A 5.8	A 8.3	A 7.9
	SB	Thru (2)	B 19.1	C 25.1	C 30.0	C 29.2	B 12.7	B 17.2	C 21.7	C 20.5
		Right	A 7.6	A 9.0	A 10.0	A 9.9	A 4.9	A 6.3	B 11.1	B 10.6
Overall			C 28.4	D 37.4	D 45.2	D 41.5	B 16.8	C 23.4	C 30.9	C 27.7

(1) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

(2) Impovements include restriping the eastbound approach to provide dual left-turn lanes and a through/right-turn lane, widening the westbound approach to provided a dedicated right-turn lane, and modifying the traffic signal phasing.

Table 9. 95th Percentile Queue Matrices

Street Road (S.R. 0926) and New Street

Time Period			Current Storage [1]	Future Storage [1]	Weekday Morning Peak Hour					Weekday Afternoon Peak Hour				
Design Year						2030 Design Year					2030 Design Year			
Development Condition					Existing	w/o Dev Base	w/o Dev[2] Optimized	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev Base	w/o Dev[2] Optimized	w/ Dev	w/ Dev w/ Impvts [2]
Street Road (S.R. 0926)	EB	Left	*2,200'*	*2,200'*	230	253	325	315	318	320	353	320	343	343
		Thru												
		Right												
	WB	Left	*4,700'*	*2,350'*	93	100	133	285	50	140	153	133	25	25
		Thru												
		Right		150'					25					0
New Street	NB	Left	-	-	140	150	115	143	143	125	135	93	135	135
		Thru												
		Right												
	SB	Left	-	-	480	563	273	275	273	383	430	278	318	318
		Thru												
		Right												

(1) Distance to adjacent signalized intersections shown in italics.

(2) Improvements include the provision of a dedicated westbound right-turn lane.

Table 9. 95th Percentile Queue Matrices

Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Time Period			Current Storage [1]	Future Storage [1]	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year						2030 Design Year			2030 Design Year	
Development Condition					Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
Street Road (S.R. 0926)	EB	Left	-	150'	-	-	0	-	-	30
		Thru	*2,400'*	*2,400'*	-	-	25	-	-	120
		Right	350'	350'	-	-	0	-	-	25
	WB	Left	120'	120'	25	25	25	25	25	25
		Thru	*2,300'*	*2,300'*	-	-	43	-	-	95
		Right	-	150'			25			25
Bridlewood Boulevard	NB	Left	-	-	25	25	28	25	25	25
		Thru			-	-	40	-	-	45
		Right			25	25		25	25	
Collector Road	SB	Left	-	-	-	-	43	-	-	25
		Thru					210			415
		Right								

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Time Period			Current Storage (1)	Future Storage (2)	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year						2030 Design Year			2030 Design Year	
Development Condition					Existing	w/o Dev (3)	w/ Dev (3)	Existing	w/o Dev (3)	w/ Dev (3)
Street Road (S.R. 0926)	EB	Left	450'	450'	885	850	805	673	758	588
		Left	*4700'*	*2,200'*	1018	983	880	800	875	608
		Thru								
		Right								
	WB	Left	200'	200'	235	253	253	320	350	323
		Thru	*680'*	*680'*	258	288	300	358	408	430
		Right	215'	215'	73	78	78	93	85	85
U.S. Route 202 (Wilmington Pike)	NB	Left	305'	305'	25	25	38	58	48	93
		Thru	*2,800'*	*2,800'*	960	1103	1140	1035	1080	1080
		Right	170'	170'	148	128	130	125	103	103
	SB	Left	375'	375'	98	88	103	213	155	158
		Thru	*4,400'*	*4,400'*	1195	1335	1193	3165	3133	2588
		Thru	*4,400'*	*4,400'*	1273	1470	1270	3193	3178	2588
		Right								

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

(3) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year		Current Storage [1]		2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]
West Pleasant Grove Road	EB Right	-	25	25	25	25	25	25	25	25
	WB Right	-	25	25	25	25	25	25	25	25
U.S. Route 202 (Wilmington Pike)	Left	350'	25	25	25	25	25	25	25	25
	NB Thru	*3,100'*	-	-	-	-	-	-	-	-
	Thru/ Right	*3,100'*	-	-	-	-	-	-	-	-
	Left	380'	25	25	25	25	33	43	33	33
	SB Thru	*1,200'*	-	-	-	-	-	-	-	-
	Thru/ Right	*1,200'*	-	-	-	-	-	-	-	-

(1) Distance to adjacent signalized intersections shown in italics.

(2) Improvements include the provision of a dedicated southbound right-turn lane.

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Church Full-Movement Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	-	-	-	-	-	-
		Right						
	WB	Left	0	0	0	0	0	0
		Thru						
Church Full-Movement Access	NB	Left	0	0	0	0	0	0
		Right	0	0	0	0	0	0

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Orvis Way (By Others)

Time Period		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Design Year		2030 Design Year		2030 Design Year	
Development Condition		w/o Dev	w/ Dev	w/o Dev	w/ Dev
West Pleasant Grove Road	EB Left	25	25	25	0
	EB Thru				
	WB Thru	-	-	-	-
	WB Right				
Orvis Way (By Others)	SB Left	25	25	25	70
	SB Right				

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Church Egress Only Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	-	-	-	-	-	-
	WB	Thru	-	-	-	-	-	-
Church Egress Only Access	NB	Left	0	0	0	0	0	0
		Right						

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Collector Road

Time Period			Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year			2030 Design Year	2030 Design Year
Development Condition			w/ Dev	w/ Dev
West Pleasant Grove Road	EB	Thru/ Right	-	-
	WB	Left/ Thru	25	28
Collector Road	NB	Left	25	70
		Right		

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Road M

Time Period			Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year			2030 Design Year	2030 Design Year
Development Condition			w/ Dev	w/ Dev
West Pleasant Grove Road	EB	Thru/ Right	-	-
	WB	Left/ Thru	0	0
Road M	NB	Left	25	0
		Right		

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Dunvegan Road / Road K

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Left	0	0	0	0	0	0
		Thru						
		Right	-	-		-	-	
	WB	Left	-	-	0	-	-	0
		Thru	-	-		-	-	
		Right						
Road K	NB	Left	-	-	25	-	-	25
		Thru						
		Right						
Dunvegan Road	SB	Left	0	0	0	0	0	0
		Thru						
		Right						

Table 9. 95th Percentile Queue Matrices

New Street and West Pleasant Grove Road

Time Period		Current Storage [1]	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	WB Left / Right	-	40	48	38	45	58	45
New Street	NB Thru / Right	*3,350'*	-	-	-	-	-	-
	SB Left / Thru	-	0	25	25	25	25	25

(1) Distance to adjacent signalized intersections shown in italics.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School Drive

Time Period					Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year			Current Storage [1]	Future Storage [2]		2030 Design Year				2030 Design Year		
Development Condition					Existing	w/o Dev [3]	w/ Dev [3]	w/ Dev w/ Impvts [4]	Existing	w/o Dev [3]	w/ Dev [3]	w/ Dev w/ Impvts [4]
Stetson School Drive	EB	Left	200'	200' (2 Lanes)	93	233	518	210	123	258	545	238
		Thru	-	-	140	185	180	220	118	175	160	228
		Right	200'		30	40	40		53	73	65	
Skiles Boulevard	WB	Left	350'	350'	53	118	115	125	25	78	70	83
		Thru	-	-	198	250	243	225	95	135	123	60
		Right		150'				88				98
U.S. Route 202 (Wilmington Pike)	NB	Thru (2)	*4,400'*	*4,400'*	818	1115	1135	1120	505	788	868	830
		Right	220'	220'	25	25	25	25	25	25	33	33
	SB	Thru (2)	*4,600'*	*4,600'*	545	775	853	843	403	628	678	655
		Right	200'	200'	93	145	163	178	33	60	203	215

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

(3) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

(4) Impovements include restriping the eastbound approach to provide dual left-turn lanes and a through/right-turn lane, widening the westbound approach to provided a dedicated right-turn lane, and modifying the traffic signal phasing.

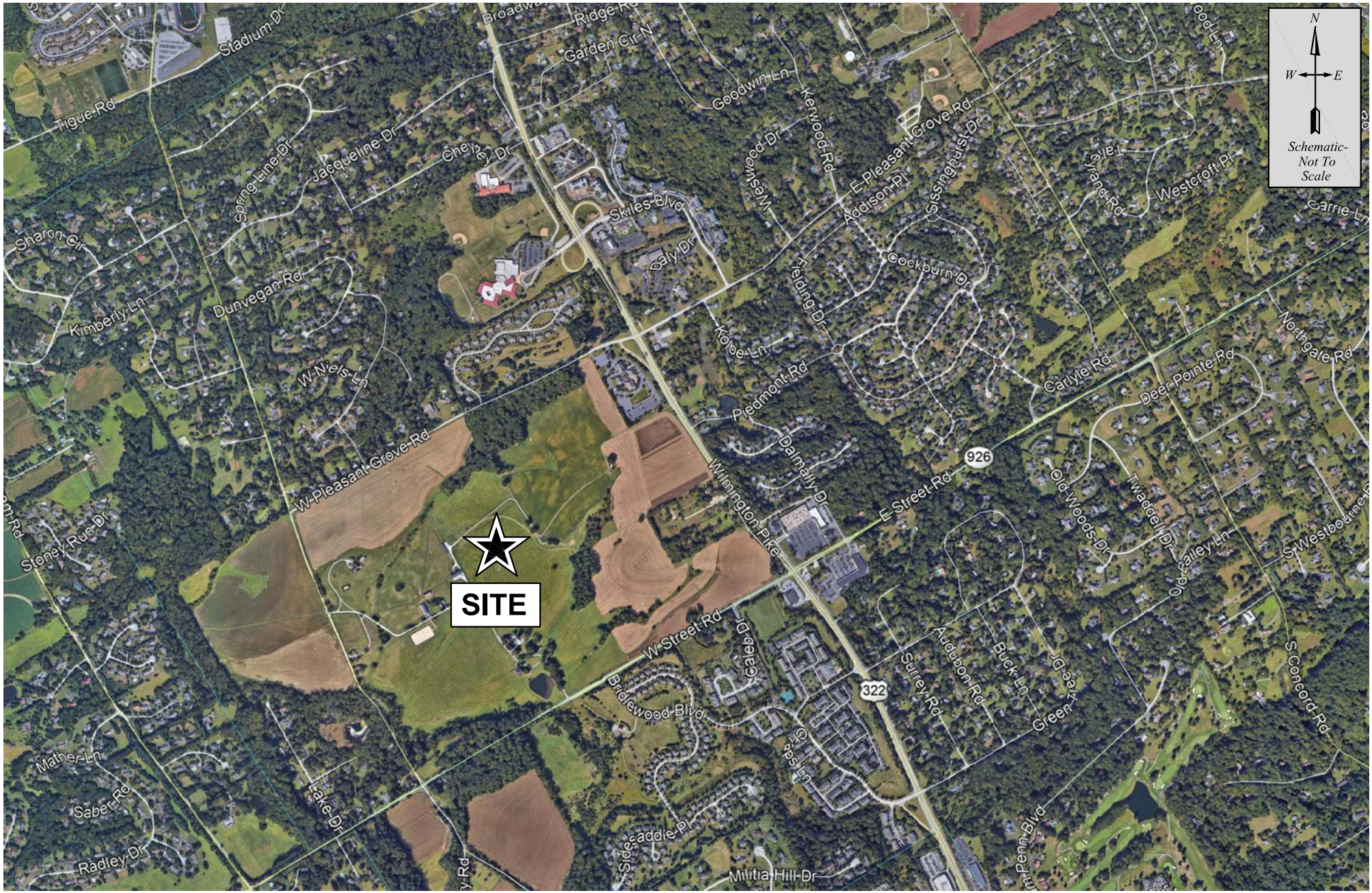


FIGURE 1
Site Location Map

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-08-08) I:\eng\816451 - Crebilly Farm\dwg\2019-08 Robinson Tract TIS\Figure 1.dwg

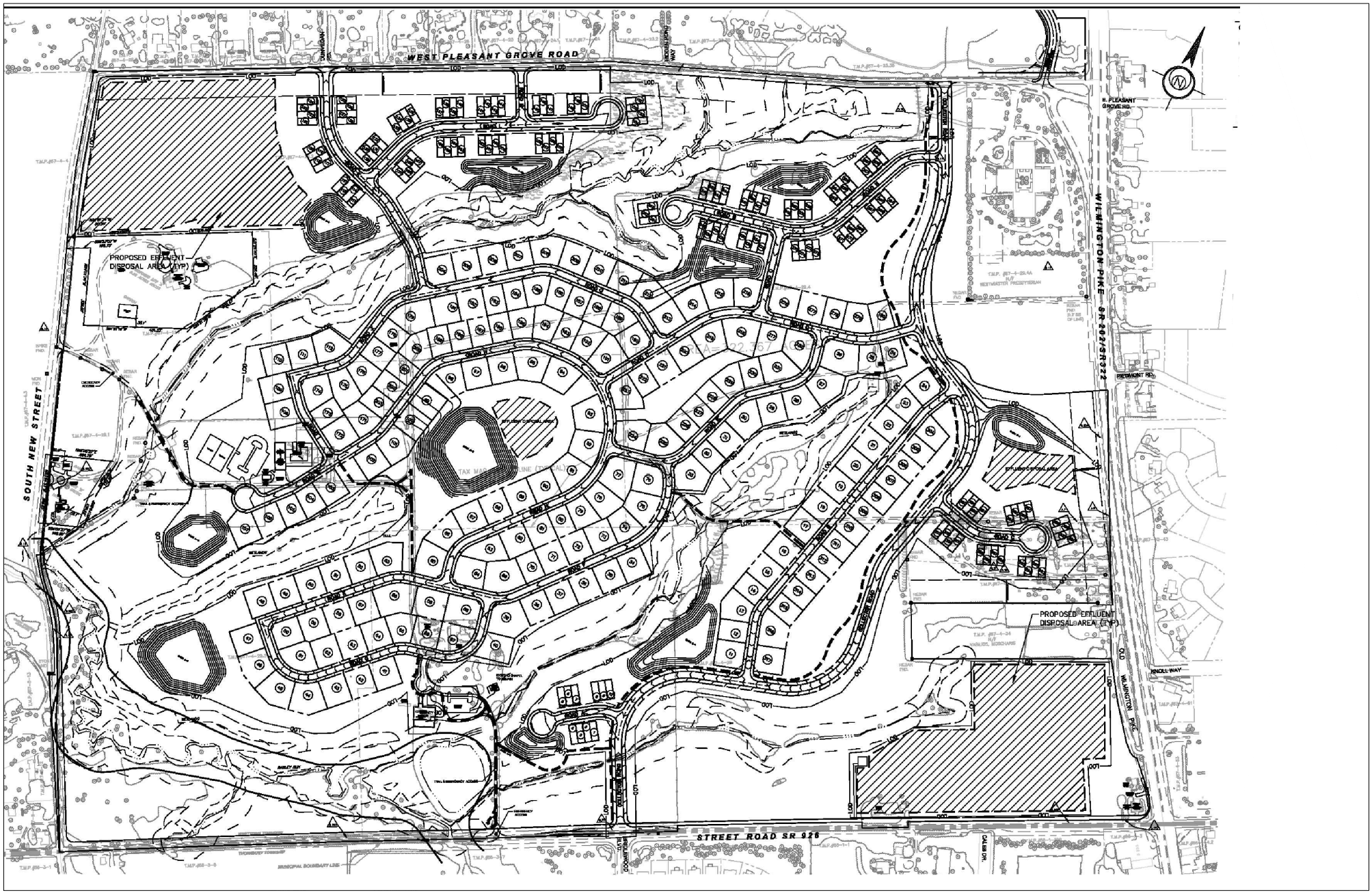


FIGURE 2
Site Plan

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-26) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 2.dwg

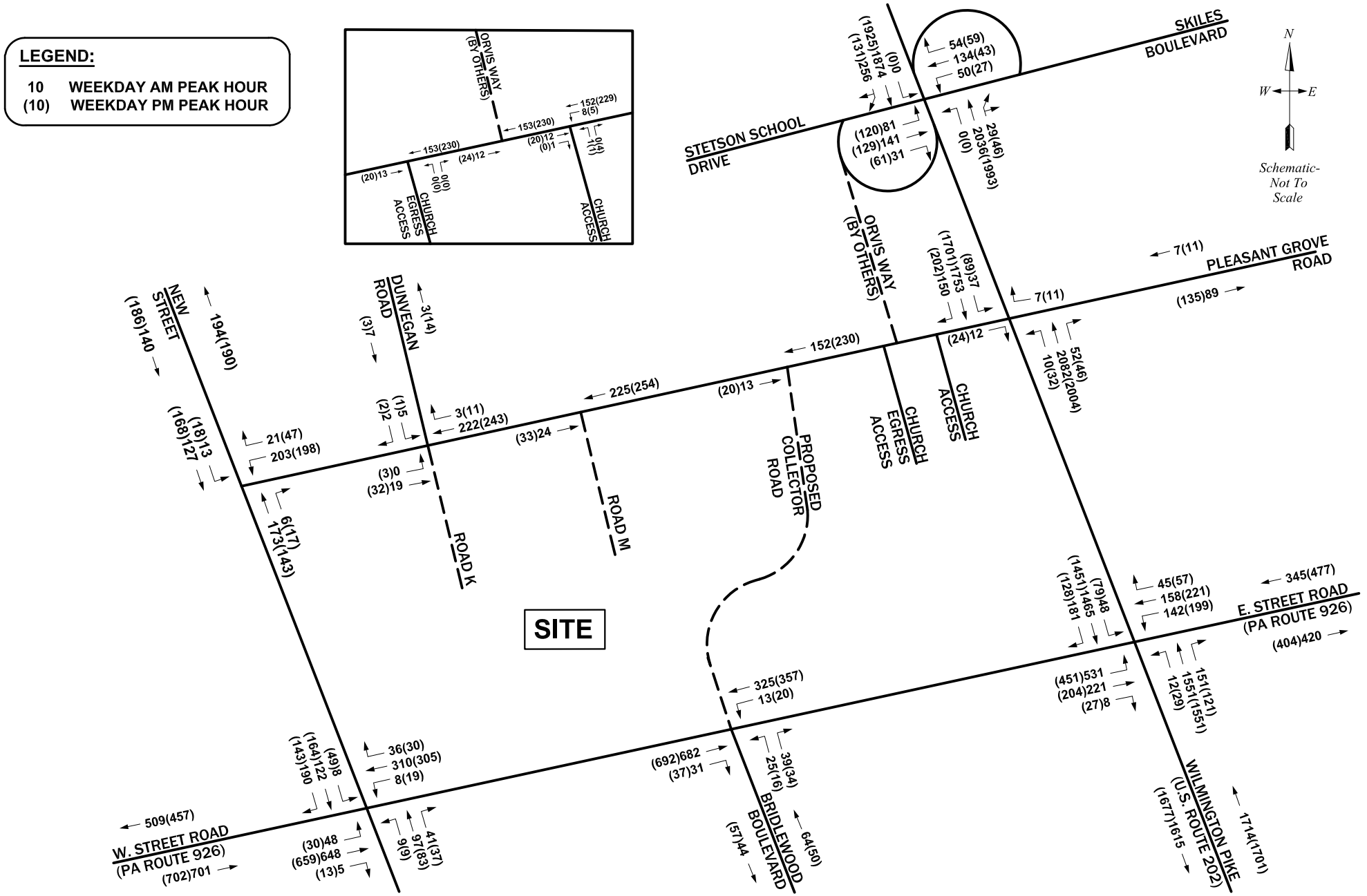


FIGURE 3A

Existing Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-05) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 3A.dwg

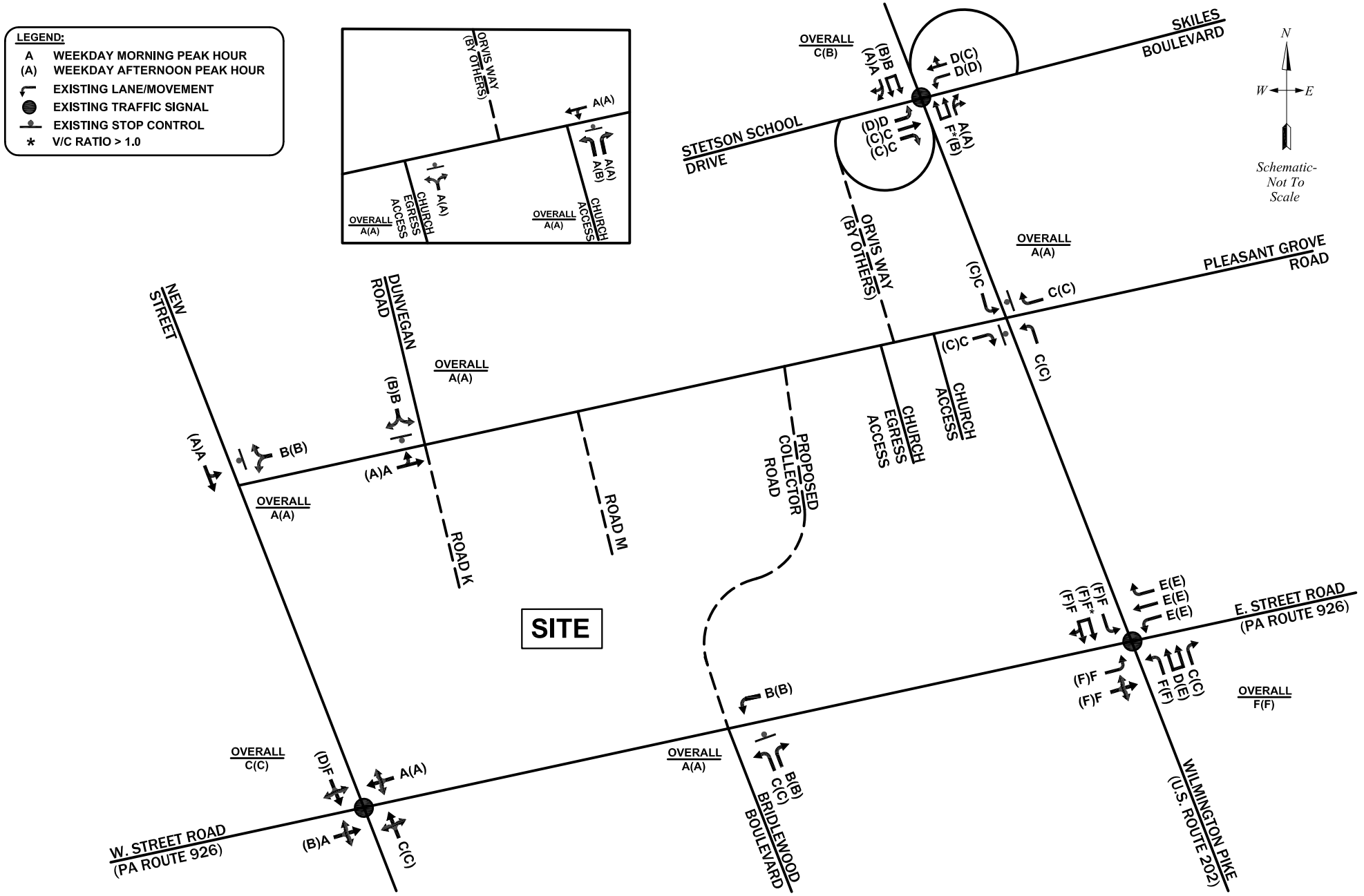


FIGURE 3B

Existing Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

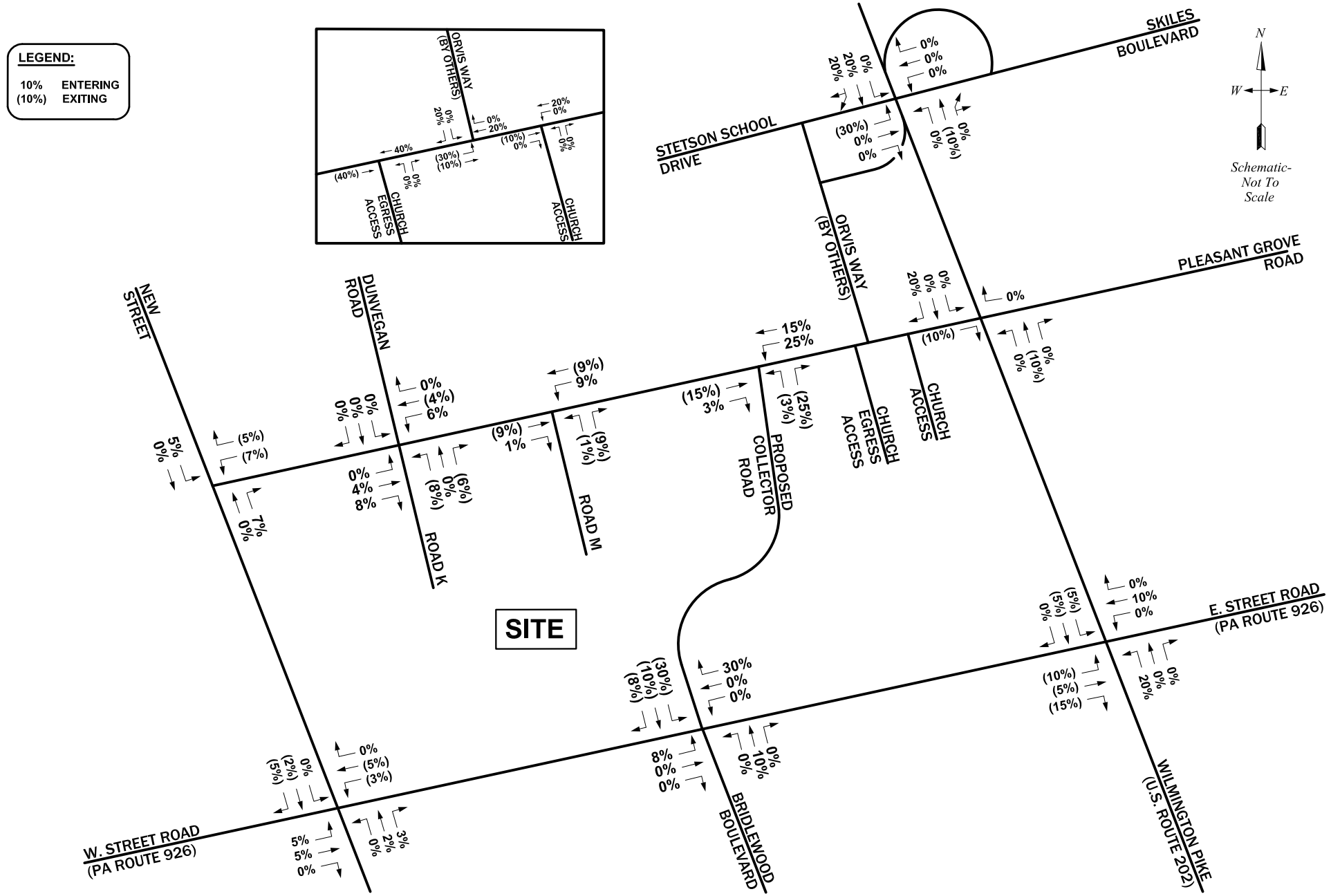


FIGURE 4A

New Site Trip Distributions

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-08-07) I:\eng\816451 - Crebilly Farm\dwg\2019-08 Robinson Tract TIS\Figure 4A.dwg

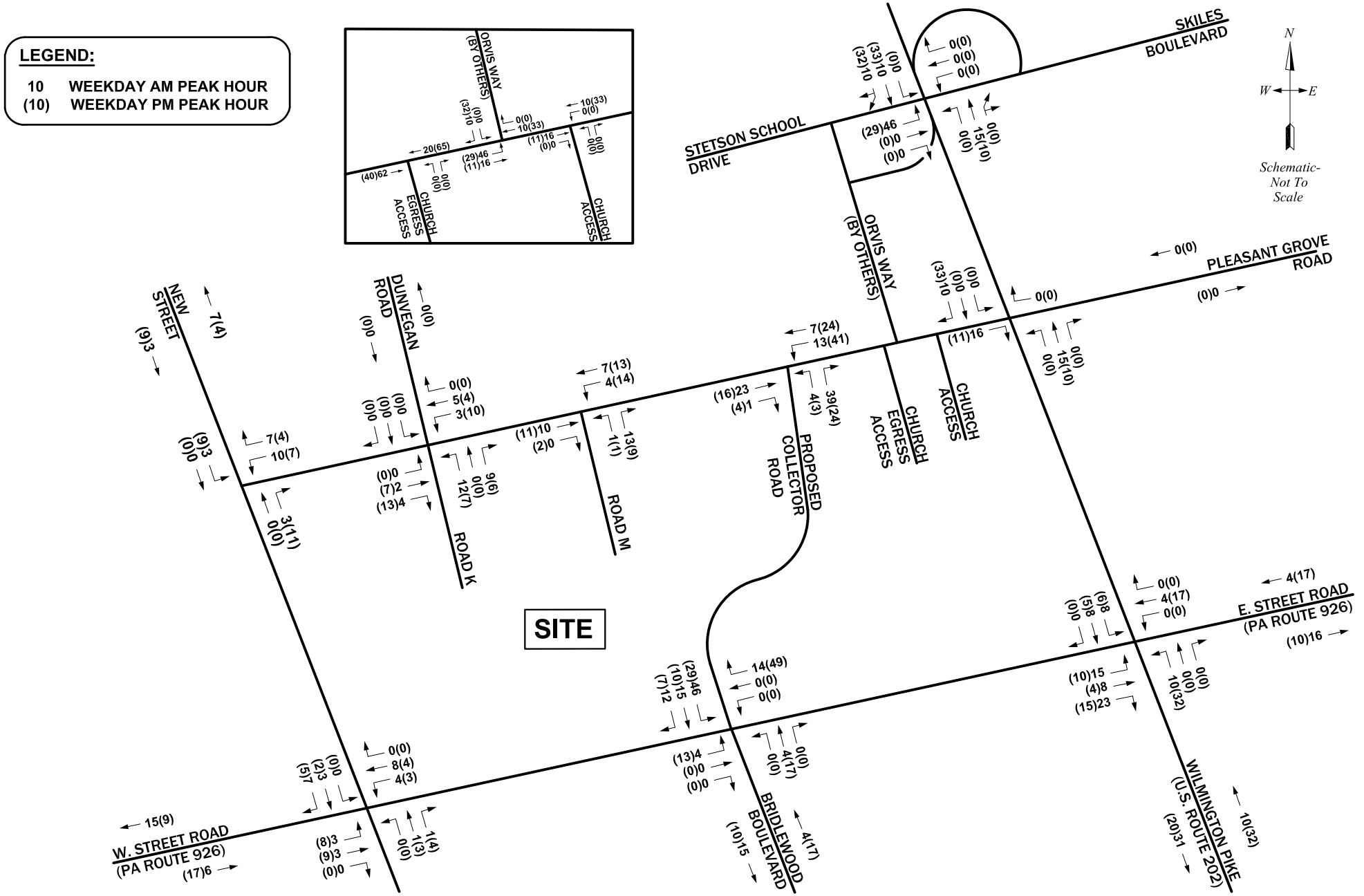


FIGURE 4B

New Site Trip Assignments

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-08-07) I:\eng\816451 - Crebilly Farm\dwg\2019-08 Robinson Tract TIS\Figure 4B.dwg

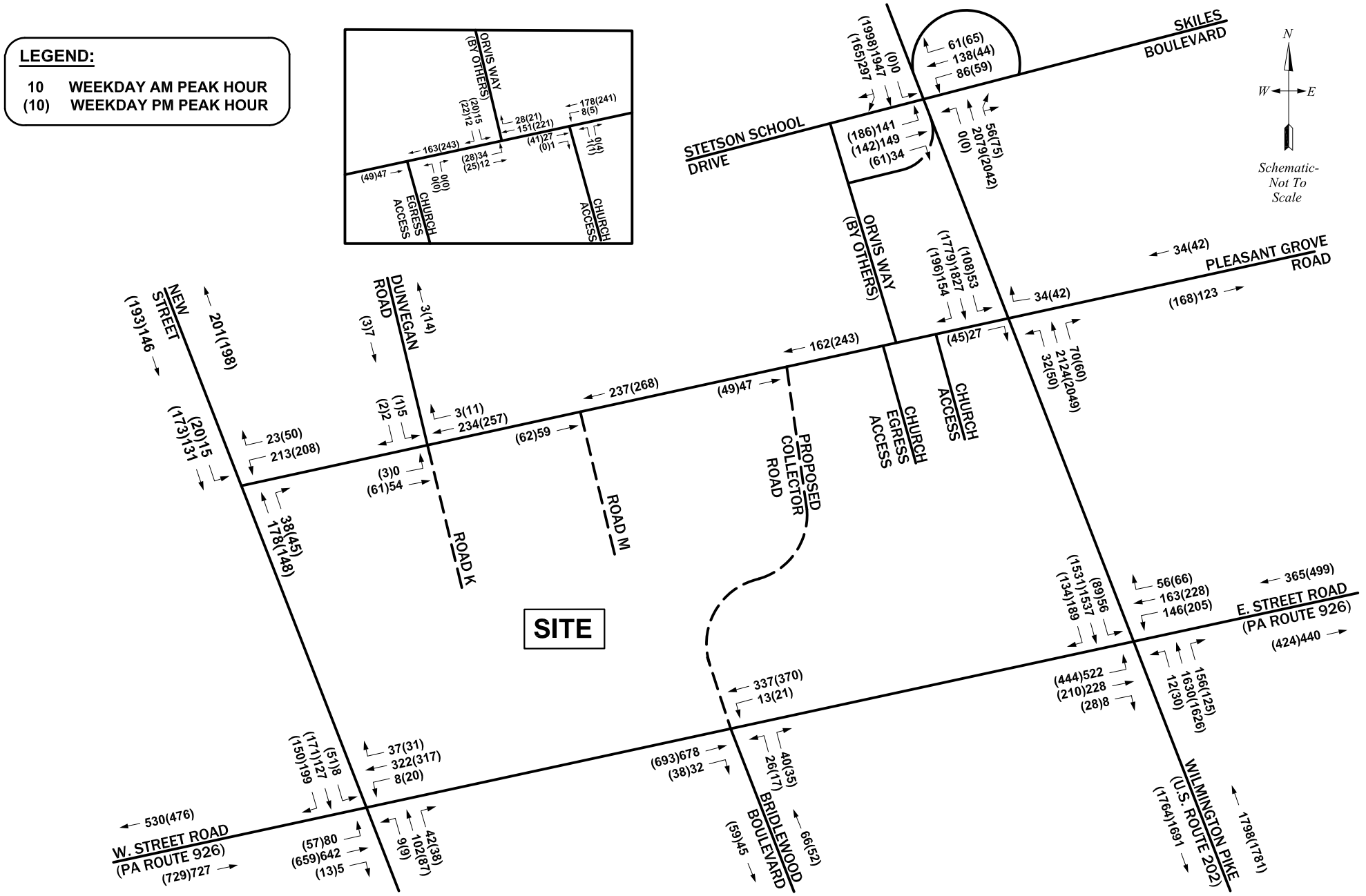


FIGURE 5A

2025 Build-Out Year without Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-06) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 5A.dwg

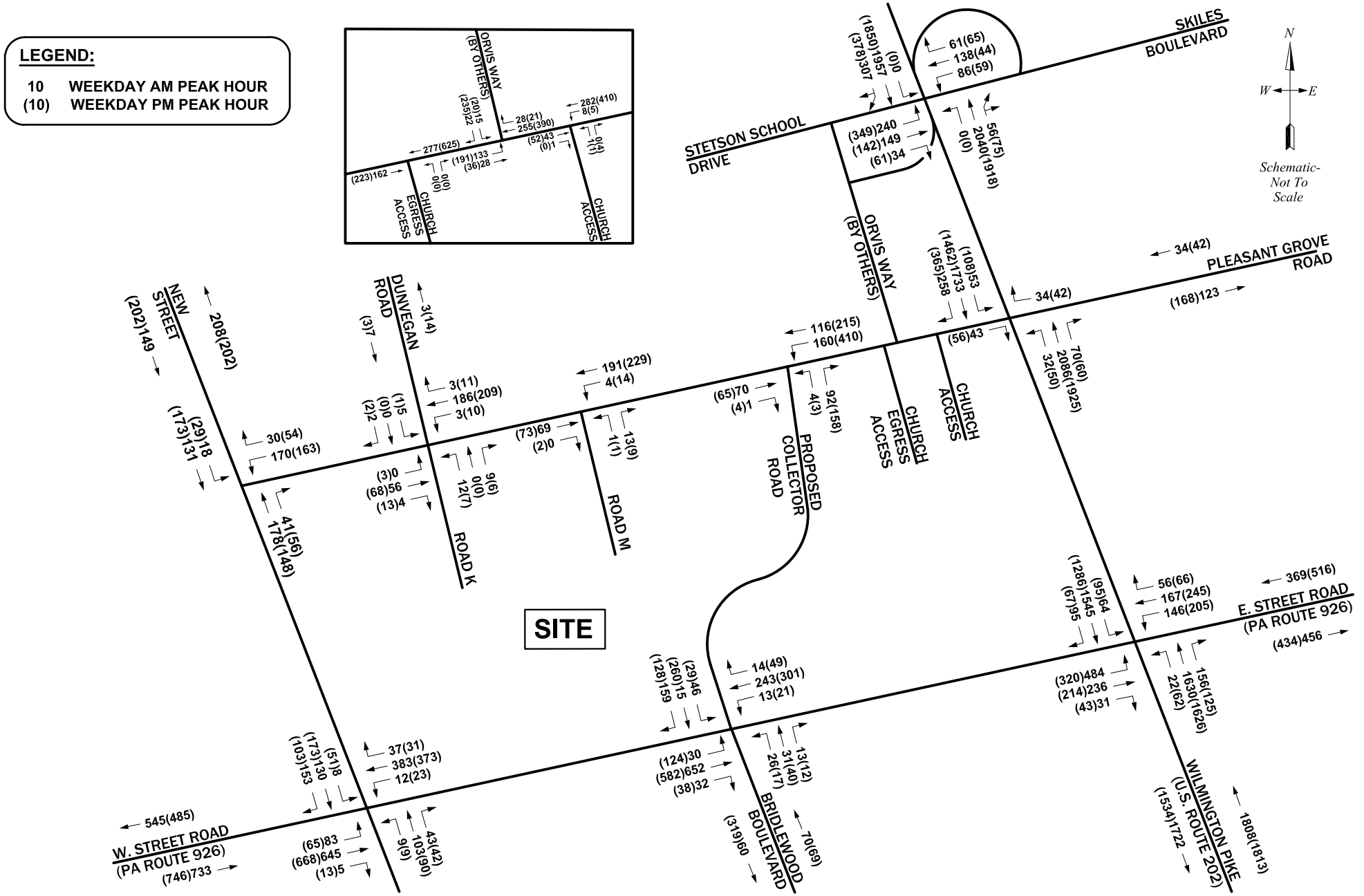


FIGURE 5B

2025 Build-Out Year with Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-06) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 5B.dwg

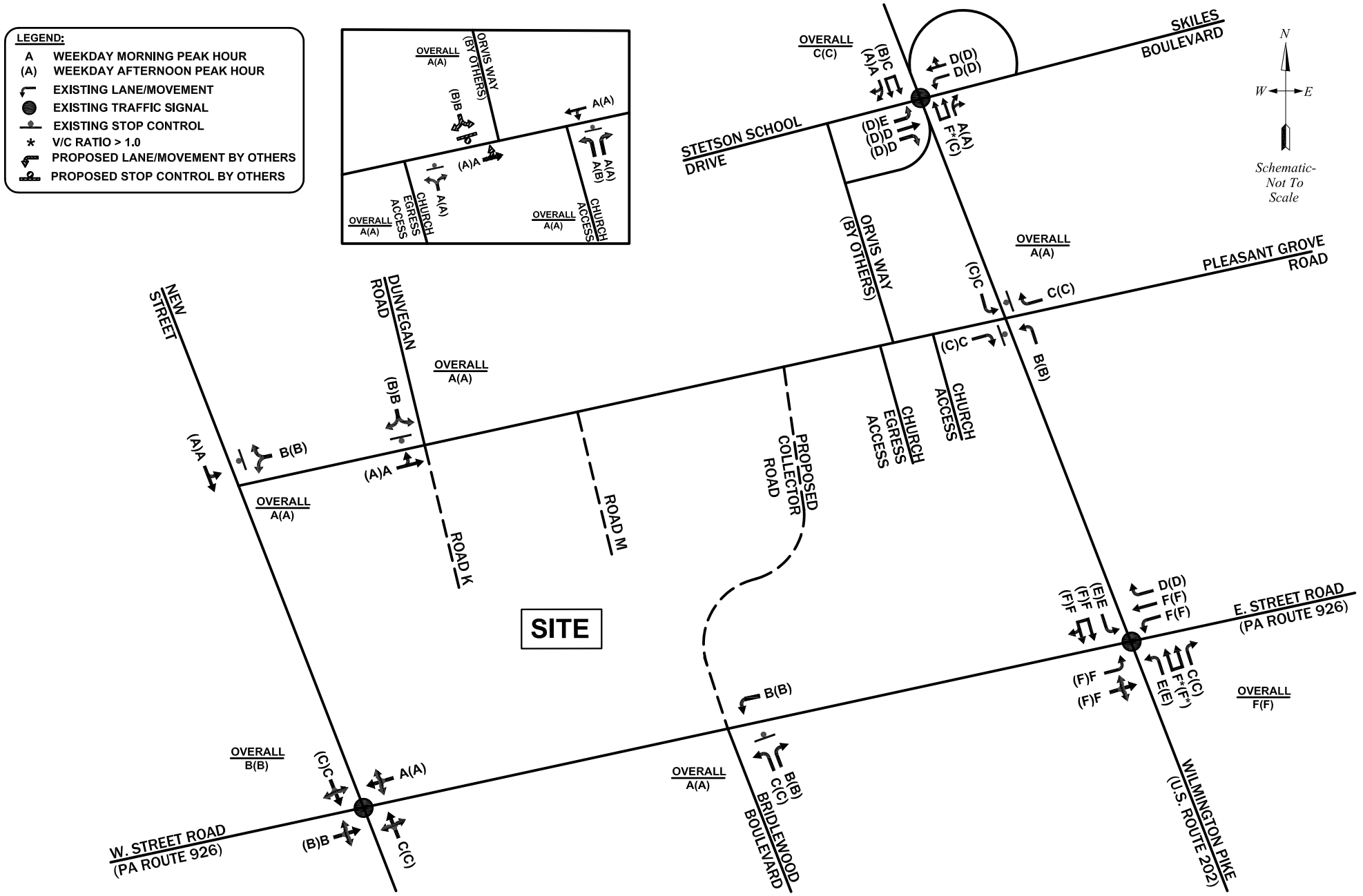


FIGURE 5C

2025 Build-Out Year without Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-06) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 5C.dwg

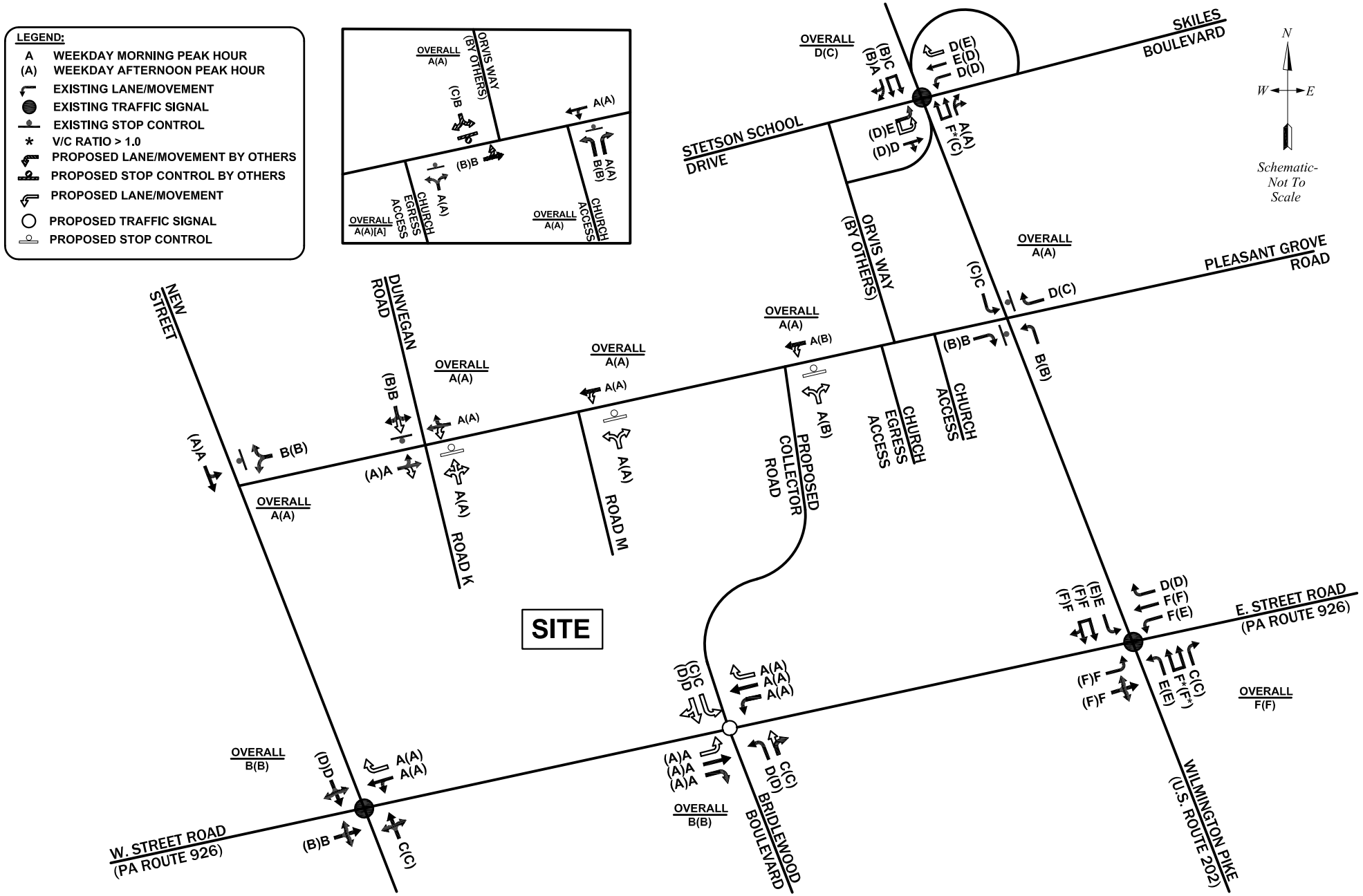


FIGURE 5D

2025 Build-Out Year with Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

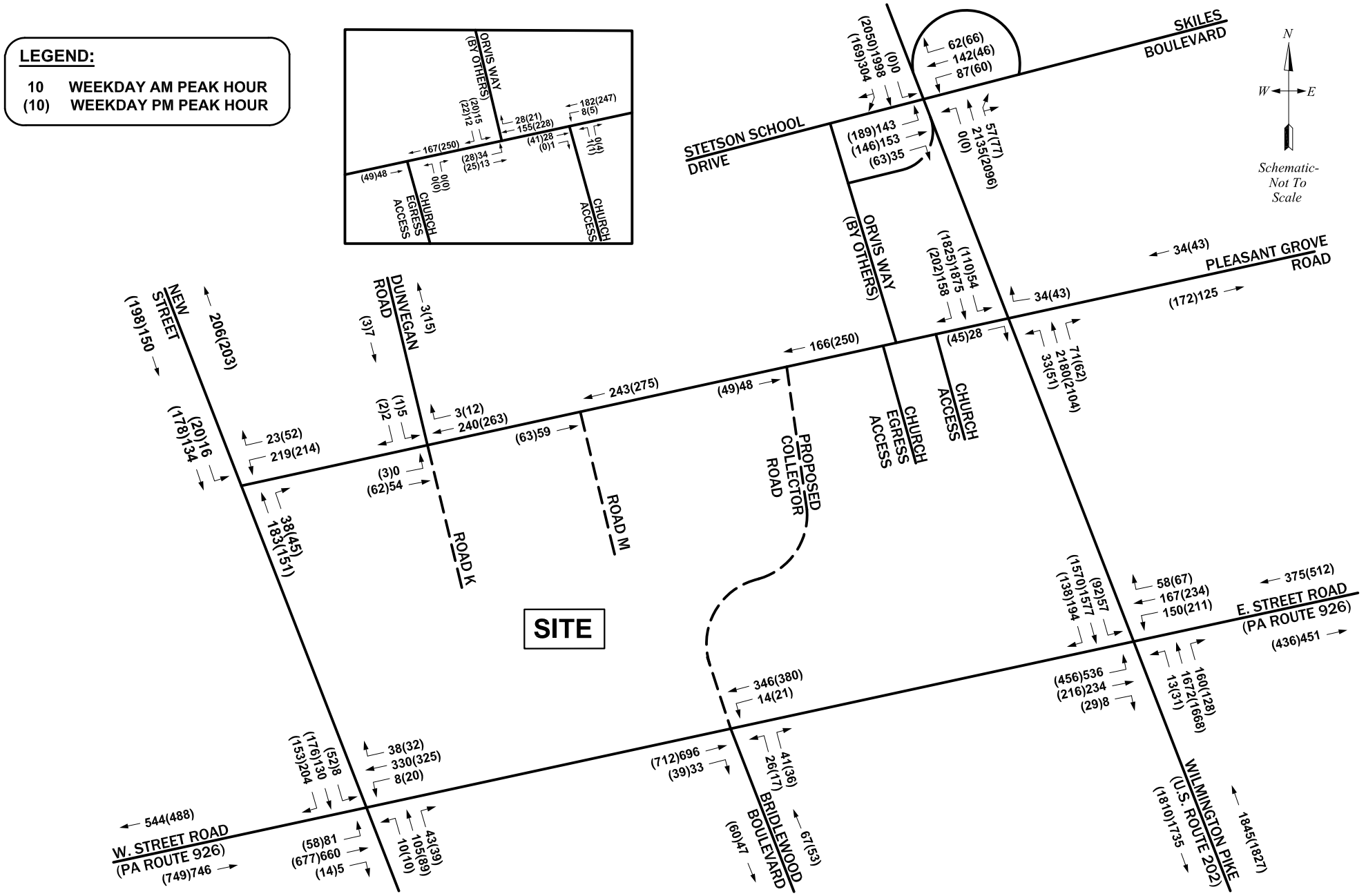


FIGURE 6A

2030 Design Year without Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

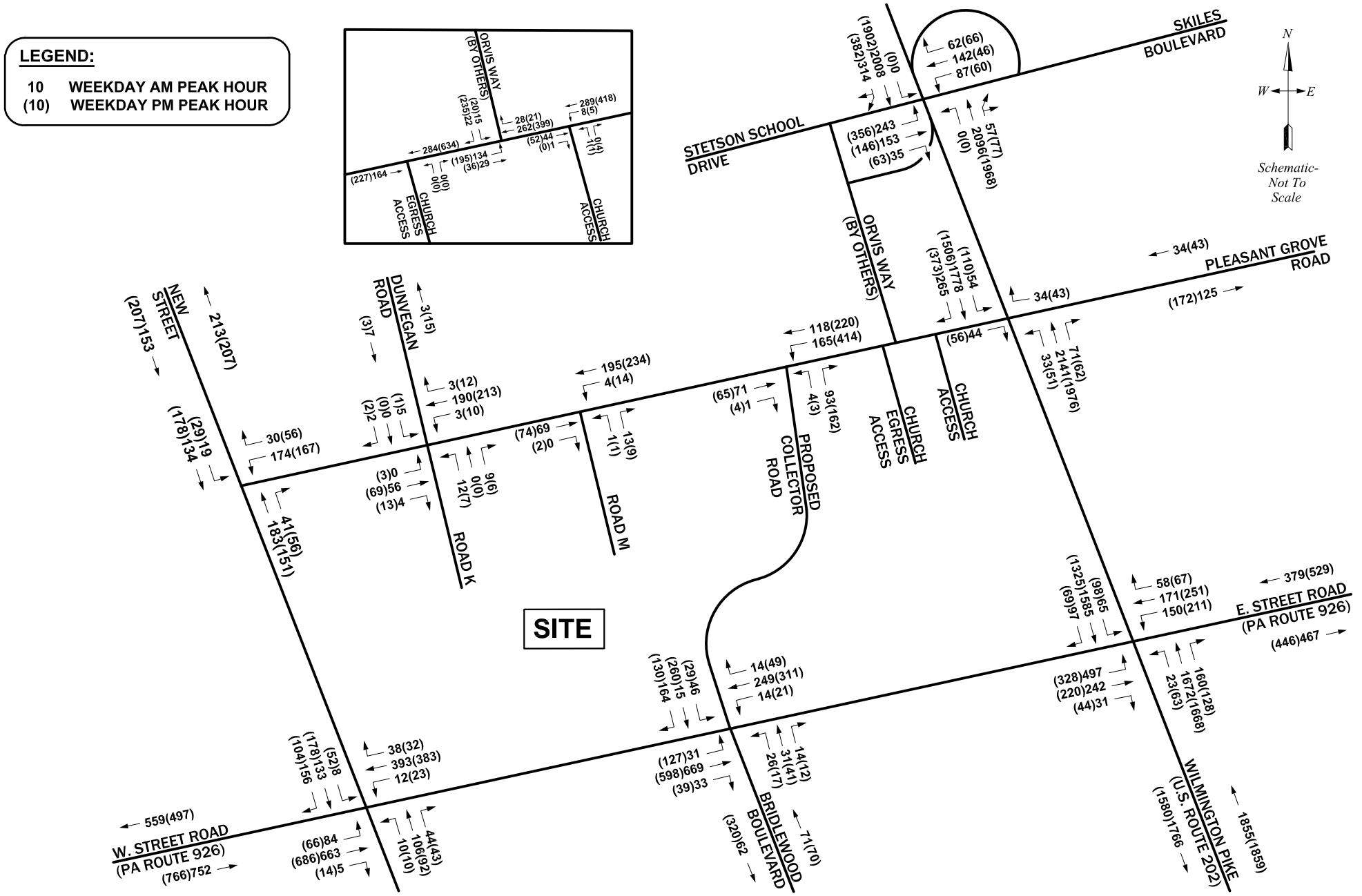


FIGURE 6B

2030 Design Year with Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-05) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 6B.dwg

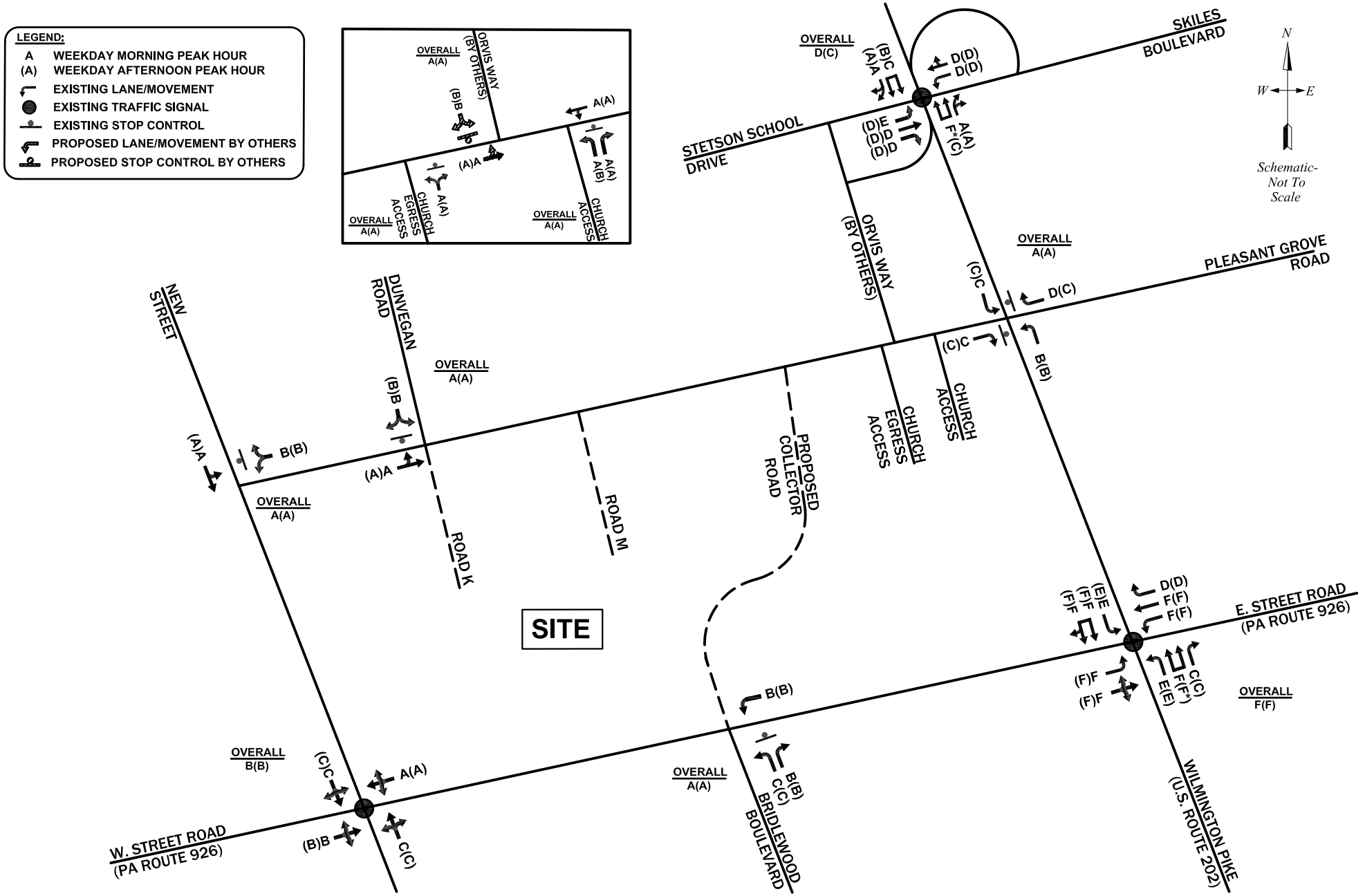


FIGURE 6C

2030 Design Year without Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

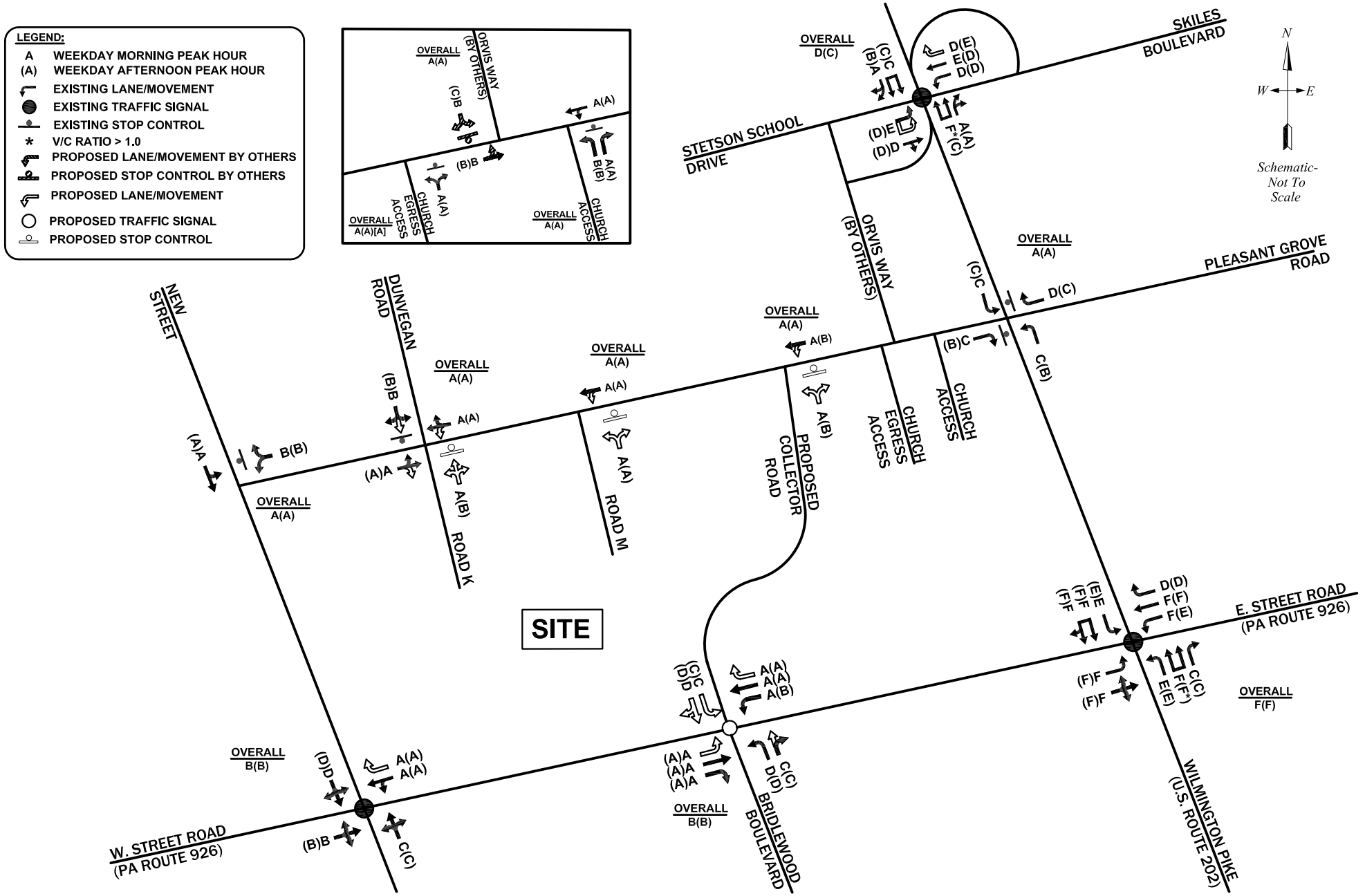


FIGURE 6D

2030 Design Year with Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

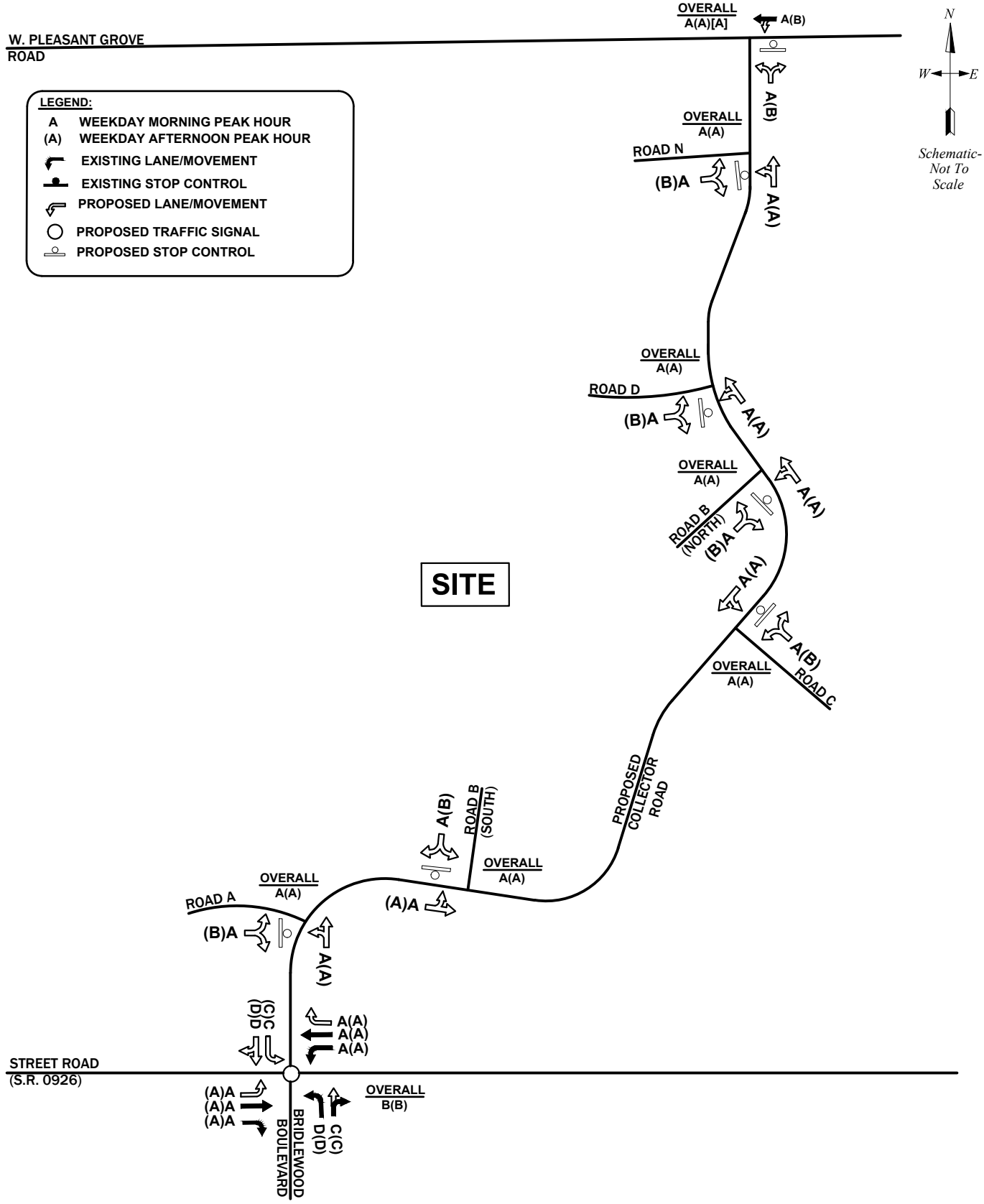


FIGURE 7

2030 Connector Road with Development Peak Hour Levels-of-Service

ROBINSON TRACT

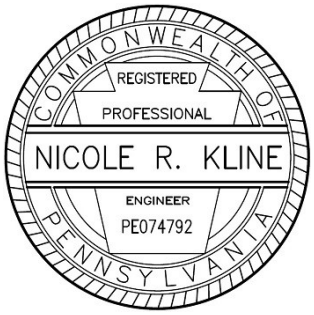
WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

EXHIBIT A-46B

Transportation Impact Study for the Robinson Tract

Westtown Township, Chester County, PA



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Prepared for
Toll Brothers, Inc.
Revised May 15, 2020
Revised December 2, 2019
August 13, 2019
McMahon Project Number 816451.11

TABLE OF CONTENTS

Executive Summary

Toll Brothers, Inc. proposes a residential development on the Robinson Tract, located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania (**Figure 1**). The residential development consists of 319 total dwelling units, including 182 detached homes, 135 attached homes, and preservation of two existing homes on the property. With the development, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. Access to the site will be provided via the Collector Road, as well as two accesses along West Pleasant Grove Road. A site plan prepared by ESE Consultants, Inc., last revised November 22, 2019, is provided in **Figure 2**.

A Scoping Meeting Application was submitted to PennDOT and Westtown Township on November 7, 2016. A scoping meeting was held at the PennDOT Engineering District's offices on December 2, 2016. PennDOT provided scoping comments in a letter dated December 6, 2016. The scope of this transportation impact study is based on those comments, PennDOT's guidelines, per the Department's publication *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits*, dated July 2017, and the requirements of the Township ordinances. Correspondence is contained in **Appendix A**.

The purpose of this transportation impact study is to evaluate the traffic impacts of the proposed development. The scope of this study includes an evaluation of the existing weekday morning and weekday afternoon peak hours, as well as the future 2025 build-out year and 2030 design year, five years beyond the anticipated build-out year, both without and with the development at the following study intersections:

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)
- U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road
- U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School
- Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road
- Street Road (S.R. 0926) and New Street
- New Street and West Pleasant Grove Road
- West Pleasant Grove Road and Proposed Access (Road K)
- West Pleasant Grove Road and Proposed Access (Road M)
- West Pleasant Grove Road and Proposed Collector Road

Based on trip generation data compiled for Multifamily Housing – Low Rise (ITE Land Use Code 220) and Single Family Detached Housing (ITE Land Use Code 210) contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual,10th Edition,* the proposed development will generate a total of approximately 198 "new" trips during the weekday morning peak hour and 259 "new" trips during the weekday afternoon peak hour.

Committed Improvements

Per the traffic evaluation, the following on-site and off-site traffic improvements are committed by the applicant to mitigate the proposed development traffic impacts, pending further coordination and approvals from the Township and PennDOT. Since some of these improvements are within the state's right-of-way, or located at traffic signals under the jurisdiction of PennDOT, coordination with PennDOT will be required to implement these improvements. All improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. The Township will be included in all correspondence with PennDOT.

Site Accesses and On-Site Improvements

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- Collector Road is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- Provide a 150-foot left-turn lane along eastbound Street Road (S.R. 0926). Note that a 120-foot left-turn lane exists along westbound Street Road (S.R. 0926).
- Provide a 150-foot right-turn deceleration lane along westbound Street Road (S.R. 0926).
- Install a traffic signal.

West Pleasant Grove Road and Proposed Access (Road K)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Proposed Access (Road M)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Collector Road

- Collector Road is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.
- Provide stop-control on the Collector Road egress approach.

Collector Road

- The applicant will construct the Collector Road through the property between Street Road (S.R. 0926) and West Pleasant Grove Road, which will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate

route to avoid that delay. The overall delays at several study intersections decrease in the with-development conditions versus without-development conditions, due to the diversion of traffic to the Collector Road. Additionally, the Collector Road will provide access to the proposed residential development within the Robinson Tract.

- Based on the estimated Collector Road weekday peak hour traffic volumes in this report, diverted traffic constitutes approximately 70 to 80 percent of the total, while approximately 20 to 30 percent is site traffic from the Robinson Tract.

Off-Site Traffic Improvements

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

The traffic analyses contained herein reveal that efficient access to and from the proposed development can be provided, and furthermore, site-generated traffic is mitigated at the study area intersections with the committed improvements. Detailed results of the level-of-service and queueing analysis are contained in the matrices provided in **Tables 8 and 9.**

Existing Transportation Settings and Conditions

Toll Brothers, Inc. proposes a residential development on the Robinson Tract, located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania (**Figure 1**). The existing roadways and intersections in the vicinity of the site, which comprise the study area roadway network, are described in this section.

Roadway Characteristics

The study area roadway network and characteristics are summarized below in **Table 1**.

Table 1 - Existing Roadway Characteristics

Roadway Name (Jurisdiction)	Average Daily Traffic Volumes (vehicles per day)	Roadway Classification		Travel Lanes (per direction)	Posted Speed Limit (mph)
		Smart Transportation (1)	PennDOT/ Township (2)		
U.S. Route 202 (Wilmington Pike)	47,301 (3)	Regional Arterial	Urban – Principal Arterial	2	45
Street Road (S.R. 0926 – PA)	12,952 (3)	Community Arterial	Urban – Minor Arterial	1	45
New Street (Local)	5,056 (3)	Neighborhood Collector	Urban – Minor Collector	1	35
West Pleasant Grove Road (Local)	n/a	Local Road	Minor Street (4)	1	35
Bridlewood Boulevard (Local)	n/a	Local Road	Local Road	1	25

(1) Based on Table 5.1 – Roadway Categories in the PennDOT publication, *Smart Transportation Guidebook*.
(2) Based on the roadway classifications provided on PennDOT's Traffic Information Repository (TIRe) website and the Westtown Township Comprehensive Plan Update, dated 2019
(3) Based on traffic data from PennDOT's Traffic Information Repository (TIRe) website.
(4) The applicant has committed to half-width widening West Pleasant Grove Road to meet the Township's Collector Road standards along the applicants site frontage.

The following key intersections in the vicinity of the site comprise the study area:

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)
- U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road
- U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School
- Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road
- Street Road (S.R. 0926) and New Street
- New Street and West Pleasant Grove Road
- West Pleasant Grove Road and Proposed Access (Road K)
- West Pleasant Grove Road and Proposed Access (Road M)

- West Pleasant Grove Road and Proposed Collector Road

The existing characteristics of the study intersections, including field sketches, and signal permit plans are provided in **Appendix B**.

Crash Summary

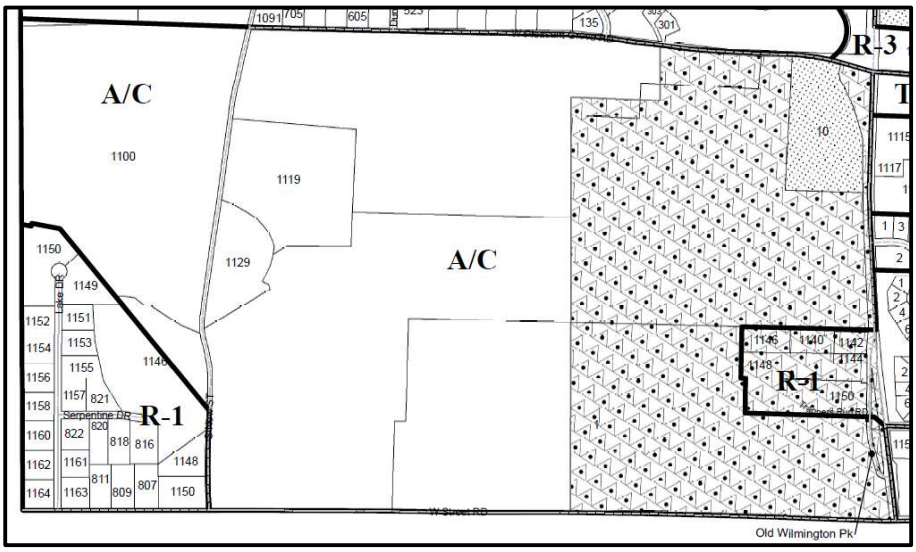
Reportable crash data was provided by the Pennsylvania Department of Transportation's Bureau of Highway Safety and Traffic Engineering for the five-year period from January 1, 2013 to December 31, 2017 throughout the study area. Reportable crashes are defined as crashes in which personal injuries occur or the vehicle must be towed from the scene. Tables summarizing the crash data by location, crashes per year, and type of crash are provided in Appendix B.

Based on the crash data, a total of 65 reportable crashes occurred at the study area intersections. The majority of the study area intersection crashes were rear-end incidents (45 crashes or 69 percent) and angle incidents (12 crashes or 17 percent). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) experienced twenty-six (26) crashes, with the majority of these crashes being rear-end incidents (18 crashes) occurring along both northbound (10 crashes) and southbound (8 crashes) U.S. Route 202 (Wilmington Pike). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard experienced fifteen (15) crashes, with the majority of these crashes being rear-end incidents (14 crashes) occurring along both southbound (9 crashes) and northbound (5 crashes) U.S. Route 202 (Wilmington Pike). The remaining crash was an angle incident which occurred along the eastbound approach. The unsignalized intersection of U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road experienced sixteen (16) crashes, with the majority of these crashes being rear-end incidents (10 crashes). Six (6) of the rear-end incidents occurred along southbound U.S. Route 202 (Wilmington Pike) with the remainder occurring along the eastbound Pleasant Grove Road approach.

Based on the crash data, a total of 56 reportable crashes occurred at midblock locations within the study area. The majority of the midblock crashes along U.S. Route 202 (Wilmington Pike) were rear-end incidents (25 crashes) and hit-fixed object incidents (9 crashes). Twenty-one (21) of the rear-end incidents occurred along southbound U.S. Route 202 (Wilmington Pike), which is likely associated with the congestion experienced at the signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). Seven (7) of the hit-fixed object incidents occurred along southbound U.S. Route 202 (Wilmington Pike), with vehicles striking guiderails, curbs, embankments, roadway obstructions, and utility poles. The majority of the midblock crashes along Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard were rear-end incidents (3 crashes) and angle incidents (2 crashes). Both of the angle incidents occurred at the existing CVS driveway along Street Road (S.R. 0926) with vehicles entering via left-turn, which is a prohibited movement. All three (3) of the rear-end incidents occurred along eastbound Street Road (S.R. 0926), which is likely associated with the congestion experienced at the signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926).

Land Use Context

The proposed development is located in Westtown Township within the A/C – Agriculture/Cluster Residential District, as well as the R-1 – Rural/Suburban Residential District. The development is located along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), as shown below on a portion of the Westtown Township Zoning Map. Per Westtown Township's Zoning Ordinance, the proposed residential development is permitted through conditional use within the A/C – Agriculture/Cluster Residential District in accordance with Article V and Article IX.



Source: Westtown Township Zoning Map

Area Transit Services

Transit services are currently not provided within the study area. The nearest SEPTA bus stop (SEPTA Bus Route 92) is located just north of the S.R. 0322 (High Street) and U.S. Route 202 intersection, approximately a mile and a half north of the site.

Pedestrian-Bicycle Facilities

Currently, there are no sidewalks along U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) has limited pedestrian crossing amenities. There are pedestrian crosswalks, signals, and pushbuttons provided to cross the eastern leg of Street Road (S.R. 0926) and the southern leg of U.S. Route 202.

Sidewalk is currently provided along the north side of Hidden Pond Way within the Arborview neighborhood and on the west side of Bridlewood Boulevard within the Bridlewood neighborhood. Pedestrian facilities are also provided on the west side of Orvis Way, which was recently completed.

Traffic Count Data

Daily traffic counts were obtained from PennDOT's Traffic Information Repository (TIRe) website. The traffic count data is provided in **Appendix C**. Manual turning movement traffic counts were conducted in accordance with Westtown Township's Ordinance Chapter 149-804.A(3)(g). The majority of the traffic counts were collected in October 2019, with the two church accesses and Dunvegan intersection along West Pleasant Grove Road being collected in August 2019. The results of these traffic counts are tabulated by 15-minute intervals in **Appendix D**. The four highest consecutive 15-minute peak intervals during these traffic count periods constitute the peak hours that are the basis of this traffic analysis

The resultant peak hour traffic volumes are depicted in **Figure 3A** for the weekday morning and weekday afternoon peak hours. The traffic volumes in Figure 3A were then analyzed to determine the existing operating conditions, and the results of this analysis are shown in **Figure 3B.** Specific details regarding the analysis results and traffic operations are provided later in this report.

Existing Queue Observations

At the intersection of U.S. Route 202 (Wilmington Pike) and PA Route 926 (Street Road) under existing conditions during the weekday morning and weekday afternoon commuter peak periods, oversaturation occurs on some movements. In accordance with the methodology contained in the *Highway Capacity Manual, 6th Edition*, queue observations were completed at the beginning of the weekday morning and weekday afternoon peak hours in order to account for these initial queues. The initial queues have been included in the detailed capacity/level-of-service analyses. Documentation of the queue observations is provided in **Appendix E**.

Site Characteristics

This section presents the details regarding the proposed site, including the incremental increase in traffic volumes generated by the development during the peak hours and the distribution of site traffic to the study area roadways, as well as the proposed site access configurations, traffic control, and sight distance requirements.

Trip Generation

Traffic volumes generated by the proposed development were prepared based on trip generation data compiled from numerous studies contained in the Institute of Transportation Engineers (ITE) publication, *Trip Generation, 10th Edition*. **Table 2** presents the anticipated vehicular trip generation, and the detailed trip generation calculations are contained in **Appendix F.**

Table 2. Vehicular Trip Generation

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Robinson Tract Residential Development (1)	319 units	2,802	47	151	198	163	96	259

(1) Consisting of 182 detached homes, 135 attached homes, and preserving 2 existing homes on the property.

Trip Distribution and Assignment

Site-generated traffic will approach and depart the site via different routes depending on factors such as the existing traffic patterns, location of major roadways, and the location of the development's site accesses. The location of the dwelling units, the presence of the Collector Road, and the roadway connections throughout the proposed development were also considered within the site trip distributions. The distribution percentages for the anticipated directions of approach and departure, as well as the traffic assignment percentages at each intersection are illustrated in **Figure 4A**. Application of the percentages illustrated in **Figure 4A** to the new peak hour trips contained in Table 2, provides an estimate of site traffic to be added to the study area. The site-generated trips assignments are provided in **Figure 4B** for the weekday morning and weekday afternoon peak hours.

Site Access Configuration and Traffic Control

With the development, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. The Collector Road will intersect Street Road (S.R. 0926) opposite Bridlewood Boulevard, as required by PennDOT, with installation of a traffic signal. The

Collector Road will intersect West Pleasant Grove Road near the eastern boundary of the Robinson Tract as an unsignalized intersection. Access to the site will be provided via the Collector Road, as well as two unsignalized accesses along West Pleasant Grove Road, with one located opposite Dunvegan Drive and one located approximately 625 feet west of Hidden Pond Way.

The recommendations for the proposed access designs, including auxiliary turn lanes, traffic control, and geometric design, were based on industry accepted criteria and guidelines. Specifically, the need for left- and right-turn deceleration lanes was based on the current PennDOT guidelines in accordance with *Publication 46, Chapter 11 – Traffic Studies*. In addition, a preliminary traffic signal warrant analysis was conducted in accordance with PennDOT criteria contained in the Department's *Publication 212, Official Traffic Control Devices*, for the Four-Hour Volume Warrants, which is based on the guidelines contained in the Federal Highway Administration's, *Manual on Uniform Traffic Control Devices (MUTCD)*. The various warrant/guideline analysis worksheets are contained in **Appendix G**.

Tables 2 and 3 below provide a summary of the traffic signal and turn lane warrant analyses.

Table 2. Traffic Signal Warrant Analysis Summary
Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Scenario	Warrant Evaluated	Warrant Met?
2025 with Collector Road Diversions Only	Four-Hour Vehicular Volume	**YES** (4 Hours Satisfied)
2025 with Collector Road Diversions and Site Traffic	Four-Hour Vehicular Volume	**YES** (4 Hours Satisfied)

Table 3. Site Access Turn Lane Warrant Analysis Summary

Intersection	Lane Evaluated	Warranted Length (ft)
W. Pleasant Grove Road and Dunvegan Road / Road K	WBL	Not Warranted
	EBR	Not Warranted
W. Pleasant Grove Road and Road M	WBL	Not Warranted
	EBR	Not Warranted
W. Pleasant Grove Road and Collector Road	WBL	Not Warranted
	EBR	Not Warranted
Street Road (S.R. 0926) and Collector Road / Bridlewood Boulevard	EBL	250
	WBR	150

Additionally, the geometric design of the proposed site accesses were preliminarily evaluated based on guidelines contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*, as well as local PennDOT District policies.

Based on the results of this evaluation, the following access configurations and traffic controls are recommended, subject to the detailed engineering of the site accesses:

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- The Average Daily Traffic for the Collector Road (site traffic and traffic diversions) is estimated as 1,432 vehicles per day, and therefore is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- A left-turn lane is warranted along eastbound Street Road (S.R. 0926) based on PennDOT guidelines, and therefore, provide a 150-foot long left-turn lane.
- A right-turn deceleration lane is warranted along westbound Street Road (S.R. 0926) based on PennDOT guidelines, and therefore, provide a 150-foot right-turn deceleration lane.
- Install a traffic signal, which is preliminarily warranted in the build-out year based on the criteria for Warrant 2 (Four-Hour Vehicular Volume).

West Pleasant Grove Road and Proposed Access (Road K)

- The Average Daily Traffic for the site access (Road K) is 196 vehicles per day, and therefore is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

West Pleasant Grove Road and Proposed Access (Road M)

- The Average Daily Traffic for the site access (Road M) is 140 vehicles per day, and therefore is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

West Pleasant Grove Road and Proposed Collector Road

- The Average Daily Traffic for the Collector Road is estimated as 1,152 vehicles per day, and therefore, is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.
- Provide stop-control on the site access egress approach.
- A left-turn lane is not warranted based on PennDOT guidelines.
- A right-turn deceleration lane is not warranted based on PennDOT guidelines.

Sight Distance

Sight distance field measurements and an evaluation were performed at each of the proposed site accesses. Generally, the prevailing (85th percentile) travel speed, roadway grades and profiles, and the number of travel lanes play a role in determining if safe sight distances are available for egress and ingress at the proposed accesses. The existing sight distances at the proposed accesses were measured and compared to PennDOT's sight distance requirements. These sight distance requirements are contained in *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads*. **Table 4** summarizes the available sight distance measurements, as well as PennDOT's sight distance requirements at the proposed access locations.

Table 4. Sight Distance Evaluation
Street Road (S.R. 0926) and Collector Road opposite Bridlewood Boulevard (proposed signal)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]	
Exiting	Looking Left	45	-8.0%	635′	45 mph=472′	466′ with vegetation clearing
	Looking Right	45	+8.6%	570′	N/A	700′+ with vegetation clearing
Left turn Entering	Looking Ahead	45	-8.0%	445′	N/A	430′ with vegetation clearing
	From the Rear	45	+8.6%	N/A	Meets over 70 mph=680′	700′+

West Pleasant Grove Road and Proposed Access (Road K)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)[(3)]	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+2.6%	440′	N/A	440′	630′
	Looking Right	35	-2.2%	350′	N/A	440′	1,000′+
Left turn Entering	Looking Ahead	35	+2.6%	300′	N/A	N/A	665′
	From the Rear	35	-2.2%	N/A	Meets over 75 mph=950′	N/A	1,000′+

West Pleasant Grove Road and Proposed Access (Road M)

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)[(3)]	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+6.4%	440′	N/A	440′	800′+
	Looking Right	35	-3.0%	350′	N/A	440′	440′
Left turn Entering	Looking Ahead	35	+6.4%	300′	N/A	N/A	800′+
	From the Rear	35	-3.0%	N/A	Meets to 45 mph=415′	N/A	415′

West Pleasant Grove Road and Proposed Collector Road

Movement	Direction	Posted Speed (mph)	Approximate Grade	PennDOT Requirements (feet)		Township Requirements (feet)(3)	Available Sight Distance (feet)
				Desirable[1]	Acceptable[2]		
Exiting	Looking Left	35	+2.1%	440′	N/A	440′	440′
	Looking Right	35	0.0%	350′	N/A	440′	495′
Left turn Entering	Looking Ahead	35	+2.1%	300′	N/A	N/A	415′
	From the Rear	35	0.0%	N/A	Meets to 60 mph=620′	N/A	650′

(1) Based on the desirable sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and the posted speed limit, unless otherwise noted.

(2) Based on the safe stopping sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and posted or travel speeds as noted.

(3) Based on the clear sight triangle requirements per Westtown Township Code Chapter 149 Article IX Section 149 -915, and the posted speed limit.

As shown in **Table 4**, the existing available sight distances at the proposed Collector Road and site access intersections along West Pleasant Grove Road, which is a Township roadway, meet PennDOT and Township requirements for all movements. For the intersection of the Collector Road and Street Road (S.R. 0926) opposite Bridlewood Boulevard with clearing of vegetation along the Robinson Tract property frontage, the existing available sight distances for exiting looking left and left-turn looking ahead are less than PennDOT desirable criteria; however, the intersection is proposed to be signalized.

Proper landscaping must be maintained along the site frontage along Street Road (S.R. 0926) and West Pleasant Grove Road for provision of adequate sight distance according to the above tables. The actual available sight distances should be verified during detailed engineering of the site access. The PennDOT M-950S forms are completed and provided in **Appendix H** for the State road Collector Road intersection.

Off-Site Intersection Turn Lane Warrants

Turn lane warrants were completed based on existing and future with-development peak hour traffic volumes at three off-site study intersections in accordance with PennDOT guidelines. The various warrant/guideline analysis worksheets are contained in **Appendix I**.

The following turn lanes are warranted under existing conditions:

- Street Road (S.R. 0926) and New Street
  - Eastbound Street Road (S.R. 0926) left-turn lane
  - Westbound Street Road (S.R. 0926) left- and right-turn lanes
  - Southbound New Street right-turn lane
  - Legal right-of-way does not currently exist to provide the above warranted lanes along Street Road (S.R. 0926) or New Street. Additional property from the Robinson Tract alone will not accommodate dedicated left-turn lanes or the southbound New Street right-turn lane. Although not necessary to mitigate traffic impact, as demonstrated later in this report, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.

- New Street and West Pleasant Grove Road
  - No turn lanes are warranted

- U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road
  - Southbound U.S. Route 202 (Wilmington Pike) right-turn lane

No additional turn lanes are warranted in the future 2030 conditions with the proposed development. A preliminary aerial exhibit and signal permit plan markup illustrating the conditions at the intersection of Street Road (S.R. 0926) and New Street is provided in Appendix I.

Table 5. Off-Site Intersection Turn Lane Warrant Analysis Summary

Intersection	Lane Evaluated	Warranted Length (ft)	
		Exiting	2030 Future with Development
W. Pleasant Grove Road and Orvis Way	EBL	-	Not Warranted
Wilmington Pike (U.S. Route 202) and W. Pleasant Grove Road	SBR	225′	325′
New Street and W. Pleasant Grove Road	NBR	Not Warranted	Not Warranted
	SBL	Not Warranted	Not Warranted
	WBR	Not Warranted	Not Warranted
Street Road (S.R .0926) and New Street	EBL	150′	175′
	EBR	Not Warranted	Not Warranted
	WBL	150′	150′
	WBR	Not Warranted	150′
	NBR	Not Warranted	Not Warranted
	NBL	Not Warranted	Not Warranted
	SBR	175′	Not Warranted (Due to Diversions)
	SBL	Not Warranted	Not Warranted

Future Traffic Conditions

With an estimated opening in 2020, a five-year build out was assumed based on the proposed development, the residential market, and past projects. This assumption equates to an average delivery of five units per month. Therefore, the traffic analysis was completed for a future build-out year of 2025 and a future design year of 2030, or five years beyond the anticipated build-out year, both without and with the proposed development. The future 2025 build-out year and 2030 design year without-development traffic volumes were estimated by increasing the existing traffic volumes to account for regional growth, as described below. The incremental increase due to the anticipated trip generation for the site was then added, resulting in the future 2025 build-out year and 2030 design year with-development traffic volumes.

Regional Traffic Growth

To account for regional traffic growth, the existing traffic volumes were increased by an annual traffic growth rate of 0.52 percent per year compounded for six (6) years to 2025 and 11 years to 2030, or 3.16 percent total to 2025 and 5.87 percent total to 2030. This growth rate is consistent with the traffic growth rate recommended by the PennDOT Bureau of Planning and Research *Growth Factors for August 2019 to July 2020* for similar, non-interstate urban roadways in Westtown Township.

Local Traffic Growth

To account for local traffic growth, the municipality was contacted to identify any other nearby future developments. Based upon coordination with Westtown Township, the existing traffic volumes were also increased by nearby approved developments in the vicinity of the proposed development. Specifically, the following developments were included and further information is provided in **Appendix J**:

- **The Malvern School:** 5,375 square-foot daycare/early learning center located on the northeast corner of the intersection of U.S. 202 (Wilmington Pike) and Pleasant Grove Road.

- **Arborview (Fair Share Properties):** 16,800 square feet of office space and 10,986 square-foot daycare center located on the west side of U.S. Route 202 (Wilmington Pike) between Skiles Boulevard and Pleasant Grove Road. As part of the development, a Collector road named Orvis Way between West Pleasant Grove Road and Stetson School will be provided, which is currently under construction.

- **Condominium Development:** 39 condominiums in two buildings remain to be occupied/constructed on the west side of Gilpin Drive just north of Skiles Boulevard.

Planned Roadway Improvements

Orvis Way: West Pleasant Grove Road to Stetson School Collector Road

In conjunction with the Arborview (Fair Share Properties) development, Orvis Way is currently being constructed to connect West Pleasant Grove Road to Stetson School. In accordance with the Township approved *Arborview Transportation Impact Assessment*, prepared by Traffic Planning & Design and dated January 26, 2015, traffic in the area is anticipated to divert to utilize Orvis Way as follows:

Orvis Way Traffic Diversions

- Diversion A: 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion B: 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion C: 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was conservatively decreased from the approved Arborview study as the majority of traffic currently making this movement during the peak hours is generated by Stetson Middle School, and the school service area ends just to the west of New Street

The roadway improvements and associated traffic diversions for the Arborview (Fair Share Properties) development have been incorporated into the future without- and with-development conditions within this study. Details, including a separate letter detailing the traffic diversions which was sent to the Township on February 21, 2020, are provided in **Appendix K**.

Robinson Tract: Street Road (S.R. 0926) to West Pleasant Grove Road Collector Road

With the development of the Robinson Tract, a Collector Road will be constructed through the property between Street Road (S.R. 0926) and West Pleasant Grove Road. Access to the site will be provided via the Collector Road. Additionally, as envisioned by Westtown Township for many years, the Collector Road will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate route to avoid that delay. With Orvis Way, currently under construction, this will provide a full connected roadway network on the west side of U.S. Route 202 (Wilmington Pike from Street Road S.R. 0926) to Stetson School, which will provide drivers with access to and from U.S. Route 202 via two signalized intersections.

In this analysis, traffic diversions with the Collector Road have been included in this study based on previous studies completed and accepted by the Township, as summarized below. The traffic diversions, including a separate letter detailing the traffic diversions which was sent to the Township on February 21, 2020, are provided in **Appendix K**.

Collector Road Traffic Diversions

- Diversion D: This diversion further increases Diversion A (above under Orvis Way discussion), by diverting an additional 5 percent of the weekday morning and 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.

- DiversionE: 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.

- Diversion F: 66 percent (two-thirds) of the northbound Bridlewood Boulevard right-turns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).

- Diversion G: 505 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to westbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).

- Diversion H: 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

PennDOT U.S. Route 202, Section 100

Within this section of U.S. Route 202 (Wilmington Pike), designated as Section 100, several studies completed through PennDOT and the Delaware Valley Regional Planning Commission have identified the need for additional roadway capacity. At this time, PennDOT is underway with preliminary engineering for improvements at the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection. Based on the current State Transportation Improvement Program (TIP) and the Conceptual Intersection Layout prepared by Urban Engineers and dated June 5, 2014, the project will include improvements that will help reduce traffic congestion and increase safety at the intersection through lane reconfigurations, striping, upgrades to the traffic signal, signal timing, and bicycle and

pedestrian improvements. It is our understanding that the following roadway improvements are to be included:

- Southbound 130-foot right-turn deceleration lane on U.S. Route 202.
- Additional eastbound left-turn lane on PA Route 926, creating a double left-turn lane configuration with 380 feet of storage for each lane.
- Pedestrian and bicycle intersection improvements, including high-visibility crosswalks, ADA ramps, and sidewalk extension from the intersection east to Dalmally Drive.
- Traffic signal equipment upgrades, including pedestrian push buttons, countdown signal heads, and lighting.

Based on the TIP, the current project schedule indicates an estimated construction start date in September 2021, with a construction completion date by the end of 2022. However, this schedule is dependent on moving through the project development process, with activities such as evaluation of project effect on the Westtown Inn (eligible for the historic register), Consulting Parties consultations, approval of overall environmental document, preliminary plan approvals, utility coordination, property acquisitions, and preparation of design plans and construction bid package.

S.R. 0926 Bridge Replacement over Radley Run

Through coordination with PennDOT, the Street Road (S.R. 0926) bridge located approximately 700 feet west of Bridlewood Boulevard is scheduled to be replaced. Design activity has been completed, which is being combined with other locations in Bridge Group M (MPMS 102318). The bid was awarded in January 2019, and the entire bridge group is scheduled for estimated completion in November 2020. As with other bridge groups, there is some flexibility in scheduling any one particular bridge within the overall construction duration.

Future Traffic Conditions

The total background growth, nearby development traffic volumes, and Orvis Way traffic diversions were then added to the existing traffic volumes, resulting in the future 2025 and 2030 without-development traffic volumes. Next, the site generated traffic volumes, as shown in **Figure 4B** and the Collector Road traffic diversions were added to the future 2025 and 2030 without-development traffic volumes, resulting in the future 2025 and 2030 with-development traffic volumes.

The resultant future 2025 build-out year peak hour traffic volumes without-development are illustrated in **Figure 5A,** and the future 2025 build-out year with-development peak hour traffic volumes are illustrated in **Figure 5B**. These traffic volumes were then analyzed to determine the future 2025 without- and with-development operating conditions, and the results of this analysis are shown in **Figures 5C and 5D.** Detailed spreadsheets summarizing the 2025 traffic projections, including regional growth, other development trip assignments, site trip assignments, and diversions for each intersection, are provided in **Appendix L.**

The resultant future 2030 design year peak hour traffic volumes without-development are illustrated in **Figure 6A,** and the future 2030 design year with-development peak hour traffic volumes are illustrated in **Figure 6B**. These traffic volumes were then analyzed to determine the future 2030 without- and with-development operating conditions, and the results of this analysis are shown in **Figures 6C and 6D.** Detailed spreadsheets summarizing the 2030 traffic projections, including regional growth, other development trip assignments, site trip assignments, and traffic diversions for each intersection, are provided in **Appendix M.**

Capacity/Level-of-Service Results

The peak hour traffic volumes were analyzed to determine the existing and future operating conditions, both without and with the proposed development, in accordance with the standard techniques contained in the current *Highway Capacity Manual, 6th Edition* for both signalized and unsignalized intersections. The HCM 6th Edition Methodology within Synchro 10.3 (build 122, rev. 0) traffic analysis software was utilized in the traffic analyses.

These standard capacity/level-of-service analysis techniques, which calculate total control delay, are described in **Appendix N** for both signalized and unsignalized intersections, as well as the correlation between average total control delay and the respective level-of-service (LOS) criteria for each intersection type.

According to PennDOT's *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permit Plans,* the following procedures and assumptions were utilized:

- For signalized intersections, the Pennsylvania base saturation flow rate (Exhibit 10-9) and Pennsylvania traffic signal control calibration parameters (Exhibit 10-10) outlined in PennDOT's *Publication 46, Traffic Engineering Manual*, were used.

- For unsignalized intersections, the base critical headways at TWSC intersections (Exhibit 10-11) and base follow-up headways at TWSC intersections (Exhibit 10-12) outlined in PennDOT's *Publication 46, Traffic Engineering Manual*, were used.

- All traffic signal timings at signalized intersections were optimized in without-development conditions.

- If the evaluation of without-development to with-development indicates the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase is greater than 10 seconds. If the overall intersection delay increase is less than or equal to 10 seconds, mitigation of the intersection will not be required.

The existing, future build-out year (2025) and design year (2030) traffic conditions, both without and with the proposed development, are summarized in **Figures 3B, 5C, 5D, 6C and 6D** while the detailed capacity/level-of-service analysis worksheets are provided in **Appendices O through S.**

The proposed development has no traffic impact at the study area intersections. With the Collector Road and resulting traffic diversions, vehicle delays are decreased at several study intersections. **Tables 6 and 7** below summarize the overall intersection results of the level-of-service analyses for the off-site study intersections for both peak hours. Detailed results of the level-of-service and queueing analysis are contained in the matrices provided in **Tables 8 and 9.**

Table 6. Overall Intersection Level-of-Service
Weekday Morning Peak Hour

Intersection	Existing	Future 2030 Without Development (optimized)	Future 2030 With Development	Requires Mitigation?
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	F 87.4	F 113.6	F 106.8	NO
U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road	A 0.3	A 0.7	A 0.8	NO
U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School	C 28.4	D 37.4	D 45.2	NO
Street Road (S.R. 0926) and New Street	C 30.8	D 36.4	C 22.8	NO
Street Road (S.R. 0926) and Bridlewood Boulevard/Collector Road	A 1.0	A 1.1	B 12.1	NO
New Street and West Pleasant Grove Road	A 5.4	A 5.7	A 4.9	NO
West Pleasant Grove Road and Dunvegan Drive	A 0.3	A 0.2	A 1.0	NO
West Pleasant Grove Road and Orvis Way	-	A 2.2	A 3.9	NO

Table 7. Overall Intersection Level-of-Service
Weekday Afternoon Peak Hour

Intersection	Existing	Future 2030 Without Development (optimized)	Future 2030 With Development	Requires Mitigation?
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	F 200.4	F 223.7	F 179.9	NO
U.S. Route 202 (Wilmington Pike) and Pleasant Grove Road	A 0.8	A 1.2	A 1.0	NO
U.S. Route 202 (Wilmington Pike) and Skiles Boulevard/Stetson School	B 16.8	C 23.4	C 30.9	NO
Street Road (S.R. 0926) and New Street	C 21.6	C 21.6	B 17.7	NO
Street Road (S.R. 0926) and Bridlewood Boulevard/Collector Road	A 0.9	A 0.9	B 19.0	NO
New Street and West Pleasant Grove Road	A 5.7	A 6.1	A 5.2	NO
West Pleasant Grove Road and Dunvegan Drive	A 0.2	A 0.2	A 0.8	NO
West Pleasant Grove Road and Orvis Way	-	A 2.0	A 7.3	NO

As shown in Tables 6 and 7 above, the proposed development does not have an overall level-of-service impact at any of the study intersections per PennDOT criteria. However, the applicant is committed to providing the following off-site intersection improvements:

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

Collector Road Access Analysis

Traffic analysis was completed at the proposed access intersections along the Collector Road through the Robinson Tract for the future 2030 with-development conditions. As shown in **Figure 7,** all of the proposed access intersections along the Collector Road will operate at highly acceptable LOS A overall and LOS B or better for all movements during both peak hours. The detailed traffic volume projections and traffic analysis worksheets are provided in **Appendix T**.

Queuing Analysis

A queuing analysis was completed at the study intersections based on the HCM 6th Edition methodology. The detailed results of the queuing analysis are provided in **Table 7** at the end of this report. Based on the results of the queuing analysis and with the recommended site access designs, as outlined previously in this report, the queues at the site access and Collector Road intersections with Street Road (S.R. 0926) and West Pleasant Grove Road are accommodated. Additionally, the queues

are accommodated within the available lane storages at the majority of the off-site study intersections. Significant queues occur at the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection during both peak hours. With the traffic diversions resulting from the construction of the Collector Road through the Robinson Tract as committed by the applicant, the queues are decreased at this intersection from without- to with-development conditions.

Significant queues occur along Stetson School drive at U.S. Route 202 (Wilmington Pike) due to the Collector Road traffic. These queues are accommodated with the intersection improvements the applicant is committed to providing to mitigate the Township's Collector Road traffic impact, subject to the ability to acquire any necessary additional right-of-way. A graphic illustration of the queues with the improvements is provided in **Appendix U**.

PennDOT U.S. Route 202, Section 100 Intersection Improvement Project

For informational purposes, traffic analysis has also been completed with construction of the PennDOT improvement project in preliminary engineering for the intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). In future 2030 with-development conditions and with implementation of PennDOT's project, the intersection is anticipated to operate at overall level of service E (62.2 seconds average overall delay) during the weekday morning peak hour and overall level of service F (137.4 seconds overall delay) during the weekday afternoon peak hour. Based on this analysis, PennDOT's project will further decrease overall intersection delay by approximately 20 to 40 percent during the peak hours. The detailed capacity/level-of-service worksheets are provided in **Appendix V**.

Conclusions and Recommendations

Based on trip generation data compiled for Multifamily Housing – Low Rise (ITE Land Use Code 220) and Single Family Detached Housing (ITE Land Use Code 210) contained in the Institute of Transportation Engineers (ITE) publication entitled, *Trip Generation Manual,10th Edition,* the proposed development will generate a total of approximately 198 "new" trips during the weekday morning peak hour and 259 "new" trips during the weekday afternoon peak hour.

Committed Improvements

Per the traffic evaluation, the following on-site and off-site traffic improvements are committed by the applicant to mitigate the proposed development traffic impacts, pending further coordination and approvals from the Township and PennDOT. Since some of these improvements are within the state's right-of-way, or located at traffic signals under the jurisdiction of PennDOT, coordination with PennDOT will be required to implement these improvements for issuance of a Highway Occupancy Permit. The Township will be included in all correspondence with PennDOT.

Site Accesses and On-Site Improvements

Street Road (S.R. 0926) and Bridlewood Boulevard/Proposed Collector Road

- Collector Road is classified as a local road per PennDOT criteria.
- Provide one ingress lane for the Collector Road.
- Provide two egress lanes for the Collector Road, including a dedicated left-turn lane and a shared through/right-turn lane.
- Restripe the Bridlewood Boulevard egress approach to modify the existing right-turn lane to a shared through/right-turn lane.
- Provide a 150-foot left-turn lane along eastbound Street Road (S.R. 0926). Note that a 120-foot left-turn lane exists along westbound Street Road (S.R. 0926).
- Provide a 150-foot right-turn deceleration lane along westbound Street Road (S.R. 0926).
- Install a traffic signal.

West Pleasant Grove Road and Proposed Access (Road K)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Proposed Access (Road M)

- Access is classified as a low volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the site access.
- Provide stop-control on the site access egress approach.

West Pleasant Grove Road and Collector Road

- Collector Road is classified as a medium volume driveway per PennDOT criteria.
- Provide one ingress lane and one egress lane for the Collector Road.

- Provide stop-control on the Collector Road egress approach.

Collector Road

- The applicant will construct the Collector Road through the property between Street Road (S.R. 0926) and West Pleasant Grove Road, which will alleviate traffic at the congested U.S. Route 202 (Wilmington Pike)/Street Road (S.R. 0926) intersection, and reroute traffic currently using West Pleasant Grove Road and New Street as an alternate route to avoid that delay. The overall delays at several study intersections decrease in the with-development conditions versus without-development conditions, due to the diversion of traffic to the Collector Road. Additionally, the Collector Road will provide access to the proposed residential development within the Robinson Tract.
- Based on the estimated Collector Road weekday peak hour traffic volumes in this report, diverted traffic constitutes approximately 70 to 80 percent of the total, while approximately 20 to 30 percent is site traffic from the Robinson Tract.

Off-Site Traffic Improvements

Street Road (S.R. 0926) and New Street

- The applicant will complete traffic signal retiming optimization and provide equipment in order to coordinate with the proposed signal to the east.
- Although not necessary to mitigate traffic impact, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- It is noted that left turn lanes are warranted based on existing traffic volumes. Left-turn lanes along Street Road (S.R. 0926) cannot be provided within the existing right-of-way or with additional right-of-way from the Robinson Tract alone.

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

- The applicant will provide a dedicated right-turn lane along southbound Wilmington Pike (U.S. Route 202).

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School

- To mitigate the Township's Collector Road traffic impact along Stetson School, the applicant will restripe the eastbound approach to provide dual left-turn lanes and a shared through/right-turn lane and complete the necessary traffic signal phasing modifications.
- Additionally, the applicant will widen westbound Skiles Boulevard to provide a dedicated right-turn lane, subject to the ability to acquire any necessary additional right-of-way.

The traffic analyses contained herein reveal that efficient access to and from the proposed development can be provided, and furthermore, site-generated traffic is mitigated at the study area intersections with the committed improvements.

Table 8 - Level of Service Matricies

Street Road (S.R. 0926) and New Street

Time Period		Weekday Morning Peak Hour				Weekday Afternoon Peak Hour				
Design Year			2030 Design Year				2030 Design Year			
Development Condition		Existing	w/o Dev Base	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev Base	w/o Dev[1] Optimized	w/ Dev	w/ Dev w/ Impvts [2]
Street Road (S.R. 0926)	EB Left	A	A	A	A	B	B	B	B	B
	EB Thru									
	EB Right	8.1	9.0	9.2	9.2	12.3	13.4	15.0	12.8	12.8
	WB Left	A	A	A	A	A	A	A	A	A
	WB Thru				1.5					0.9
	WB Right	5.5	5.6	1.7	A 1.0	8.7	8.9	9.9	1.0	A 0.1
New Street	NB Left	C	C	C	C	C	C	C	C	C
	NB Thru									
	NB Right	34.4	34.7	34.8	34.8	32.5	32.7	29.8	32.4	32.4
	SB Left	F	F	F	F	D	D	D	D	D
	SB Thru									
	SB Right	106.9	130.7	82.2	82.2	48.9	55.0	43.4	44.3	44.3
Overall		C	D	C	C	C	C	C	B	B
		30.8	36.4	22.8	22.7	21.6	23.7	21.6	17.7	17.6

(1) Future traffic signal timings have been optimized.

(2) Improvements include the provision of a dedicated westbound right-turn lane.

Table 8 - Level of Service Matricies

Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
Street Road (S.R. 0926)	EB	Left	-	-	A 0.2	-	-	A 6.1
		Thru	(1)	(1)	A 1.8	(1)	(1)	A 7.0
		Right	(1)	(1)	A 0.0	(1)	(1)	A 3.4
	WB	Left	B 10.5	B 10.6	A 3.3	B 10.7	B 10.8	B 16.6
		Thru	(1)	(1)	A 3.8	(1)	(1)	A 8.6
		Right	-	-	A 3.2	-	-	A 7.4
Bridlewood Boulevard	NB	Left	C 18.9	C 19.9	D 42.7	C 20.1	C 21.3	D 46.2
		Thru	-	-	C	-	-	C
		Right	B 13.4	B 13.7	33.4	B 13.7	B 14.0	27.0
Collector Road	SB	Left	-	-	C 35.0	-	-	C 28.1
		Thru			D			D
		Right			52.1			49.9
Overall			A 1.0	A 1.1	B 12.1	A 0.9	A 0.9	B 19.0

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev [1]	w/ Dev	Existing	w/o Dev [1]	w/ Dev
Street Road (S.R. 0926)	EB	Left	F 187.3	F 195.4	F 187.2	F 121.6	F 194.2	F 167.0
		Left Thru Right	F 196.8	F 206.9	F 187.3	F 142.9	F 211.2	F 162.5
	WB	Left	E 68.3	F 85.0	F 85.0	E 69.5	F 94.6	E 79.6
		Thru	E 69.5	F 94.3	F 99.5	E 72.9	F 109.3	F 109.0
		Right	E 61.0	D 51.8	D 51.8	E 59.5	D 48.8	D 47.8
U.S. Route 202 (Wilmington Pike)	NB	Left	F 84.7	E 67.8	E 66.8	F 82.5	E 63.7	E 60.9
		Thru	D 50.2	F 82.0	F 88.6	E 56.7	F 79.2 (v/c > 1.0)	F 79.2 (v/c > 1.0)
		Right	C 23.2	C 20.9	C 21.4	C 25.2	C 20.8	C 20.8
	SB	Left	F 86.1	E 64.3	E 67.2	F 142.8	E 74.3	E 68.4
		Thru	F 76.8 (v/c > 1.0)	F 111.6	F 98.3	F 438.2	F 445.0	F 379.4
		Thru Right	F 83.3	F 125.0	F 103.1	F 422.9	F 432.3	F 359.3
Overall			F 87.4	F 113.6	F 106.8	F 200.4	F 223.7	F 179.9

(1) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year				2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]
Pleasant Grove Road	EB	Right	C 20.3	C 16.0	C 15.6	C 15.6	C 20.0	C 15.6	B 12.6	B 12.6
	WB	Right	C 24.8	D 27.2	D 27.2	D 27.2	C 22.1	C 24.1	C 19.7	C 19.7
U.S. Route 202 (Wilmington Pike)	NB	Left	C 18.5	B 14.5	C 15.4	C 15.4	C 17.3	B 13.7	B 14.1	B 14.1
		Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	SB	Left	C 22.6	C 23.1	C 23.1	C 23.1	C 23.2	C 24.9	C 19.4	C 19.4
		Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Overall			A 0.3	A 0.7	A 0.8	A 0.8	A 0.8	A 1.2	A 1.0	A 1.0

(1) Movement operates at free-flow conditions.

(2) Improvements include the provision of a dedicated southbound right-turn lane.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Church Full-Movement Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
		Right						
	WB	Left	A	A	A	A	A	A
		Thru	8.1	8.1	8.2	8.1	8.1	8.2
Church Full-Movement Access	NB	Left	A	A	B	B	B	B
			9.4	9.9	11.4	10.1	10.5	12.9
		Right	A	A	A	A	A	A
			0.0	0.0	0.0	8.2	8.4	8.4
Overall			A	A	A	A	A	A
			0.4	0.3	0.2	0.3	0.3	0.2

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Orvis Way (By Others)

Time Period		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Design Year		2030 Design Year		2030 Design Year	
Development Condition		w/o Dev	w/ Dev	w/o Dev	w/ Dev
West Pleasant Grove Road	Left	A	B	A	B
EB	Thru	8.9	10.3	9.0	10.9
WB	Thru	(1)	(1)	(1)	(1)
	Right				
Orvis Way (By Others)	Left	B	B	B	C
SB	Right	10.0	14.0	10.6	17.6
Overall		A	A	A	A
		2.2	3.9	2.0	7.3

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Church Egress Only Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
	WB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
Church Egress Only Access	NB	Left	A	A	A	A	A	A
		Right	0.0	0.0	0.0	0.0	0.0	0.0
Overall			A	A	A	A	A	A
			0.0	0.0	0.0	0.0	0.0	0.0

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Collector Road

Time Period		Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year		2030 Design Year	2030 Design Year
Development Condition		w/ Dev	w/ Dev
West Pleasant Grove Road	EB Thru/ Right	(1)	(1)
	WB Left/ Thru	A 9.1	B 11.3
Collector Road	NB Left	A	B
	NB Right	9.5	11.2
Overall		A 5.4	A 7.5

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Road M

Time Period		Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year		2030 Design Year	2030 Design Year
Development Condition		w/ Dev	w/ Dev
West Pleasant Grove Road	EB Thru/ Right	(1)	(1)
	WB Left/ Thru	A 8.3	A 7.5
Road M	NB Left	A	A
	NB Right	8.7	9.1
Overall		A 0.6	A 0.6

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Dunvegan Road / Road K

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Left	A	A	A	A	A	A
		Thru	0.0	0.0		8.9	9.0	
		Right	-	-	0.0	-	-	8.8
	WB	Left	-	-	A	-	-	A
		Thru	(1)	(1)		(1)	(1)	
		Right			8.2			8.3
Road K	NB	Left	-	-	A	-	-	B
		Thru						
		Right			9.7			10.0
Dunvegan Road	SB	Left	B	B	B	B	B	B
		Thru						
		Right	10.0	10.5	10.4	10.0	10.3	10.1
Overall			A	A	A	A	A	A
			0.3	0.2	1.0	0.2	0.2	0.8

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

New Street and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	WB	Left	B	B	B	B	B	B
		Right	12.7	13.9	13.0	13.2	14.5	13.8
New Street	NB	Thru	(1)	(1)	(1)	(1)	(1)	(1)
		Right						
	SB	Left	A	A	A	A	A	A
		Thru	8.7	8.9	8.9	8.5	8.6	8.7
Overall			A	A	A	A	A	A
			5.4	5.7	4.9	5.7	6.1	5.2

(1) Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School Drive

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year				2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev [1]	w/ Dev [1]	w/ Dev w/ Impvts [2]	Existing	w/o Dev [1]	w/ Dev [1]	w/ Dev w/ Impvts [2]
Stetson School Drive	EB	Left	D 43.5	E 68.9	F 158.4	E 78.5	D 38.2	D 55.0	F 87.4	D 53.9
		Thru	C 33.8	D 39.8	D 38.0	D	C 32.6	D 40.2	C 34.3	D
		Right	C 32.3	D 37.8	D 36.2	39.6	C 30.6	D 37.6	C 32.1	36.7
Skiles Boulevard	WB	Left	D 38.2	D 47.6	D 45.4	D 53.1	D 35.4	D 45.8	D 39.1	D 52.6
		Thru	D	D	D	E 67.0	C	D	C	D 50.6
		Right	36.6	44.0	41.4	D 51.8	33.4	40.8	34.9	E 58.2
U.S. Route 202 (Wilmington Pike)	NB	Thru (2)	F 37.9 (v/c > 1.0)	F 50.3 (v/c > 1.0)	F 54.0 (v/c > 1.0)	F 52.2 (v/c > 1.0)	B 18.1	C 25.5	C 33.5	C 30.6
		Right	A 6.0	A 7.0	A 7.8	A 7.6	A 4.5	A 5.8	A 8.3	A 7.9
	SB	Thru (2)	B 19.1	C 25.1	C 30.0	C 29.2	B 12.7	B 17.2	C 21.7	C 20.5
		Right	A 7.6	A 9.0	A 10.0	A 9.9	A 4.9	A 6.3	B 11.1	B 10.6
Overall			C 28.4	D 37.4	D 45.2	D 41.5	B 16.8	C 23.4	C 30.9	C 27.7

(1) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

(2) Impovements include restriping the eastbound approach to provide dual left-turn lanes and a through/right-turn lane, widening the westbound approach to provided a dedicated right-turn lane, and modifying the traffic signal phasing.

Table 9. 95th Percentile Queue Matrices

Street Road (S.R. 0926) and New Street

Time Period			Current Storage [1]	Future Storage [1]	Weekday Morning Peak Hour				Weekday Afternoon Peak Hour				
Design Year						2030 Design Year				2030 Design Year			
Development Condition					Existing	w/o Dev Base	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev Base	w/o Dev[2] Optimized	w/ Dev	w/ Dev w/ Impvts [2]
Street Road (S.R. 0926)	EB	Left	*2,200'*	*2,200'*	230	253	258	258	320	353	370	333	333
		Thru											
		Right											
	WB	Left	*4,700'*	*2,350'*	93	100	30	25	140	153	160	25	25
		Thru											
		Right		150'				25					0
New Street	NB	Left	-	-	140	150	153	153	125	135	125	138	138
		Thru											
		Right											
	SB	Left	-	-	480	563	398	398	383	430	378	338	338
		Thru											
		Right											

(1) Distance to adjacent signalized intersections shown in italics.

(2) Improvements include the provision of a dedicated westbound right-turn lane.

Table 9. 95th Percentile Queue Matrices

Street Road (S.R. 0926) and Bridlewood Boulevard / Collector Road

Time Period			Current Storage [1]	Future Storage [1]	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year						2030 Design Year			2030 Design Year	
Development Condition					Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
Street Road (S.R. 0926)	EB	Left	-	150'	-	-	0	-	-	30
		Thru	*2,400'*	*2,400'*	-	-	25	-	-	120
		Right	350'	350'	-	-	0	-	-	25
	WB	Left	120'	120'	25	25	25	25	25	25
		Thru	*2,300'*	*2,300'*	-	-	43	-	-	95
		Right	-	150'			25			25
Bridlewood Boulevard	NB	Left	-	-	25	25	28	25	25	25
		Thru			-	-	40	-	-	45
		Right			25	25		25	25	
Collector Road	SB	Left	-	-	-	-	43	-	-	25
		Thru					210			415
		Right								

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Time Period			Current Storage (1)	Future Storage (2)	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year						2030 Design Year			2030 Design Year	
Development Condition					Existing	w/o Dev (3)	w/ Dev (3)	Existing	w/o Dev (3)	w/ Dev (3)
Street Road (S.R. 0926)	EB	Left	450'	450'	885	850	805	673	758	588
		Left	*4700'*	*2,200'*	1018	983	880	800	875	608
		Thru								
		Right								
	WB	Left	200'	200'	235	253	253	320	350	323
		Thru	*680'*	*680'*	258	288	300	358	408	430
		Right	215'	215'	73	78	78	93	85	85
U.S. Route 202 (Wilmington Pike)	NB	Left	305'	305'	25	25	38	58	48	93
		Thru	*2,800'*	*2,800'*	960	1103	1140	1035	1080	1080
		Right	170'	170'	148	128	130	125	103	103
	SB	Left	375'	375'	98	88	103	213	155	158
		Thru	*4,400'*	*4,400'*	1195	1335	1193	3165	3133	2588
		Thru	*4,400'*	*4,400'*	1273	1470	1270	3193	3178	2588
		Right								

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

(3) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

Time Period			Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year		Current Storage [1]		2030 Design Year				2030 Design Year		
Development Condition			Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts [2]
West Pleasant Grove Road	EB Right	-	25	25	25	25	25	25	25	25
	WB Right	-	25	25	25	25	25	25	25	25
U.S. Route 202 (Wilmington Pike)	Left	350'	25	25	25	25	25	25	25	25
	NB Thru	*3,100'*	-	-	-	-	-	-	-	-
	Thru/ Right	*3,100'*	-	-	-	-	-	-	-	-
	Left	380'	25	25	25	25	33	43	33	33
	SB Thru	*1,200'*	-	-	-	-	-	-	-	-
	Thru/ Right	*1,200'*	-	-	-	-	-	-	-	-

(1) Distance to adjacent signalized intersections shown in italics.

(2) Improvements include the provision of a dedicated southbound right-turn lane.

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Church Full-Movement Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	-	-	-	-	-	-
		Right						
	WB	Left	0	0	0	0	0	0
		Thru						
Church Full-Movement Access	NB	Left	0	0	0	0	0	0
		Right	0	0	0	0	0	0

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Orvis Way (By Others)

Time Period		Weekday Morning Peak Hour		Weekday Afternoon Peak Hour	
Design Year		2030 Design Year		2030 Design Year	
Development Condition		w/o Dev	w/ Dev	w/o Dev	w/ Dev
West Pleasant Grove Road	EB Left	25	25	25	0
	EB Thru				
	WB Thru	-	-	-	-
	WB Right				
Orvis Way (By Others)	SB Left	25	25	25	70
	SB Right				

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Church Egress Only Access

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Thru	-	-	-	-	-	-
	WB	Thru	-	-	-	-	-	-
Church Egress Only Access	NB	Left	0	0	0	0	0	0
		Right						

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Collector Road

Time Period			Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year			2030 Design Year	2030 Design Year
Development Condition			w/ Dev	w/ Dev
West Pleasant Grove Road	EB	Thru/ Right	-	-
	WB	Left/ Thru	25	28
Collector Road	NB	Left	25	70
		Right		

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Road M

Time Period			Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Design Year			2030 Design Year	2030 Design Year
Development Condition			w/ Dev	w/ Dev
West Pleasant Grove Road	EB	Thru/ Right	-	-
	WB	Left/ Thru	0	0
Road M	NB	Left	25	0
		Right		

Table 9. 95th Percentile Queue Matrices

West Pleasant Grove Road and Dunvegan Road / Road K

Time Period			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	EB	Left	0	0	0	0	0	0
		Thru						
		Right	-	-		-	-	
	WB	Left	-	-	0	-	-	0
		Thru	-	-		-	-	
		Right						
Road K	NB	Left	-	-	25	-	-	25
		Thru						
		Right						
Dunvegan Road	SB	Left	0	0	0	0	0	0
		Thru						
		Right						

Table 9. 95th Percentile Queue Matrices

New Street and West Pleasant Grove Road

Time Period		Current Storage [1]	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Design Year				2030 Design Year			2030 Design Year	
Development Condition			Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
West Pleasant Grove Road	WB Left / Right	-	40	48	38	45	58	45
New Street	NB Thru / Right	*3,350'*	-	-	-	-	-	-
	SB Left / Thru	-	0	25	25	25	25	25

(1) Distance to adjacent signalized intersections shown in italics.

Table 9. 95th Percentile Queue Matrices

U.S. Route 202 (Wilmington Pike) and Skiles Boulevard / Stetson School Drive

Time Period					Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
Design Year			Current Storage [1]	Future Storage [2]		2030 Design Year				2030 Design Year		
Development Condition					Existing	w/o Dev [3]	w/ Dev [3]	w/ Dev w/ Impvts [4]	Existing	w/o Dev [3]	w/ Dev [3]	w/ Dev w/ Impvts [4]
Stetson School Drive	EB	Left	200'	200' (2 Lanes)	93	233	518	210	123	258	545	238
		Thru	-	-	140	185	180	220	118	175	160	228
		Right	200'		30	40	40		53	73	65	
Skiles Boulevard	WB	Left	350'	350'	53	118	115	125	25	78	70	83
		Thru	-	-	198	250	243	225	95	135	123	60
		Right		150'				88				98
U.S. Route 202 (Wilmington Pike)	NB	Thru (2)	*4,400'*	*4,400'*	818	1115	1135	1120	505	788	868	830
		Right	220'	220'	25	25	25	25	25	25	33	33
	SB	Thru (2)	*4,600'*	*4,600'*	545	775	853	843	403	628	678	655
		Right	200'	200'	93	145	163	178	33	60	203	215

(1) Distance to adjacent signalized intersections shown in italics.

(2) Future storage shown if different from existing conditions.

(3) Intersection to be equipped with traffic adaptive signal equipment which dynamically adjusts traffic signal timings and phasings based on real-time traffic demand, and therefore, traffic signal timings were optimized in each future scenario. This project is currently under construction by PennDOT.

(4) Impovements include restriping the eastbound approach to provide dual left-turn lanes and a through/right-turn lane, widening the westbound approach to provided a dedicated right-turn lane, and modifying the traffic signal phasing.

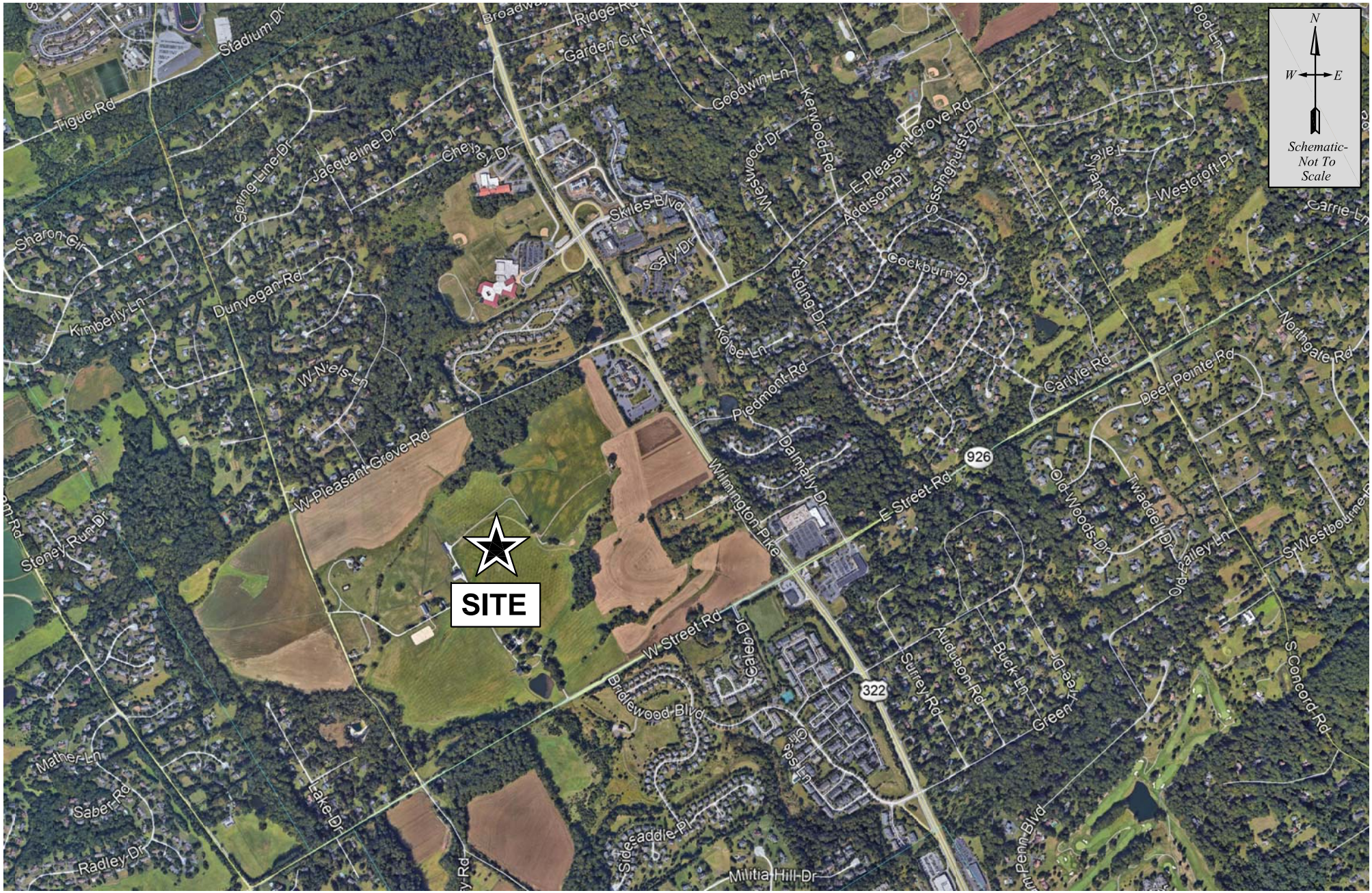


FIGURE 1
Site Location Map

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-08-08) I:\eng\816451 - Crebilly Farm\dwg\2019-08 Robinson Tract TIS\Figure 1.dwg

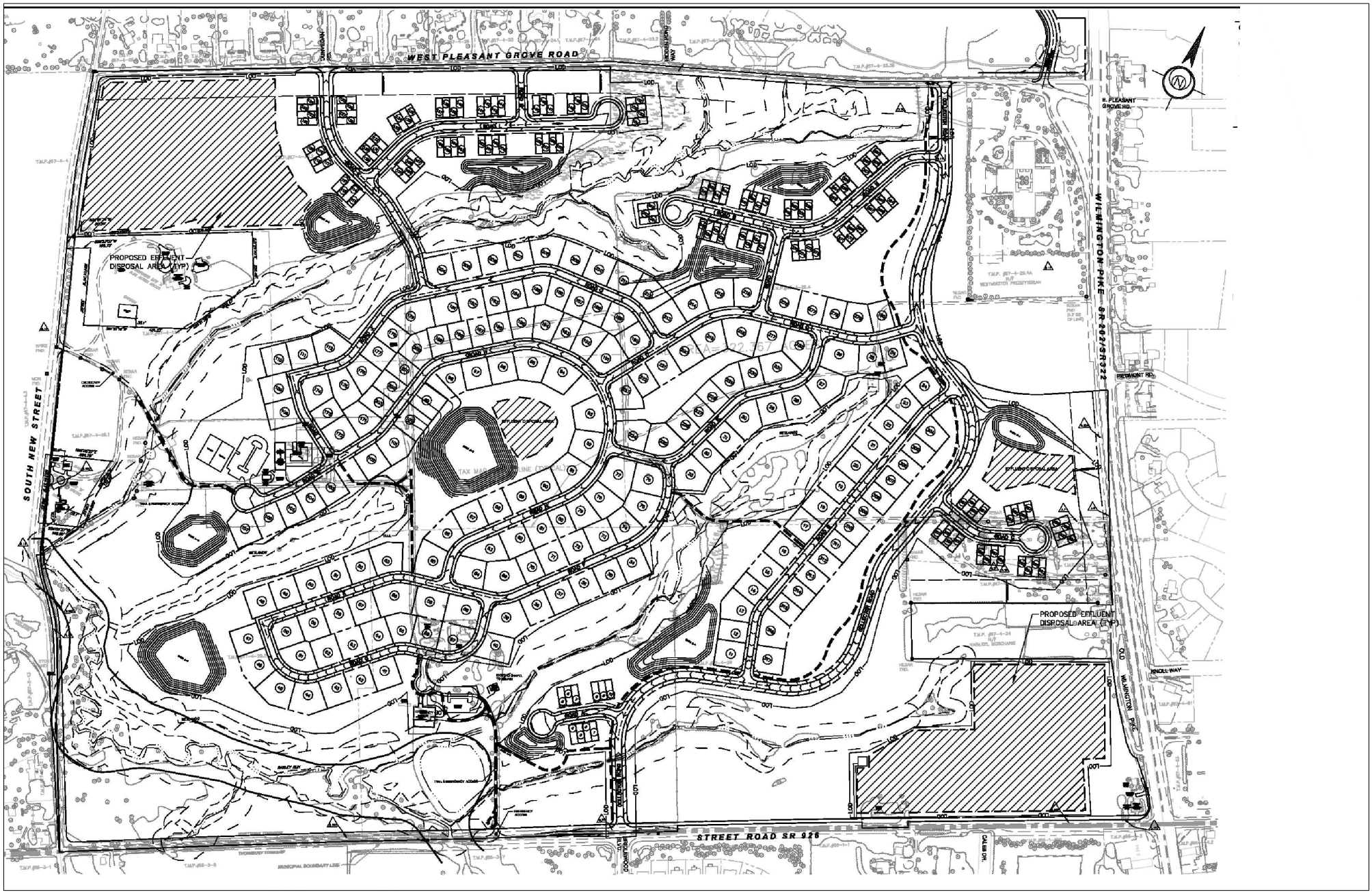


FIGURE 2
Site Plan

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2019-11-26) I:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 2.dwg

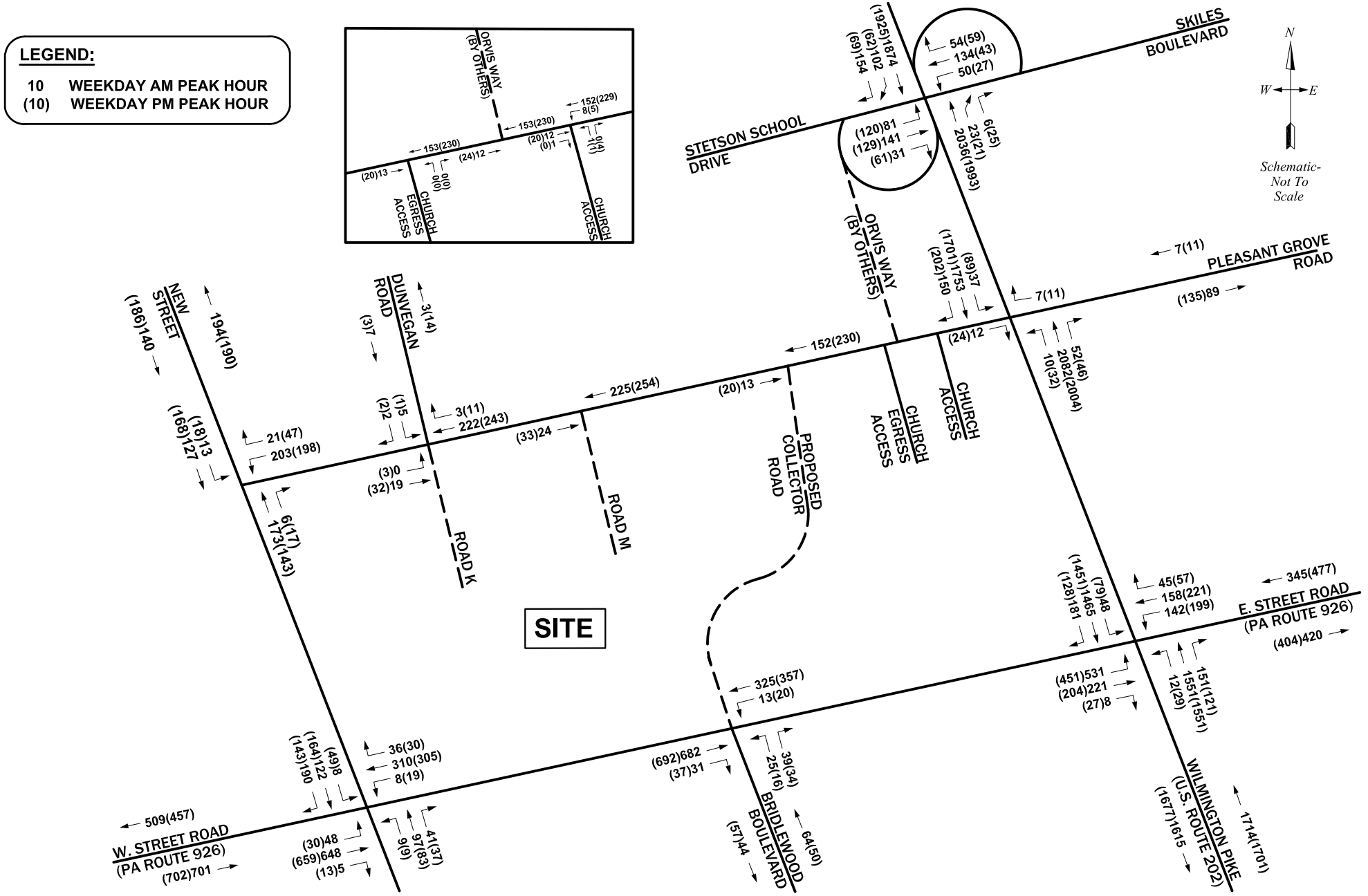


FIGURE 3A

Existing Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

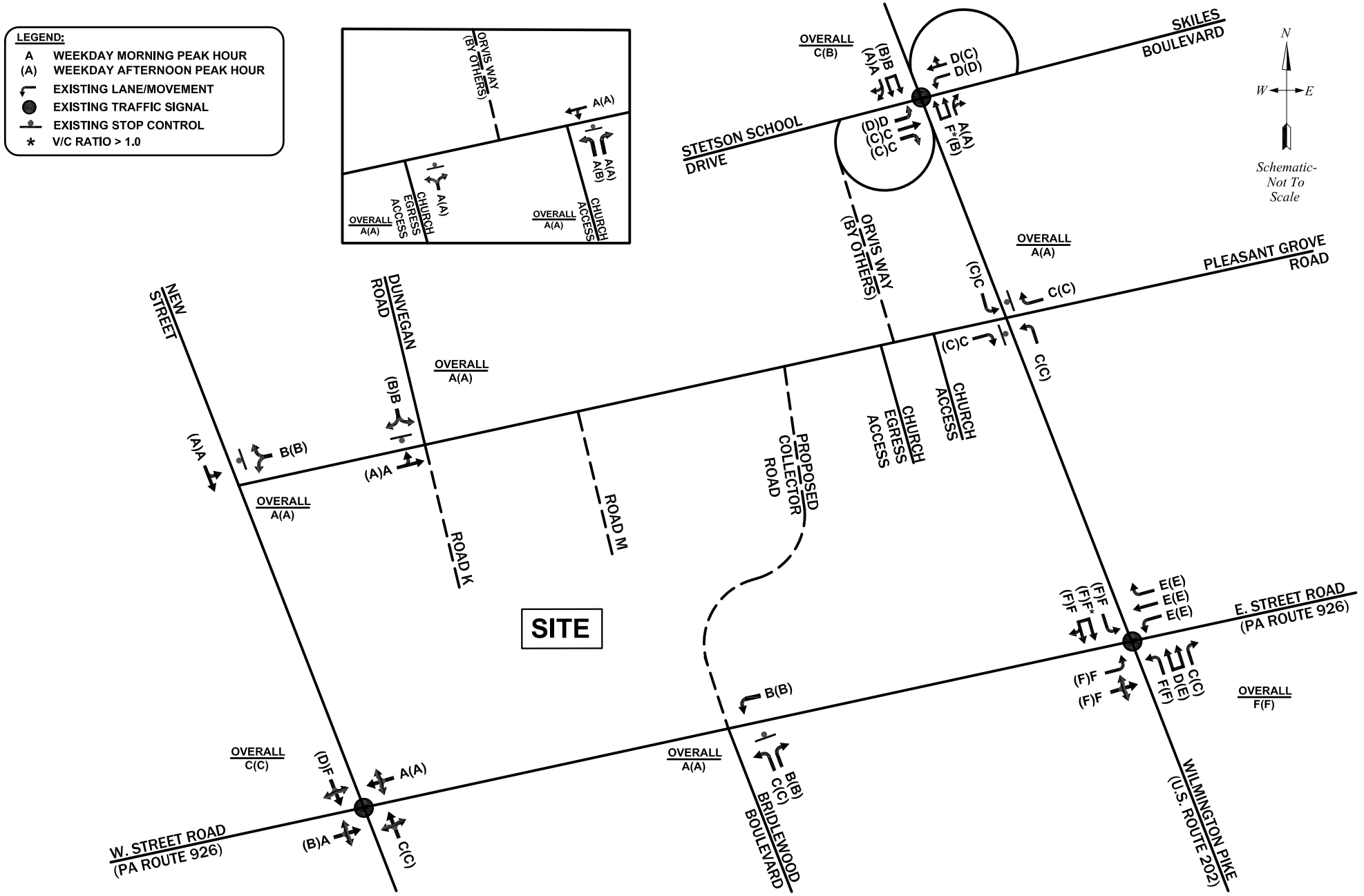


FIGURE 3B

Existing Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

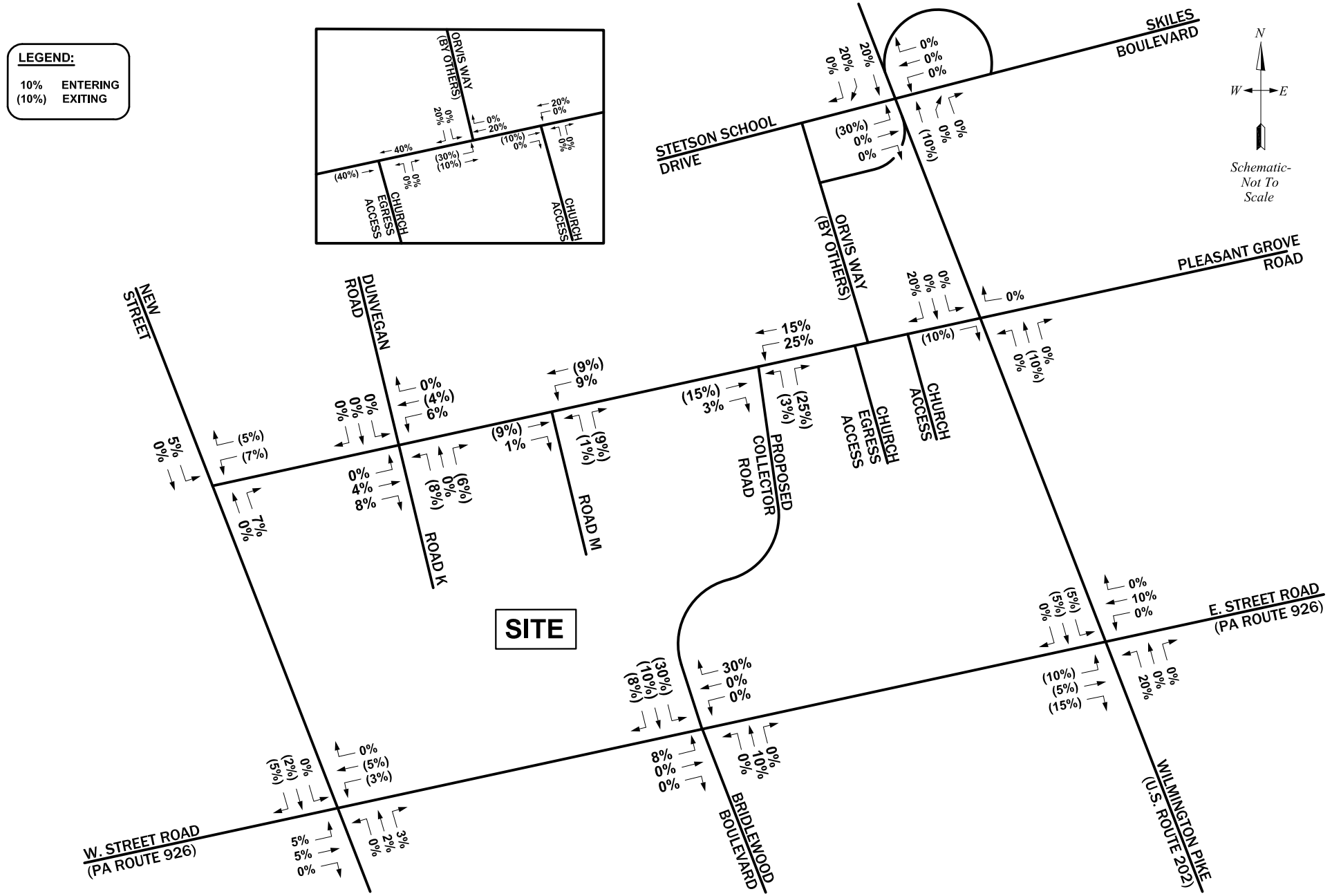


FIGURE 4A

New Site Trip Distributions

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

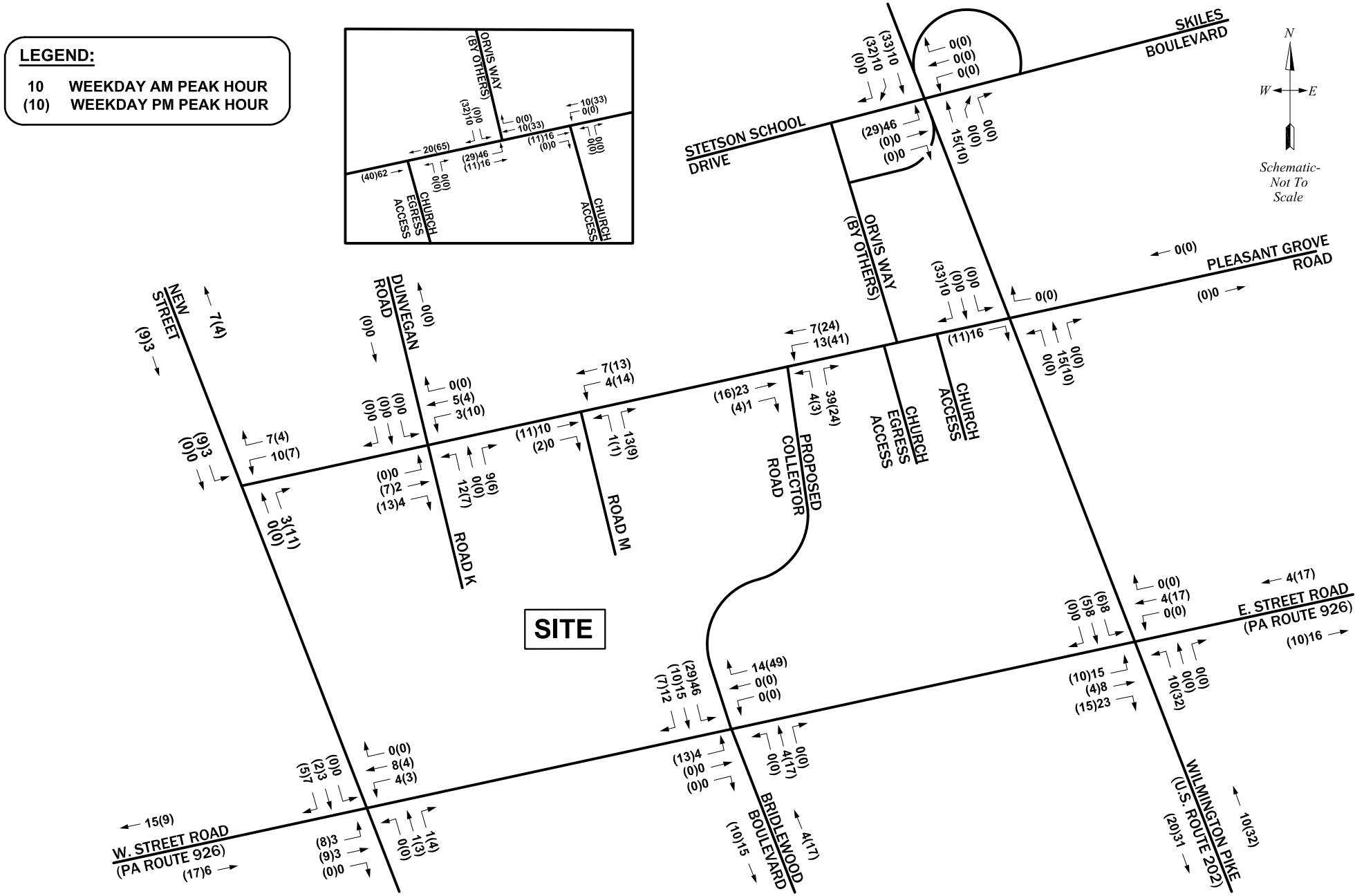


FIGURE 4B

New Site Trip Assignments

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

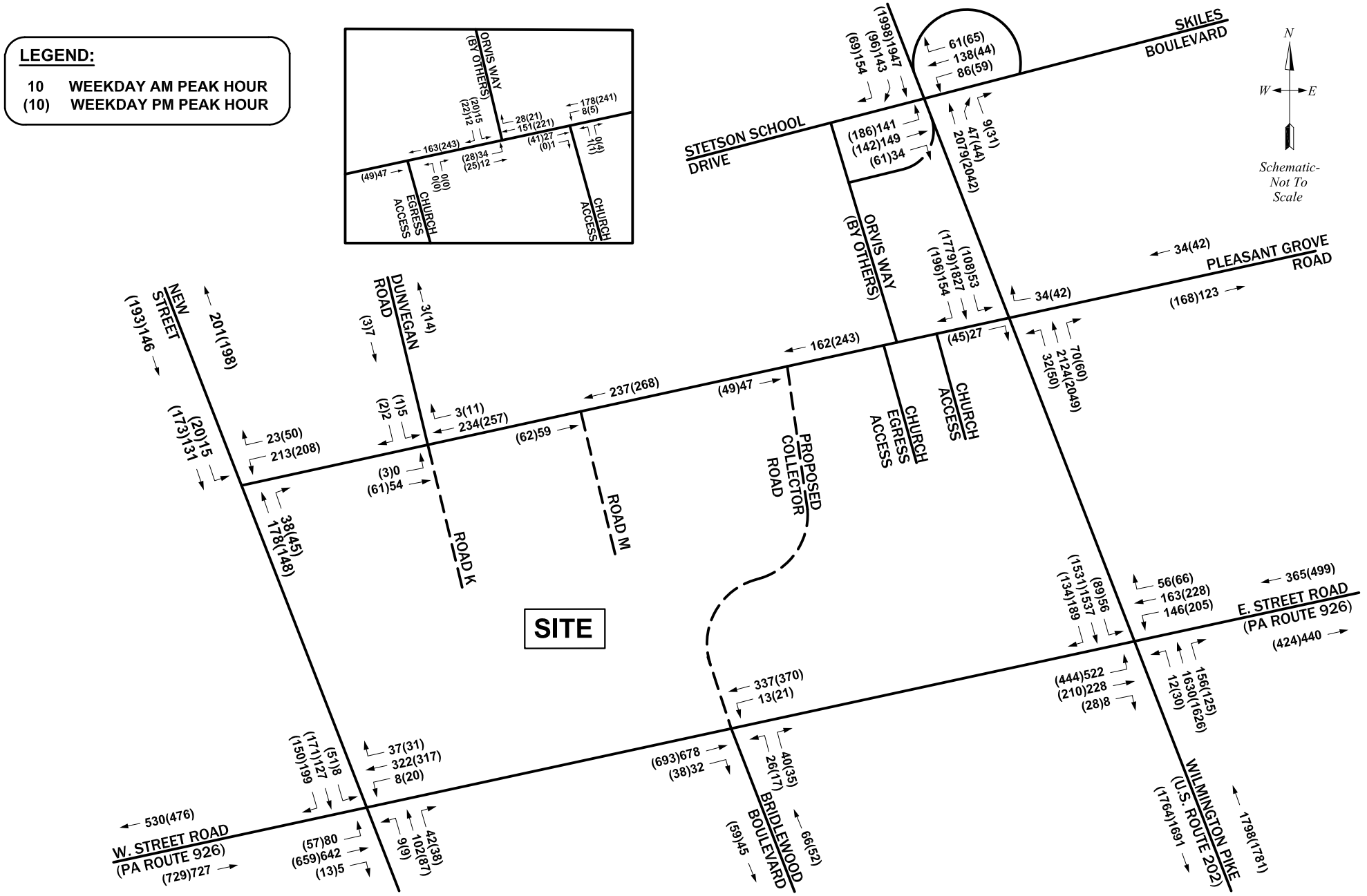


FIGURE 5A

2025 Build-Out Year without Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure 5A.dwg

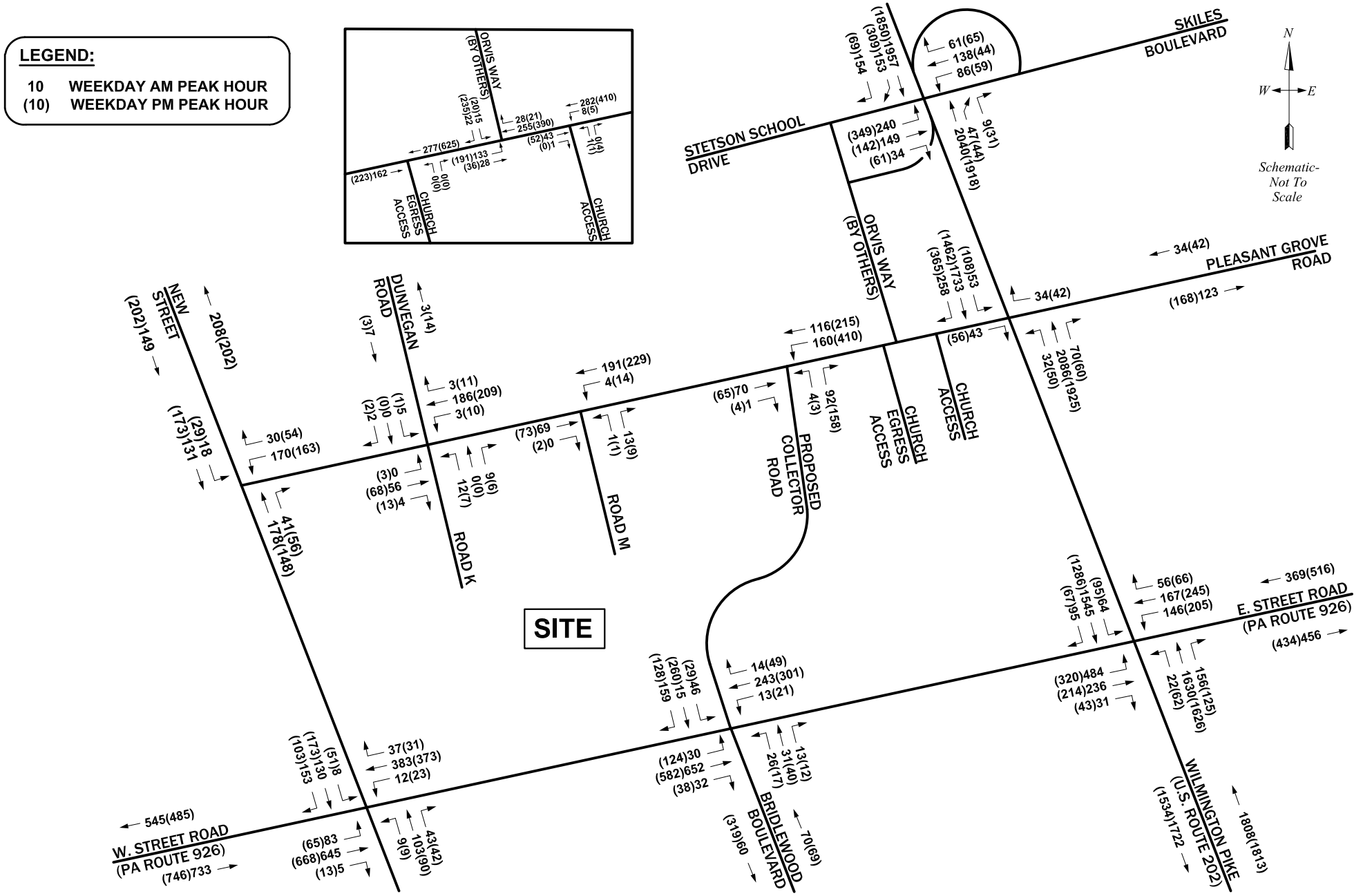


FIGURE 5B

2025 Build-Out Year with Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure 5B.dwg

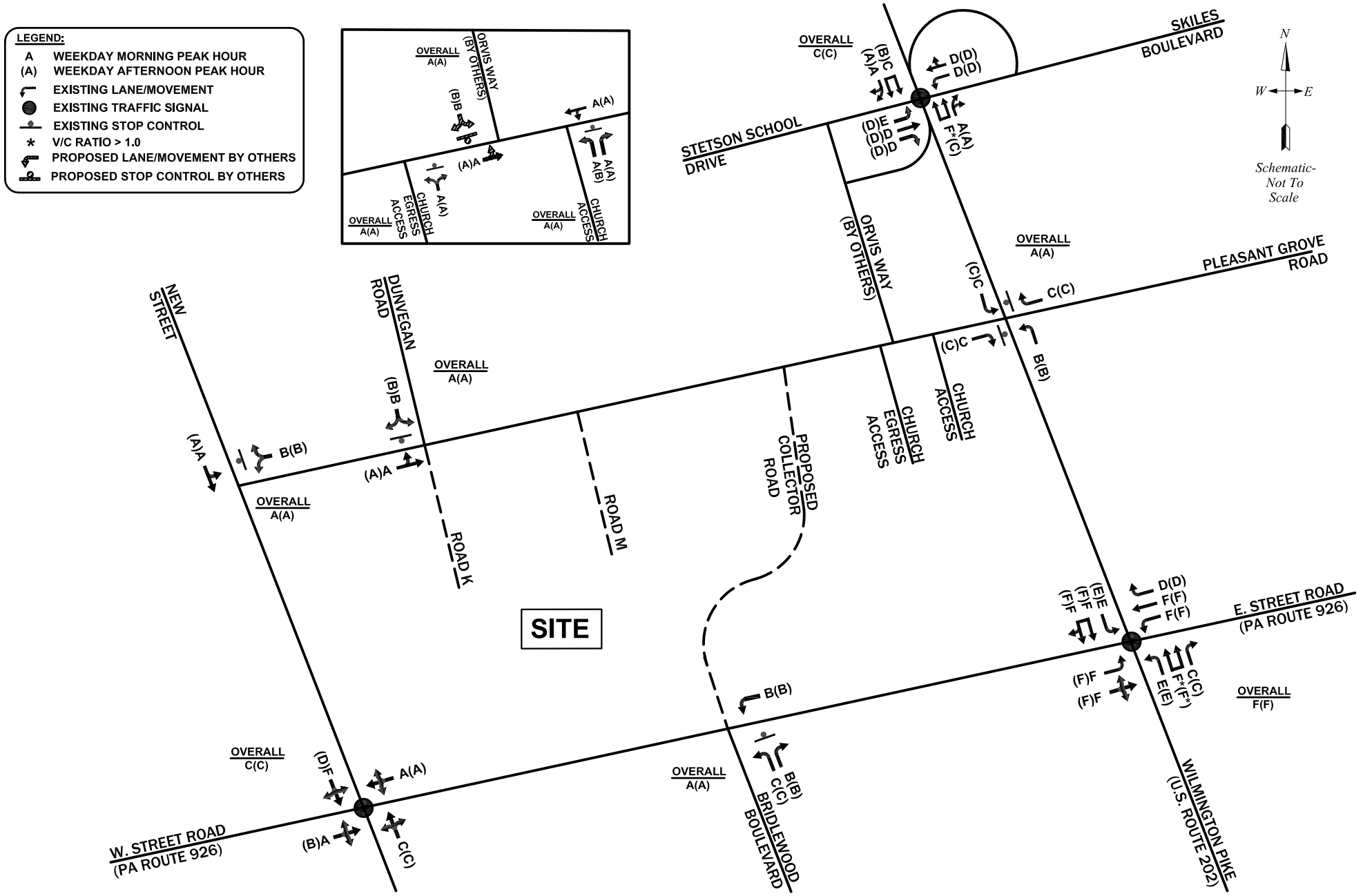


FIGURE 5C

2025 Build-Out Year without Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-05-15) I:\eng\816451 - Crebilly Farm\dwg\2020-05 Robinson Tract Revised TIS\Figure 5C.dwg

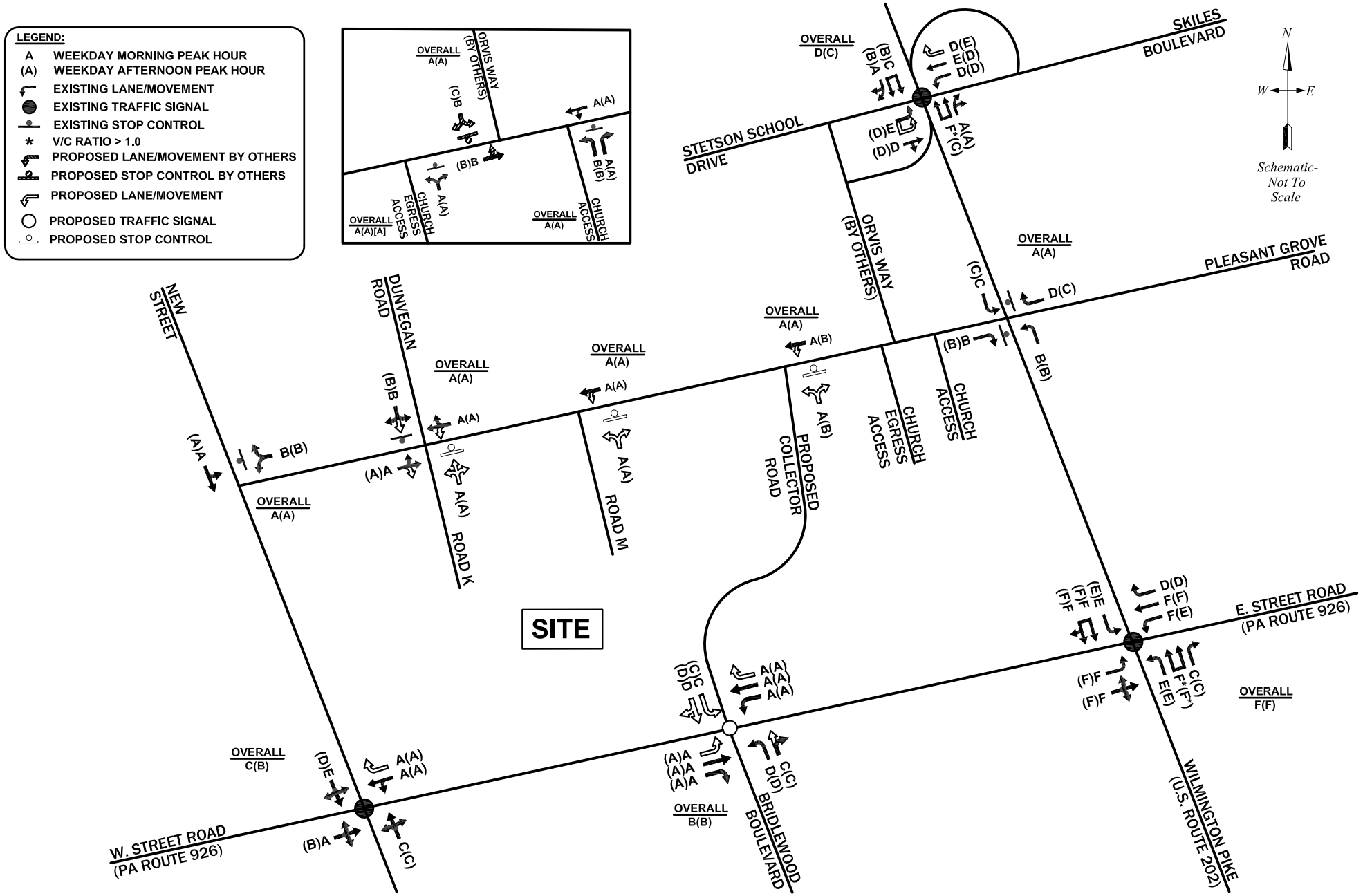


FIGURE 5D

2025 Build-Out Year with Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

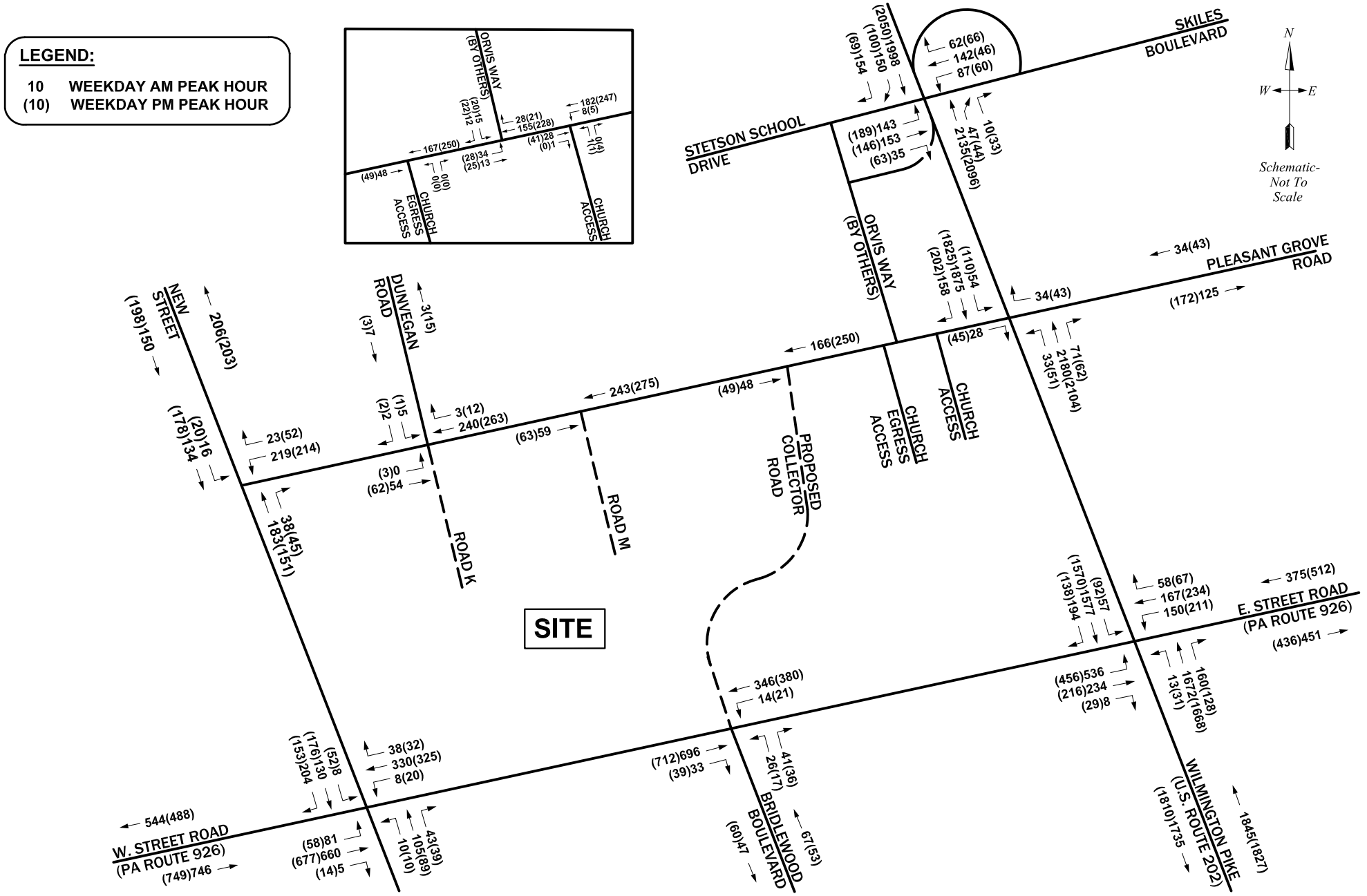


FIGURE 6A

2030 Design Year without Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

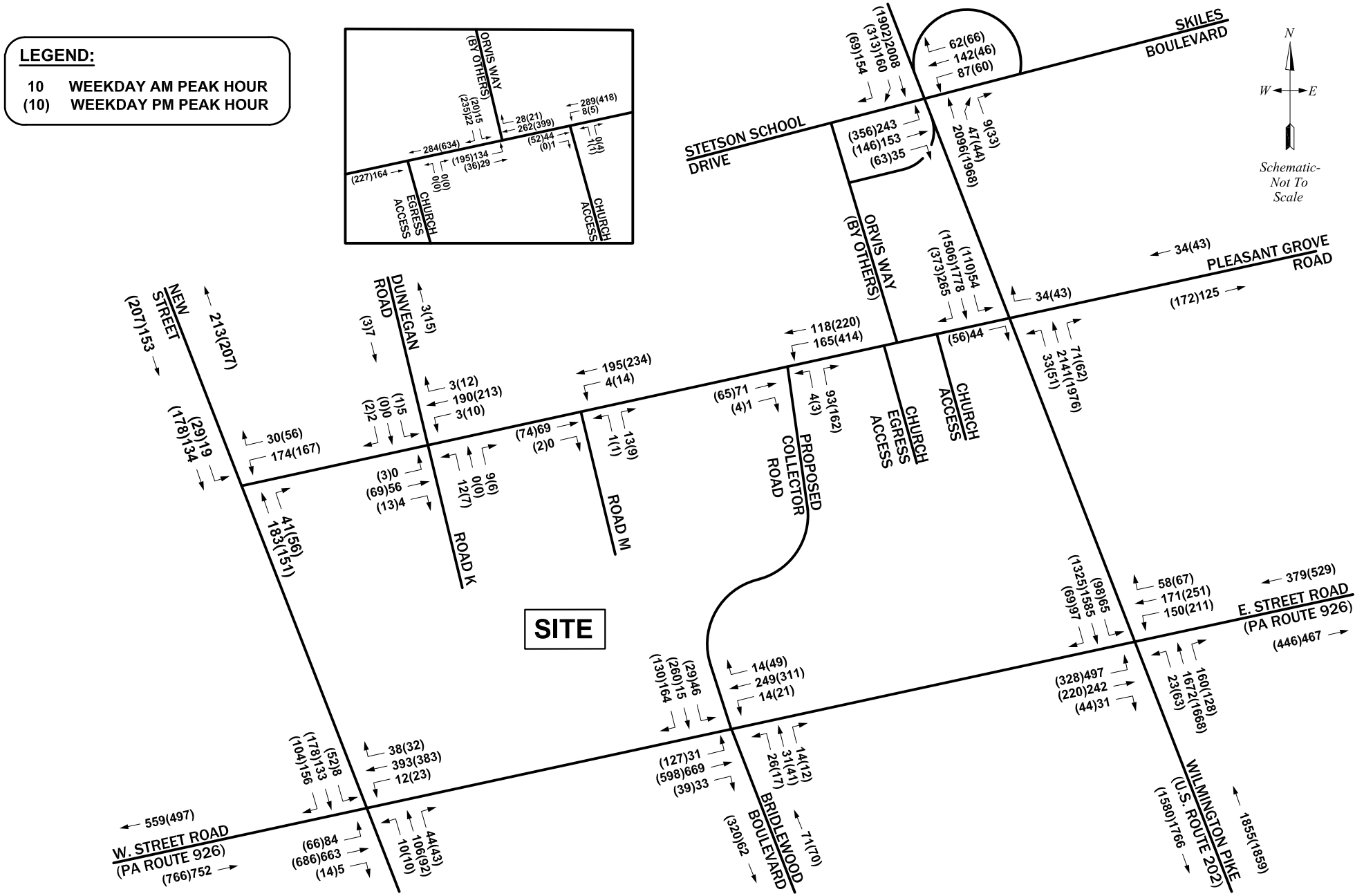


FIGURE 6B

2030 Design Year with Development Peak Hour Traffic Volumes

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure 6B.dwg

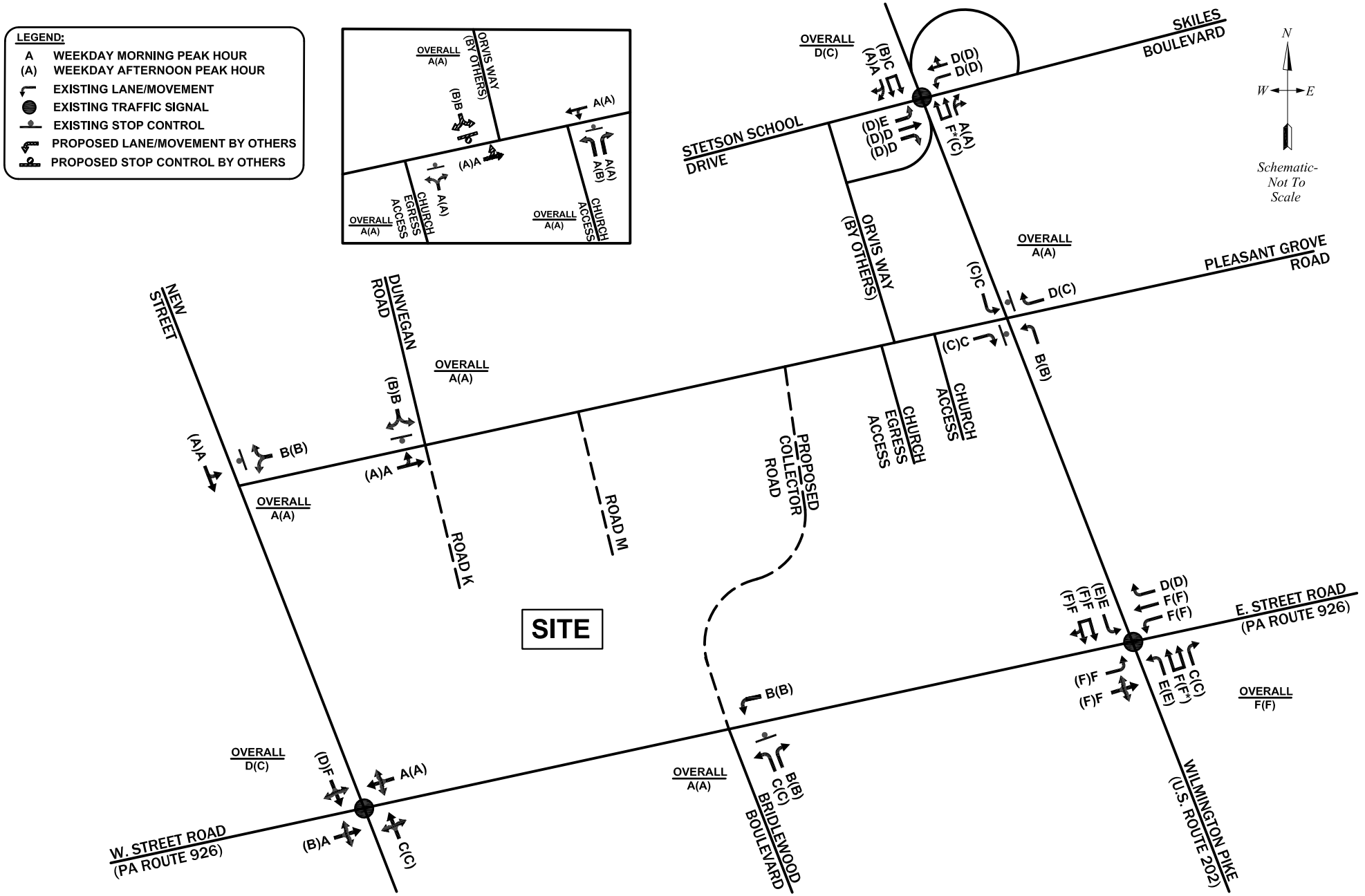


FIGURE 6C

2030 Design Year without Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-05-15) I:\eng\816451 - Crebilly Farm\dwg\2020-05 Robinson Tract Revised TIS\Figure 6C.dwg

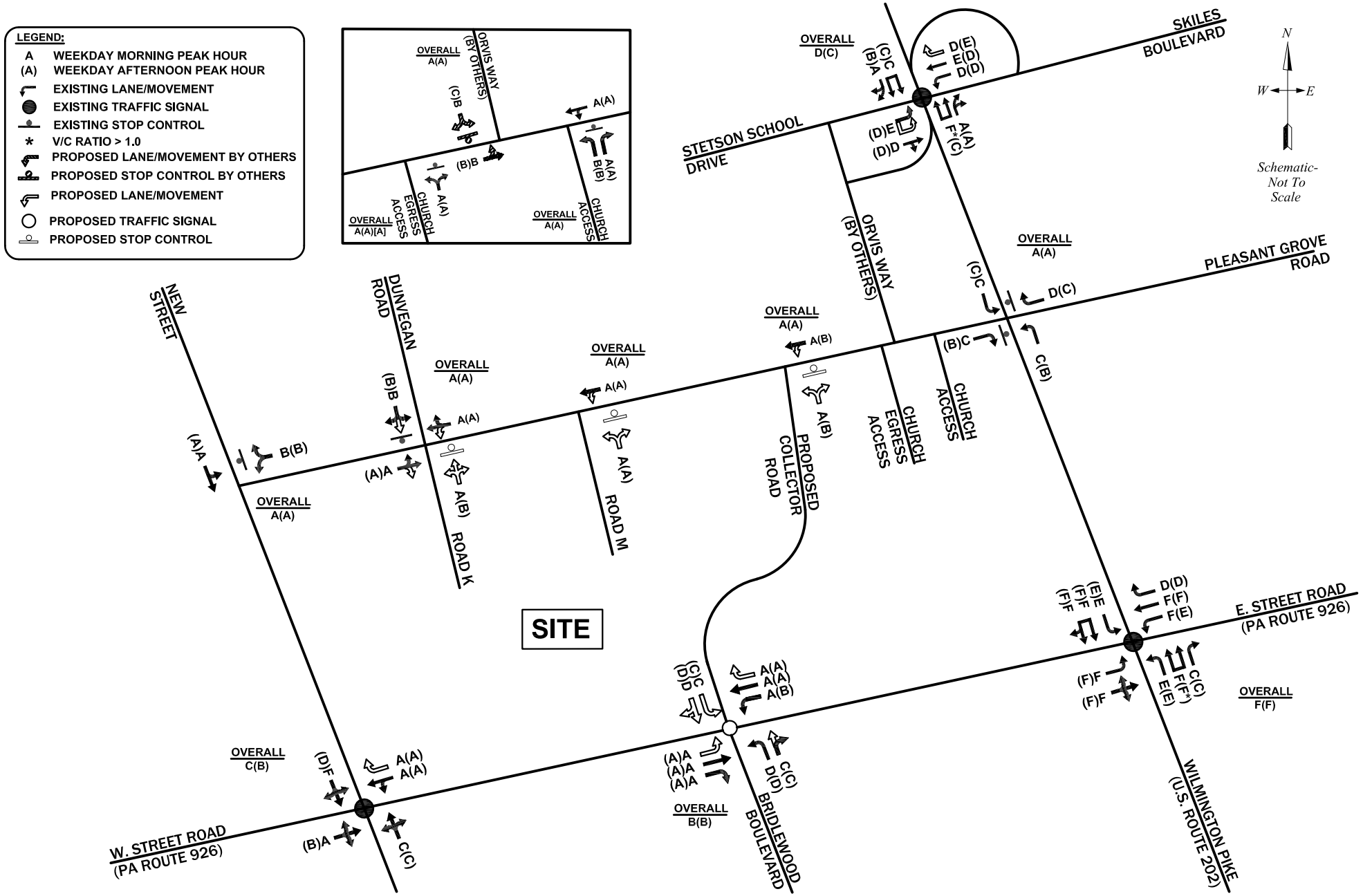


FIGURE 6D

2030 Design Year with Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

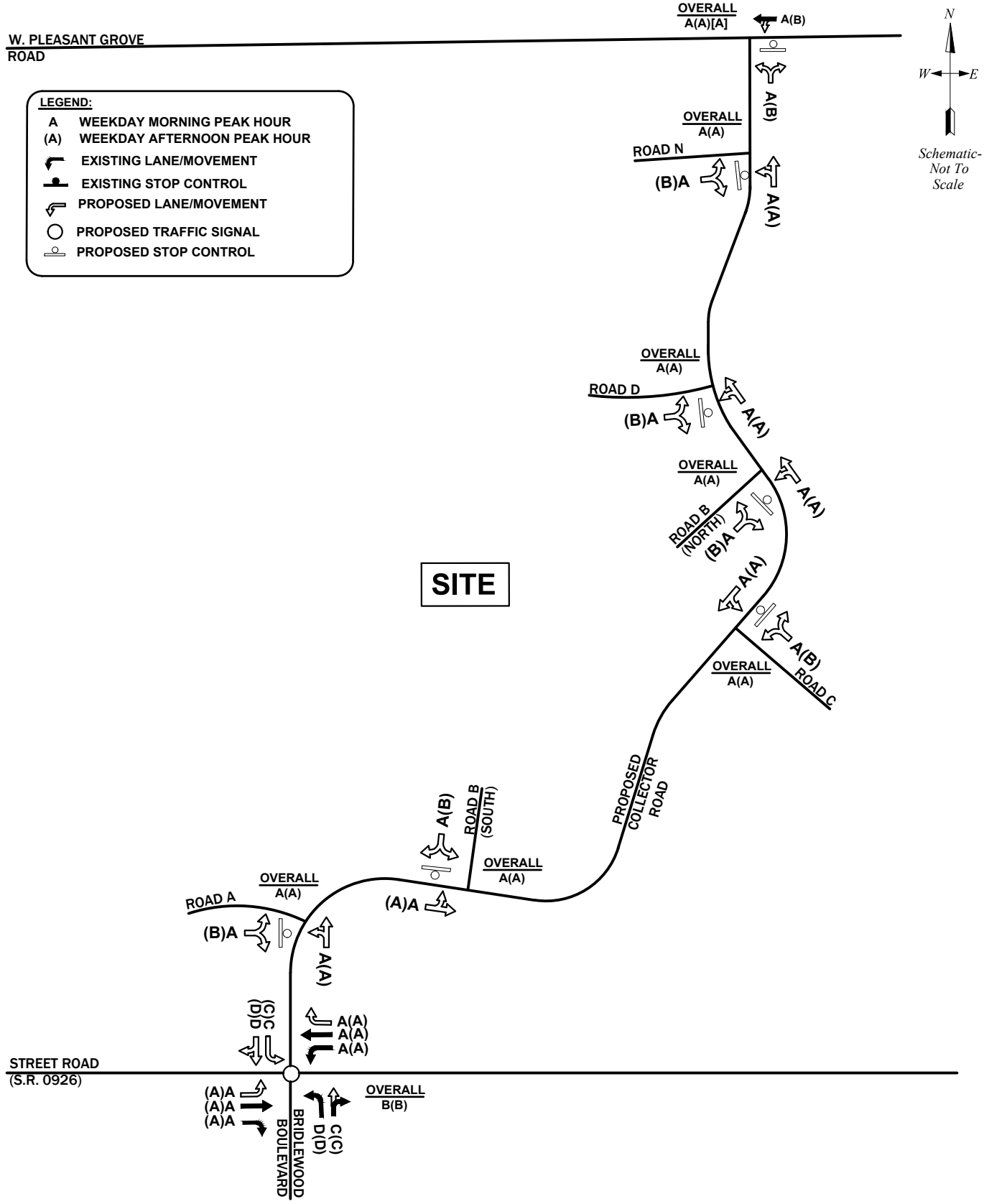


FIGURE 7

2030 Connector Road with Development Peak Hour Levels-of-Service

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix A

Correspondence

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Exton, PA 19341
p 610-594-9995 | f 610-594-9565

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FOUNDER
Joseph W. McMahon, P.E.

May 15, 2020

Mr. Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

RE: **Robinson Tract Residential Development**
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Russell:

McMahon Associates, Inc. is in receipt of the letter prepared by Albert Federico Consulting, LLC in their capacity as the Township traffic engineer, dated May 13, 2020, in regards to the Robinson Tract residential development conditional use application traffic review. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania.

The *Transportation Impact Study (TIS) for the Robinson Tract*, prepared by our office and dated most recently revised May 15, 2020 (original date of August 13, 2019), is part of the conditional use application as submitted by the applicant. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

To date the Applicant has not demonstrated compliance with the conditional use criteria in §170-2009.D(1)(h): In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. Most notably:

- *Traffic analyses which provide the basis for determining project impacts have not been updated to address the outstanding technical aspects associated with the:*
  - *Assumed traffic diversions*

    Response: As documented in the TIS within the conditional use application, based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic diversions in the applicant's studies.
  - *Signal operations at PA 926 and New Street*

    Response: As documented in the TIS within the conditional use application, the development has no traffic impact at this intersection, based on

PennDOT overall intersection mitigation criteria. Based on a meeting February 11, 2020, PennDOT required the applicant to revise the signal timings at PA 926 and New Street to provide a minimum of 63 seconds of green time along PA 926. This revision is included in the revised TIS, and results in no changes to the mitigation requirements or recommendations. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements. The current concept plan is attached.

- *An implementation strategy for necessary improvements has not been provided*

  Response: The applicant will provide an implementation strategy upon final land development approval and the HOP process. The transportation improvements will be completed prior to occupancy, as required.

- *The submitted Conditional Use plans do not:*
  - *Illustrate the scope of improvements required to provide compliant sight distance at several accesses*

    Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements.

  - *Adequately address access to West Pleasant Grove Road*

    Response: As documented in the transportation impact study, dated May 15, 2020, access is adequately addressed to West Pleasant Grove Road, as industry standard PennDOT traffic operations criteria are satisfied.

  - *Include compliant horizontal alignments of internal roadways*

    Response: Detailed horizontal and vertical profiles are not required during conditional use. Full engineering occurs during the land development process. The application satisfies the conditional use requirements including road profiles to determine preliminary compliance with Township natural feature, site analysis, conservation design process and density requirements. As documented in the conditional use application, the internal roadways are compliant with Township criteria.

While there has been limited recent coordination with the Applicant's Traffic Engineer and PennDOT these items and the other issues identified in the March 13, 2020 Traffic Review remain outstanding.

The following list of recommended transportation related improvements is also provided for the Planning Commission's consideration in the review of this Application.

Comment #1: *Connector Road, construct:*
a) Dimensionally compliant with Township standards for a Collector Road
b) With a sufficient pavement structure, as determined by the Township Engineer, to accommodate heavy equipment and truck traffic.
c) Reasonable traffic calming measures to maintain a consistent, appropriate travel speed.
d) Facilities accommodating:
i) Non-vehicular travel
ii) Personal vehicles waiting for school busses.

Response: a. This information is not required for conditional use. However, the applicant is providing a Connector Road design that is consistent with the Township standards, with a 28-foot cartway width and a 60-foot right-of-way, as documented in the conditional use application.

b. This information is not required for conditional use. However, the applicant has committed within the conditional use application to provide a pavement design in compliance with the Township's standards.

c. This information is not required for conditional use. The applicant is providing the Connector Road, as envisioned and as requested by the Township, as documented in the conditional use application. The applicant's original conditional use plan included a roadway design appropriate for a residential street. Traffic calming is inconsistent with the Township's requested Connector Road purpose and design.

d.i. This information is not required for conditional use. However, the applicant is providing facilities for non-vehicular traffic along the Connector Road, as documented in the conditional use application.

d.ii. This information is not required for conditional use, and school bus stops are not required pursuant to Township code. However, the applicant is providing designated school bus areas within the development, as documented in the conditional use application on the alternate plan.

Comment #2: *West Pleasant Grove Road, modify:*
a) Along the site frontage in a manner compliant with Township standards for a Collector Road
b) At the proposed local road site access(es) to control turning movements in a manner that enhances safety and aesthetics, preferably with roundabout(s)

c) At the Collector Road site access to control turning movements and connectivity with Orvis Way in a manner that enhances safety and aesthetics, preferably with a roundabout

Response: a. This information is not required for conditional use. However, the applicant is providing right-of-way and roadway widening along the West Pleasant Grove Road property frontage consistent with the Township standards for a Collector Road, as documented in the attached exhibit.

b. This information is not required for conditional use. The transportation impact study demonstrates that the site accesses satisfy industry standard PennDOT traffic operations criteria and safety with stop-control on the site access approach, as proposed by the applicant within the conditional use application. Aesthetics are not required by code.

c. This information is not required for conditional use. The transportation impact study demonstrates that the Collector Road intersection satisfies industry standard PennDOT traffic operations criteria and safety with stop-control on Collector Road approach. Aesthetics are not required by code. However, the applicant offers to install a mini roundabout at the Collector Road/West Pleasant Grove Road intersection as documented on the attached exhibit, provided the Township acquires any necessary right-of-way to install.

Comment #3 *PA 926 (Street Road), modify as determined appropriate in coordination with PennDOT and Thornbury Township:*
a) At the Connector Road site access to install a traffic signal and turn lanes
b) At New Street to:
i) Mitigate project impacts (as determined based n the review of revised analyses, submission pending) and to address PennDOT comments (currently by constructing eastbound and westbound left turn lanes)
ii) Provide appropriate non-vehicular connectivity
iii) Provide equipment for emergency pre-emption

Response: a. Page 2 of the executive summary of the transportation impact study dated revised May 15, 2020 within the conditional use application demonstrates the applicant will provide a traffic signal and turn lanes in accordance with PennDOT criteria at the PA 926/Connector Road intersection.

b.i. This information is not required for conditional use. As documented in the conditional use application, the development has no traffic impact at this intersection, based on PennDOT overall intersection mitigation criteria. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will

coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements.

b.ii. This information is not required for conditional use. In conjunction with the improvements PennDOT has requested the applicant to evaluate pedestrian facilities cross the southern leg of New Street and the eastern leg of PA 926, as documented in the attached concept plan. There will not be connectivity beyond the intersection since it crosses environmentally sensitive areas.

b.iii. This information is not required for conditional use. Emergency pre-emption exists at the intersection currently, and PennDOT requires it to be maintained.

Comment #4 *US Route 202, modify as determined appropriate in coordination with PennDOT*
a) At West Pleasant Grove Road to provide a southbound right turn lane as determined appropriate in coordination with PennDOT
b) At 926 to:
i) Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and address PennDOT comments
ii) Provide equipment for emergency pre-emption.

Response: a. The applicant has committed to provide this improvement on page 3 of the executive summary transportation impact study, dated revised May 15, 2020, within the conditional use application in coordination with PennDOT.

b.i. The development does not have a traffic impact at the intersection of US 202/PA 926 with provision of the Connector Road, as documented within the conditional use application.

b.ii. Emergency pre-emption exists at the intersection currently, and PennDOT requires it to be maintained.

Comment #5: *Non-vehicular elements, construct facilities connecting to existing and/or planned nonvehicular facilities, including:*
i) Arborview
ii) Orvis Way
iii) Bridlewood Boulevard
iv) Signalized intersection of US Route 202 and PA 926

Response: i. As documented in the conditional use application, the applicant is providing non-vehicular facilities from the development to the edge of the right-of-way at the Arborview property boundary. Connection to the Arborview trail is an offsite improvement that is not required.

ii. A non-vehicular connection is not required for conditional use, as this is an offsite improvement.

iii. As required by PennDOT, non-vehicular facilities will be provided in conjunction with the PA 926 Connector Road/Bridlewood Boulevard signalized intersection within the right-of-way.

iv. As documented in the alternate plan dated February 13, 2020, the applicant is provided non-vehicular facilities to connect the development to US 202/PA 926.

Comment #6: *Westminster Presbyterian Church, as determined appropriate by the Township and in coordination with the Church:*
a) Remove the existing westernmost driveway adjacent to the Connector Road
b) Provide for future access from the Westminster Presbyterian Church to the Collector Road at a mutually agreed upon location

Response: a. The applicant will not remove the church driveway. The church can close the driveway at their discretion.

b. As documented in the conditional use application plans, the applicant is providing an easement for the church to connect an access along the Connector Road.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

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May 15, 2020

Mr. Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

RE: **Robinson Tract Residential Development**
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Russell:

McMahon Associates, Inc. is in receipt of the Township's comment letter, prepared by Albert Federico Consulting, LLC in their capacity as the Township traffic engineer, dated March 13, 2020, in regards to the T*ransportation Impact Study for the Robinson Tract*, prepared by our office and last revised December 2, 2019. It is noted that the applicant was not sent a copy of this letter for review. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

Comment #1ai: *As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.*

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

Response: West Pleasant Grove Road does not meet the Collector Road standards under the Township's road specifications. The applicant has agreed to widen along the property frontage to meet the Township's Collector Road half-width requirement of 14 feet. Table 1 has been revised to note that the applicant will widen West Pleasant Grove Road along the property frontage to meet the Township's half-width requirement for Collector Roads.

Comment #1aii: *The sections of the TIS discussing improvements should note that the internal Collector Road provides access to the property.*

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

Response: Complies. The Collector Road is not necessary for access to the site, but does provide secondary access locations. Page 3 of the TIS has been revised accordingly.

Comment #1aiii: *As previously noted, the Crash Summary only includes data for State "Reportable" collisions. In order to provide a more complete assessment of transportation safety within the study area "Nonreportable" collisions should be included. Note that the Traffic Safety Office is unaware* of *an outstanding request for "more detailed information". The applicant should resubmit the request to the Traffic Safety Office and Township Traffic Engineer, including the specific details being requested.*

Status: Supplemental information has been provided to the applicant. Based on coordination with the Applicant it is anticipated that this information will be considered in the revised TIS.

Response: The Westtown-East Goshen Township Regional Police Department provided additional non-reportable crash data. This data was summarized and provided to the Township Traffic Engineer.

Comment #1aiv: *As previously noted, the scope of physical improvements required to provide acceptable sight distance to public roads should be clearly indicated on the plans.*

Status: The submitted correspondence requests deferring this item until "detailed engineering' is completed.

Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements.

Comment #1v: *As previously noted, confirm that the sight distance measurements consider the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. {§149-903.A(2)}*

Status: The submitted correspondence indicates that the measurements are based on the existing roadway.

Response: No further response required.

Comment #1vi: *Provide calculations supporting the assumed diversions associated with Orvis Way and the proposed Collector Road. Additionally, cross reference the Collector Road diversions within the body of the study with the figures in Appendix K.*

Status: Supplemental materials have been submitted in response to this comment. Coordination is on-going.

Response: As documented in the TIS within the conditional use application, based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic diversions in the applicant's studies.

Comment #1vii: *The Travel Time Comparisons presented in Appendix K should be revised to address the following:*
(1) Verify the assumed route lengths. The Diversion Routes generally appear to be shorter than the Base conditions.
(2) Ensure that the impacts of the regular queueing along US Route 202 North during the morning peak, extending from the interchange into the study area, is included.
(3) The evaluation of diversions should include an alternate that considerations operations following the completion of the PennDOT improvements planned for US Route 202 and PA Route 926.
(4) The traffic calming anticipated to be installed along Bridlewood Boulevard should be considered.

Status: Supplemental materials have been submitted which address these comments.

Response: No further response is needed.

Comment #viii: *As previously noted, the anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of vehicular conflicts. It is noted that*
(1) The applicant has indicated a willingness to widen the roadway along the property frontage, but additional clarification regarding the specific scope of work is warranted.
(2) West Pleasant Grove Road is designated as a Collector Road and the total Right-of-way shall be 60 feet and cartway width shall be 28 feet. {§149-903.A(2)}

Status: The submitted correspondences indicates that the Applicant will widen West Pleasant Grove Road along the frontage to Collector Road standards.

Response: No further response needed.

Comment #ix: *As previously noted, the future operations presented for PA Route 926 and New Street rely primarily on "optimized" traffic signal timings that appear unlikely to be approved by PennDOT. Written confirmation from PennDOT should be provided that the assumed "optimized" timings can be implemented. If confirmation cannot be provided an alternative analysis utilizing a timing approved by the Township should be provided.*

Status: Based on direction from PennDOT, it is anticipated that this analysis will be modified in the revised TIS.

Response: Based on a meeting February 11, 2020, PennDOT required the applicant to revise the signal timings at PA 926 and New Street to provide a minimum of 63 seconds of green time along PA 926. This revision is included in the revised TIS, and results in no changes to the mitigation requirements or recommendations.

Comment #x: *As previously noted, the Cross-Section Assumptions Exhibit for PA Route 926 and New Street in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.*

Status: The Applicant committed to PennDOT (and represented to the Planning Commission) that revised improvement concept(s) would be prepared for PennDOT and Township review and would be used to coordinate with the potentially affected property owners.

Response: The applicant has submitted a conceptual plan and is continuing to coordinate with PennDOT, Westtown Township, and Thornbury Township regarding improvements at the intersection of Street Road (S.R. 0926) and New Street. Traffic analysis worksheets documenting the results with the additional intersection improvements illustrated in the conceptual plans are attached.

Comment #xi: *As previously noted, Cost Estimates for necessary improvements to accommodate future traffic should be provided. {§149-804.A(10)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

Response: No further response needed.

Comment #xii: *As previously noted, an Implementation Strategy for necessary improvements to accommodate future traffic should be provided. {§149-804.A(11)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

Response: The applicant will provide an implementation strategy upon final land development approval and the HOP process. The transportation improvements will be completed prior to occupancy, as required.

Comment #2a: *The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 continues to be based in large part on assumed diversions. As noted above, additional supporting information and analyses should be provided.*
Status: Supplemental materials have been submitted and coordination is on-going. The Applicant has yet to submit a revised TIS.

Response: As documented in the revised TIS, based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic diversions in the applicant's studies.

Comment #2b: *The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans:*
i. US Route 202 at Pleasant Grove Road – Southbound Right Turn
Status: The submitted correspondences indicates that the Applicant will make this improvement and that plans will be provided there is "concurrence" regarding the scope of improvements.
ii. PA Route 926 at New Street – Eastbound Left Turn
Status: The submitted correspondence offers an opinion that this improvement is unwarranted. Based on direction from PennDOT it is anticipated that the analysis will be modified in the revised TIS.

Response: i. No further response is required.
ii. As documented in the TIS, the development has no traffic impact at this intersection, based on PennDOT overall intersection mitigation criteria. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements.

Comment #2ci: *Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):*

(1) Collector Road at PA Route 926 (grading)
(2) Road M at West Pleasant Grove Road (grading and/or roundabout)
(3) Collector Road at West Pleasant Grove Road (grading and/or roundabout)

Status: The submitted correspondences requests deferring addressing these items until "detailed engineering" is completed.

Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements. For the intersection of West Pleasant Grove Road and the Connector Road, the transportation impact study demonstrates that this intersection satisfies industry standard PennDOT traffic operations criteria and safety with stop-control on Collector Road approach. Aesthetics are not required by code. However, the applicant offers to install a mini roundabout at the Collector Road/West Pleasant Grove Road intersection, provided the Township acquires any necessary right-of-way to install. Traffic analysis worksheets for a mini roundabout at this location are attached.

Comment #2cii: *In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:*
(1) Road M should be removed
(2) Roads L and N should be extended to form a single road

Status: The submitted "Alternate" plan removed the external access without connecting the internal roadways. It has been conveyed to the Applicant on several occasions that these items are intended to be addressed together: connect the internal roads (to remove the cul-de-sacs) and remove the external access.

Response: There is no requirement under the ordinance for these two items to be addressed together. The proposed internal roadway design is safe and has sufficient internal connectivity. Removing Road M and extending roads L and N does not create any additional internal connectivity or enhance safety, rather it unnecessarily adversely impacts the environmentally sensitive areas in the northern portion of the property. This comment violates Section 170-1617.C.(2) of the Zoning Ordinance which provides that "potential development areas also shall be delineated so as to minimize intrusion into secondary conversation areas.

Comment #2ciii: *The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.*

Status: The submitted correspondences requests deferring this item until Land Development.

Response: No further response required.

Comment #2iv: *The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, in particular the exit-only driveway from the Westminster Presbyterian Church.*

Status: The driveway is reflected on the plan but is difficult to discern due to drafting. It appears the proposed site access to West Pleasant Grove Road (via the Collector Road) will impact the

Church Driveway. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road at a mutually agreed upon location.

Response: As documented in the alternate plan dated February 13, 2020, the applicant is providing an easement for the church to connect an access along the Connector Road.

Comment #2v: *The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.*

Status: The submitted correspondences indicates that right-of way is being offered. The Applicant does correctly note that the PennDOT project is not fully engineered. The plans should include a note indicating that other reasonable right-of-way and/or easement required for the improvements will be provided to PennDOT as needed.

Response: No further response needed.

Comment #2vi: *The following internal roadways should be reconfigured to remove geometric irregularities:*
(1) Road E and Road F (provide a curve)
(2) Road F and Road G (provide a curve)
(3) Road I and Road J (remove the jog within the intersection)

Status: The submitted materials do not adequately address these comments. The Applicant has represented to the Planning Commission that Stop signs will be used to compensate for these irregular designs. To date no information has been provided documenting that the signs would meet accepted warrants.

Response: The internal intersection design complies with section 149-907.A of the Township SALDO, which does not apply during the conditional use process.

Comment #vii: *Additional facilities should be provided to address non-vehicular connectivity, including:*
(1) A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}
(2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
(3) Sidewalks along proposed roads, including accessible crossings. {§149-916}
(4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}

Status: The submitted materials do not adequately address these comments. It is noted that a supplemental plan was presented to the Planning Commission which included a partial connection to Arborview and a trail from an internal roadway to the intersection of US Route 202 and PA Route 926.

Response: As documented in the conditional use application, the applicant is providing non-vehicular facilities from the development to the edge of the right-of-way at the Arborview property boundary. Connection to the Arborview trail is an offsite improvement that is not required. As required by PennDOT, non-vehicular facilities will be provided in conjunction with the PA 926 Connector Road/Bridlewood Boulevard signalized intersection within the right-of-way. As documented in the alternate plan, the applicant is provided non-vehicular facilities to connect the development to US 202/PA 926.

Comment #viii: *Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.*
Status: The Alternate Plan does indicate a location for potential access. To date there is no information indicating that this location has been reviewed with the Church. Based on initial coordination with the Church a location further south along the Collector Road may be preferred.

Response: As documented in the conditional use application plans, the applicant is providing an easement for the church to connect an access along the Connector Road.

Comment #ix: *Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.*
Status: The submitted correspondences requests deferring this item until Land Development.

Response: School Bus Stops are not required pursuant to Township code. However, the applicant is providing designated school bus areas within the development, as documented in the conditional use application on the alternate plan.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

ATTACHMENTS

Street Road (S.R. 0926) and New Street

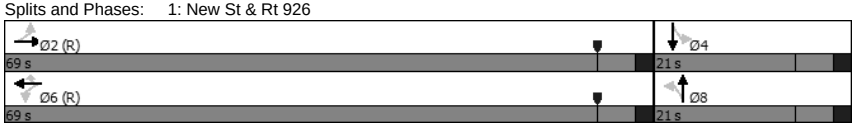
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	175		0	150		150	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.963			0.929	
Flt Protected	0.950			0.950				0.997			0.999	
Satd. Flow (prot)	1580	1630	0	1588	1562	1379	0	1586	0	0	1530	0
Flt Permitted	0.503			0.332				0.910			0.991	
Satd. Flow (perm)	837	1630	0	555	1562	1379	0	1448	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1				39						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	689	0	12	405	39	0	164	0	0	306	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%	76.7%	23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	-1.0		0.0	-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	5.0		6.0	5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
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	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	746	1281	9	479	1206	1040	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	985	1802	13	763	1696	1485	47	1240	487	17	756	859
Grp Volume(v), veh/h	87	0	689	12	405	39	164	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	985	0	1815	763	1696	1485	1773	0	0	1632	0	0
Q Serve(g_s), s	2.8	0.0	15.9	0.4	1.7	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	15.9	16.3	1.7	0.2	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
V/C Ratio(X)	0.12	0.00	0.53	0.03	0.34	0.04	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.99	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	0.0	6.1	4.0	0.8	0.9	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.6	0.1	0.7	0.1	1.1	0.0	0.0	44.5	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(95%),veh/ln	0.9	0.0	8.1	0.1	1.0	0.1	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.5	0.0	7.6	4.1	1.5	1.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		7.4			1.5			34.8			82.2	
Approach LOS		A			A			C			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	69.0	21.0	69.0	21.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	15.0	63.0	15.0
Max Q Clear Time (g_c+I1), s	17.9	17.0	18.3	9.6
Green Ext Time (p_c), s	7.4	0.0	3.5	0.2

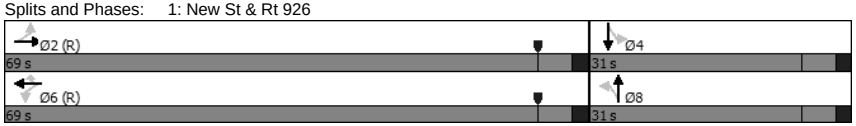
Intersection Summary	
HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	175		0	150		150	0		0	0		0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	75			75			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997				0.850		0.960			0.958	
Flt Protected	0.950			0.950				0.997			0.992	
Satd. Flow (prot)	1580	1628	0	1588	1562	1379	0	1579	0	0	1547	0
Flt Permitted	0.488			0.279				0.970			0.928	
Satd. Flow (perm)	812	1628	0	466	1562	1379	0	1536	0	0	1448	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2				33						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	68	721	0	24	395	33	0	149	0	0	345	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%	69.0%	31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-2.0	-1.0		-2.0	-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	4.0	5.0		4.0	5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
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	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	742	1181	23	408	1128	972	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	1000	1776	35	741	1696	1485	53	1184	518	197	930	507
Grp Volume(v), veh/h	68	0	721	24	395	33	149	0	0	345	0	0
Grp Sat Flow(s),veh/h/ln	1000	0	1811	741	1696	1485	1755	0	0	1634	0	0
Q Serve(g_s), s	2.4	0.0	22.2	1.1	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	22.2	23.3	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		1.00	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	742	0	1204	408	1128	972	469	0	0	442	0	0
V/C Ratio(X)	0.09	0.00	0.60	0.06	0.35	0.03	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	742	0	1204	408	1128	972	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.8	0.0	9.3	3.8	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.2	0.3	0.8	0.1	0.4	0.0	0.0	7.4	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(95%),veh/ln	0.8	0.0	12.2	0.2	0.5	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.1	0.0	11.5	4.1	0.8	0.1	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	A	A	B	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		789			452			149			345	
Approach Delay, s/veh		11.1			0.9			32.4			44.3	
Approach LOS		B			A			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	71.5	28.5	71.5	28.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	25.0	63.0	25.0
Max Q Clear Time (g_c+I1), s	24.2	22.1	25.3	9.0
Green Ext Time (p_c), s	7.4	0.4	3.5	0.4

Intersection Summary	
HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

West Pleasant Grove Road and Collector Road
Mini Roundabout

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	1	165	118	4	93
Future Volume (vph)	71	1	165	118	4	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.871	
Flt Protected				0.972	0.998	
Satd. Flow (prot)	1712	0	0	1676	1534	0
Flt Permitted				0.972	0.998	
Satd. Flow (perm)	1712	0	0	1676	1534	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1878			318	459	
Travel Time (s)	36.6			6.2	8.9	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	2%	2%	3%	2%	2%
Adj. Flow (vph)	101	1	236	169	6	133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	405	139	0
Sign Control	Yield			Yield	Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

Intersection	
Intersection Delay, s/veh	4.9
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	102	405	139
Demand Flow Rate, veh/h	102	415	142
Vehicles Circulating, veh/h	241	6	101
Vehicles Exiting, veh/h	180	237	242
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	4.2	5.4	3.9
Approach LOS	A	A	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	102	415	142
Cap Entry Lane, veh/h	1079	1371	1245
Entry HV Adj Factor	1.000	0.976	0.979
Flow Entry, veh/h	102	405	139
Cap Entry, veh/h	1079	1338	1218
V/C Ratio	0.095	0.303	0.114
Control Delay, s/veh	4.2	5.4	3.9
LOS	A	A	A
95th %tile Queue, veh	0	1	0

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	65	4	414	220	3	162
Future Volume (vph)	65	4	414	220	3	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.867	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1528	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1528	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	552	293	4	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	845	220	0
Sign Control	Yield			Yield	Yield	

Intersection Summary	
Area Type:	Other
Control Type: Roundabout	

McMahon Associates, Inc. Robinson Tract
8: Collector Road & Pleasant Grove Rd 2030 with Dev Weekday Afternoon Peak Hour

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Approach	EB	WB	NB
Entry Lanes	1	1	1
Conflicting Circle Lanes	1	1	1
Adj Approach Flow, veh/h	92	845	220
Demand Flow Rate, veh/h	92	859	224
Vehicles Circulating, veh/h	563	4	87
Vehicles Exiting, veh/h	300	307	568
Ped Vol Crossing Leg, #/h	0	0	0
Ped Cap Adj	1.000	1.000	1.000
Approach Delay, s/veh	5.8	10.1	4.4
Approach LOS	A	B	A

Lane	Left	Left	Left
Designated Moves	TR	LT	LR
Assumed Moves	TR	LT	LR
RT Channelized			
Lane Util	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976
Entry Flow, veh/h	92	859	224
Cap Entry Lane, veh/h	777	1374	1263
Entry HV Adj Factor	1.000	0.984	0.982
Flow Entry, veh/h	92	845	220
Cap Entry, veh/h	777	1352	1240
V/C Ratio	0.118	0.625	0.177
Control Delay, s/veh	5.8	10.1	4.4
LOS	A	B	A
95th %tile Queue, veh	0	5	1

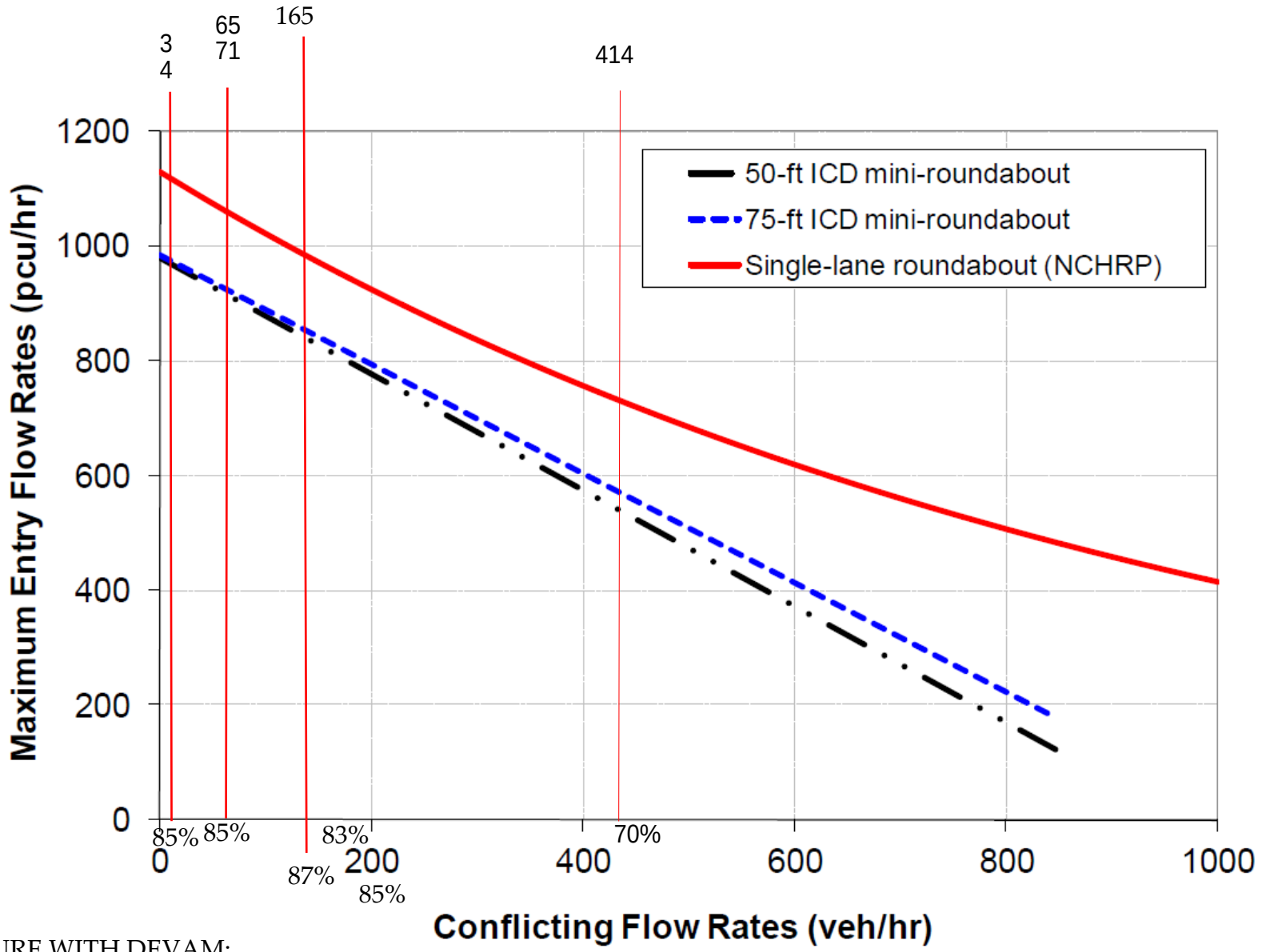
Table 1. Mini Roundabout Delay Calculation - 2030 Future with Development

	Weekday AM			Weekday PM		
	Northbound	Eastbound	Westbound	Northbound	Eastbound	Westbound
Single Lane Roundabout Delay [1]	3.9	4.2	5.4	4.4	5.8	10.1
Capacity Compared to Single Lane [2]	85%	87%	85%	85%	70%	85%
Mini Roundabout Approach Delay	4.5	4.7	6.2	5.1	7.5	11.6
Approach Volume	97	72	283	165	69	634
Mini Roundabout Overall Delay & LOS	5.6		A	10.0		B

(1) Based on HCM 6th Edition Methodology for a traditonal roundabout.

(2) See Figure 1.

FIGURE A



2030 FUTURE WITH DEVAM:
NB = 97 entering, 71 conflicting
EB = 72 entering, 165 conflicting
WB = 283 entering, 4 conflicting

2030 FUTURE WITH DEVPM:
NB = 165 entering, 65 conflicting
EB = 69 entering, 414 conflicting
WB = 634 entering, 3 conflicting

Source: *Determination of Mini-Roundabout Capacity in the United States,* as published within the Journal of Transportation Engineering Volume 140 Issue 10

ALBERT FEDERICO CONSULTING, LLC
Traffic Engineering and Mobility Solutions

133 Rutgers Avenue
Swarthmore, PA 19081

May 13, 2020 ***via email only***

Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

Re: Conditional Use - Traffic Review
Robinson Tract (aka Crebilly Farms) Development
Westtown Township, Chester County

Mr. Hatton:

As requested, the following has been prepared in anticipation of the Planning Commission's May 20, 2020 meeting.

To date the Applicant has not demonstrated compliance with the condition use criteria in §170-2009.D(1)(h): *In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety*. Most notably:

- Traffic analyses which provide the basis for determining project impacts have not been updated to address the outstanding technical aspects associated with the:
  - Assumed traffic diversions
  - Signal operations at PA 926 and New Street
- An implementation strategy for necessary improvements has not been provided
- The submitted Conditional Use plans do not:
  - Illustrate the scope of improvements required to provide compliant sight distance at several accesses
  - Adequately address access to West Pleasant Grove Road
  - Include compliant horizontal alignments of internal roadways

While there has been limited recent coordination with the Applicant's Traffic Engineer and PennDOT these items and the other issues identified in the March 13, 2020 Traffic Review remain outstanding.

The following list of recommended transportation related improvements is also provided for the Planning Commission's consideration in the review of this Application.

1) Connector Road, construct:
   a) Dimensionally compliant with Township standards for a Collector Road
   b) With a sufficient pavement structure, as determined by the Township Engineer, to accommodate heavy equipment and truck traffic
   c) Reasonable traffic calming measures to maintain a consistent, appropriate travel speed

   d) Facilities accommodating:
      i) Non-vehicular travel
      ii) Personal vehicles waiting for school buses
2) West Pleasant Grove Road, modify:
   a) Along the site frontage in a manner compliant with Township standards for a Collector Road
   b) At the proposed local road site access(es) to control turning movements in a manner that enhances safety and aesthetics, preferably with a roundabout(s)
   c) At the Connector Road site access to control turning movements and connectivity with Orvis Way in a manner that enhances safety and aesthetics, preferably with a roundabout
3) PA 926 (Street Road), modify as determined appropriate in coordination with PennDOT and Thornbury Township:
   a) At the Connector Road site access to install a traffic signal and turn lanes
   b) At New Street to:
      i) Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and to address PennDOT comments (currently by constructing eastbound and westbound left turn lanes)
      ii) Provide appropriate non-vehicular connectivity
      iii) Provide equipment for emergency pre-emption
4) US Route 202, modify as determined appropriate in coordination with PennDOT:
   a) At West Pleasant Grove Road to provide a southbound right turn lane as determined appropriate in coordination with PennDOT
   b) At PA 926 to:
      i) Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and address PennDOT comments
      ii) Provide equipment for emergency pre-emption
5) Non-vehicular elements, construct facilities connecting to existing and/or planned non-vehicular facilities, including:
      i) Arborview
      ii) Orvis Way
      iii) Briddlewood Boulevard
      iv) Signalized intersection of US Route 202 and PA 926
6) Westminster Presbyterian Church, as determined appropriate by the Township and in coordination with the Church:
   a) Remove the existing westernmost driveway adjacent to the Connector Road
   b) Provide for future access from the Westminster Presbyterian Church to the Collector Road at a mutually agreed upon location

As discussed at previous meetings and noted above, several of these items are within the purview of PennDOT and/or require coordination with Thornbury Township. Therefore, it is recommended that the Township remain engaged in the on-going discussions to ensure that if approved the scope of improvements associated with the Application is consistent with the Township's objectives to the maximum extent feasible.

Please do not hesitate to contact me at 610.608.4336 or albert@federico-consulting.com should you have any questions or require additional information.

Sincerely,

Albert Federico, P.E., PTOE

ALBERT FEDERICO CONSULTING, LLC
Traffic Engineering and Mobility Solutions

133 Rutgers Avenue
Swarthmore, PA 19081

March 13, 2020 ***via email only***

Russell Hatton, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

Re: Conditional Use - Traffic Review
Robinson Tract (aka Crebilly Farms) Development
Westtown Township, Chester County

Mr. Hatton:

Subsequent to the previous Traffic Review (January 29, 2020) there has been additional coordination with the Applicant, including:

- Correspondence to Mr. Russell Hatton (prepared by McMahon Associates, dated February 4, 2020) providing responses to the January 29 Traffic Engineering Review
- Meeting with PennDOT and Thornbury Township on February 11, 2020, and the distribution of Draft Meeting Minutes (prepared by McMahon Associates, distributed February 25, 2020)
- Correspondence (prepared by McMahon Associates, dated February 21, 2020 and supplemental emails) providing additional information regarding the traffic diversions assumed for the traffic analyses

Please note that this review should be considered preliminary and subject to change based on the submission of revised materials to address the comments presented herein.

In recognition of these activities the following update to the January 29 review is offered for the Township's consideration:

1. *In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. {§170-906.D(2)}*
    a. To allow for consideration of the impact of the proposed development the Transportation Impact Study (TIS) should be revised to address the following:
        i. As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. *{Westtown Township Comprehensive Plan Update, page 9-7}*.

            Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

ii. The sections of the TIS discussing improvements should note that the internal Collector Road provides access to the property.

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised TIS. The submitted correspondence does not commit to this revision.

iii. As previously noted, the Crash Summary only includes data for State "Reportable" collisions. In order to provide a more complete assessment of transportation safety within the study area "Non-reportable" collisions should be included. Note that the Traffic Safety Office is unaware of an outstanding request for "more detailed information". The applicant should resubmit the request to the Traffic Safety Office and Township Traffic Engineer, including the specific details being requested.

Status: Supplemental information has been provided to the Applicant. Based on coordination with the Applicant it is anticipated that this information will be considered in the revised TIS.

iv. As previously noted, the scope of physical improvements required to provide acceptable sight distance to public roads should be clearly indicated on the plans.

Status: The submitted correspondences requests deferring this item until "detailed engineering" is completed.

v. As previously noted, confirm that the sight distance measurements consider the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. *{§149-903.A(2)}*

Status: The submitted correspondences indicates that the measurements are based on the existing roadway.

vi. Provide calculations supporting the assumed diversions associated with Orvis Way and the proposed Collector Road. Additionally, cross-reference the Collector Road diversions within the body of the study with the figures in Appendix K.

Status: Supplemental materials have been submitted in response to this comment. Coordination is on-going.

vii. The Travel Time Comparisons presented in Appendix K should be revised to address the following:
   (1) Verify the assumed route lengths. The Diversion Routes generally appear to be shorter than the Base conditions.
   (2) Ensure that the impacts of the regular queuing along US Route 202 North during the morning peak, extending from the interchange into the study area, is included.
   (3) The evaluation of diversions should include an alternative that considers operations following the completion of the PennDOT improvements planned for US Route 202 and PA Route 926.

(4) The traffic calming anticipated to be installed along Bridlewood Boulevard should be considered.

Status: Supplemental materials have been submitted which address these comments.

viii. As previously noted, the anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of potential vehicular conflicts. It is noted that:

(1) The Applicant has indicated a willingness to widen the roadway along the property frontage, but additional clarification regarding the specific scope of work is warranted.

(2) West Pleasant Grove Road is designated as a Collector Road and the total Right-of-way shall be 60 feet and cartway width shall be 28 feet. *{§149-903.A(2)}*

Status: The submitted correspondences indicates that the Applicant will widen West Pleasant Grove Road along the frontage to Collector Road standards.

ix. As previously noted, the future operations presented for PA Route 926 and New Street rely primarily on "optimized" traffic signal timings that appear unlikely to be approved by PennDOT. Written confirmation from PennDOT should be provided that the assumed "optimized" timings can be implemented. If confirmation cannot be provided an alternative analysis utilizing a timing approved by the Township should be provided.

Status: Based on direction from PennDOT it is anticipated that this analysis will be modified in the revised TIS.

x. As previously noted, the Cross Section Assumptions Exhibit for PA Route 926 and New Street in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.

Status: The Applicant committed to PennDOT (and represented to the Planning Commission) that revised improvement concept(s) would be prepared for PennDOT and Township review and would be used to coordinate with the potentially affected property owners.

xi. As previously noted, Cost Estimates for necessary improvements to accommodate future traffic should be provided. *{§149-804.A(10)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

xii. As previously noted, an Implementation Strategy for necessary improvements to accommodate future traffic should be provided. *{§149-804.A(11)}*

Status: The submitted correspondences indicates that the Applicant will provide this information once there is "concurrence" regarding the scope of improvements.

2. *The burden of proof shall be upon the applicant to prove to the satisfaction of the Board of Supervisors, by credible evidence, that the use will not result in or substantially add to a significant traffic hazard or significant traffic congestion. The peak traffic generated by the development shall be accommodated in a safe and efficient manner. Such analysis shall consider any improvements to streets that the applicant is committed to complete or fund. {§170-2009.D(1)(h)}*
   a. The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 continues to be based in large part on assumed diversions. As noted above, additional supporting information and analyses should be provided.

      Status: Supplemental materials have been submitted and coordination is on-going. The Applicant has yet to submit a revised TIS.

   b. The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans:
      i. US Route 202 at Pleasant Grove Road – Southbound Right Turn

         Status: The submitted correspondences indicates that the Applicant will make this improvement and that plans will be provided there is "concurrence" regarding the scope of improvements.

      ii. PA Route 926 at New Street – Eastbound Left Turn

         Status: The submitted correspondence offers an opinion that this improvement is unwarranted. Based on direction from PennDOT it is anticipated that the analysis will be modified in the revised TIS.

   c. As previously noted:
      i. Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):
         (1) Collector Road at PA Route 926 (grading)
         (2) Road M at West Pleasant Grove Road (grading and/or roundabout)
         (3) Collector Road at West Pleasant Grove Road (grading and/or roundabout)

         Status: The submitted correspondences requests deferring addressing these items until "detailed engineering" is completed.

ii. In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:
    (1) Road M should be removed
    (2) Roads L and N should be extended to form a single road

Status: The submitted "Alternate" plan removed the external access without connecting the internal roadways. It has been conveyed to the Applicant on several occasions that these items are intended to be addressed together: connect the internal roads (to remove the cul-de-sacs) *and* remove the external access.

iii. The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.

Status: The submitted correspondences requests deferring this item until Land Development.

iv. The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, in particular the exit-only driveway from the Westminster Presbyterian Church.

Status: The driveway is reflected on the plan but is difficult to discern due to drafting. It appears the proposed site access to West Pleasant Grove Road (via the Collector Road) will impact the Church Driveway. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road at a mutually agreed upon location.

v. The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.

Status: The submitted correspondences indicates that right-of-way is being offered. The Applicant does correctly note that the PennDOT project is not fully engineered. The plans should include a note indicating that other reasonable right-of-way and/or easement required for the improvements will be provided to PennDOT as needed.

vi. The following internal roadways should be reconfigured to remove geometric irregularities:
    (1) Road E and Road F (provide a curve)
    (2) Road F and Road G (provide a curve)
    (3) Road I and Road J (remove the jog within the intersection)

Status: The submitted materials do not adequately address these comments. The Applicant has represented to the Planning Commission that Stop signs will be used to compensate for these irregular designs. To date no information has been provided documenting that the signs would meet accepted warrants.

vii. Additional facilities should be provided to address non-vehicular connectivity, including:
   (1) A perimeter trail around the portion of the site west of the internal Collector Road. *{Westtown Township Comprehensive Plan Update, page 9-15}*
   (2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. *{Westtown Township Comprehensive Plan Update, page 9-15}*
   (3) Sidewalks along proposed roads, including accessible crossings. *{§149-916}*
   (4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. *{§149-916}*

Status: The submitted materials do not adequately address these comments. It is noted that a supplemental plan was presented to the Planning Commission which included a partial connection to Arborview and a trail from an internal roadway to the intersection of US Route 202 and PA Route 926.

viii. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.

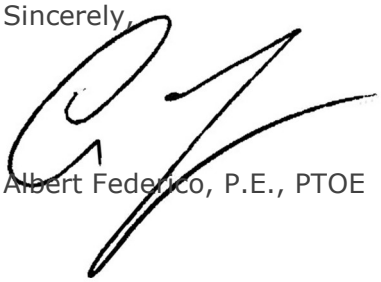
Status: The Alternate Plan does indicate a location for potential access. To date there is no information indicating that this location has been reviewed with the Church. Based on initial coordination with the Church a location further south along the Collector Road may be preferred.

ix. Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.

Status: The submitted correspondences requests deferring this item until Land Development.

Please do not hesitate to contact me at 610.608.4336 or albert@federico-consulting.com should you have any questions or require additional information.

Sincerely,



Albert Federico, P.E., PTOE

pennsylvania
DEPARTMENT OF TRANSPORTATION

Date: 10/11/2019

Subject: Highway Occupancy Permit Application No. 196830, Cycle No.1 - Returned For Revisions

To: Toll PA XVIII, L.P.
250 Gibraltar Road
Horsham, PA 19044

From: PennDOT Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

Dear Applicant,

PennDOT has reviewed your application for completeness, consistency and compliance with applicable Department Regulations. This review has identified issues that must be addressed in order for our review to continue.

The Department's review comments are attached.

Once the comments have been addressed, please resubmit the application and associated material for further review.

Upon resubmission, the applicant's engineer should put together a letter that describes how each comment has been addressed and where each can be found. This will help expedite the review. For guidance on HOP applications refer to 67 PA Code, Chapter 441, Chapter 459 and PennDOT Publication 282, "Highway Occupancy Permit Guidelines". Additional comments may follow upon review of the resubmitted application.

If you have any questions regarding this matter, you may contact Drew Sirianni, at (215) 254-7893.

pennsylvania
DEPARTMENT OF TRANSPORTATION

Response Comments
Date: 10/11/2019
Application Number: 196830, Cycle No.1

Form Letter Notes

(1) * Upon resubmission, the applicant's engineer must prepare a letter that describes how each comment has been addressed and where each can be found in the plan set.

* Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE, PTOE of Pennoni at 215.254.7893 or DSirianni@Pennoni.com.

* For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

General

(1) This project must be coordinated with the Department project for improvements to the intersection of SR 0202 and SR 0926 (MPMS No. 95430). Contact the Department's consultant project manager, Paul Valliere, for coordination.
(2) PLEASE SUBMIT A CHECK FOR $100.00 MADE PAYABLE TO PENNDOT-ATTN: MARY ELLEN CULHANE, PERMITS SUPERVISOR, 7000 GEERDES BLVD. KING OF PRUSSIA, PA. 19406. PLEASE INCLUDE THE APPLICATION NUMBER ON THE CHECK FOR OUR REFERENCE.
(3) PennDOT Form M-950MPC, Land Use Questionnaire, must be completed and submitted with all Highway Occupancy Permit applications. (Sections 619.2 and 1105 of the Municipal Planning Code and PennDOT Publication 282, Chapter 3.3)

Application

(1) The application must be submitted in the name of the person who holds fee title to the land or a person who holds an estate or other legal interest in property, such as an easement, a lease, a license, subsurface rights, or an equitable interest under a sales agreement or option to purchase. Submit the supporting documentation with the next submission. (Pa Code Title 67, Chapter 441.3(b) and 441.5(b))
(2) The proposed access must be revised from a driveway to a local road classification on the

ePermitting application. Please contact Mary Ellen Culhane, District 6 Permits Supervisor, at (610) 205-6825 to have the application modified.

(3) Please note that consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The EPS BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. After an EPS BPID is obtained and activated by the applicant's system administrator, a user ID will then need to be created in order to ensure that the EPS BPID is integrated into EPS and searchable through the "looking glass" feature. Once this has been established, please provide the following information in the applicant contact information tab under "Applicant Team":

- BPID
- Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)
- Contact information (name/title/phone/email) for a billing contact person (person that typically deals with the Highway Occupancy Permit invoicing process)

For information on obtaining an EPS BPID, you may visit: https://www.dot14.state.pa.us/EPS/home/manageBPRegistration.jsp (follow the instructions that are in the pink shaded row) or contact the ECMS Help Desk. Please be aware that having an ECMS BPID does not guarantee the establishment of an EPS BPID as they are not reciprocal to one another.

Free online tutorials are also available detailing BPID registration at: http://www.dot14.state.pa.us/epsTraining/BPID%20Registration%20for%20Municipalities%20and%20Planning%20Commissions.html

Please note that there are two applicable tutorials on the webpage (tabs on the left side bar), one providing info on ECMS registration and one providing info on creating an EPS user.

Transportation Impact Study/Transportation Impact Assessment

(1) MITIGATION

a. The intersection of Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is projected to have an increase in delay due to diverted traffic in conjunction with the new connector road required for this development. Provide mitigation.

b. Concept plans of full mitigation must be prepared with sufficient detail to describe their feasibility. The plans must also show right-of-way lines. The plan scale should be 50-scale unless otherwise agreed to at the scoping meeting. Ensure that the travel lane and shoulder widths are in accordance with PennDOT's Resurfacing, Restoration and Rehabilitation (3-R) Design Criteria

found in PennDOT Publication 13M, Design Manual Part 2. Please note that the concept plan will be reviewed to determine if the recommended improvements are feasible. A full review of the plans will be completed upon submission of the Highway Occupancy Permit (HOP) package.

(2) INTERSECTION CONTROL EVALUATION (ICE) POLICY

a. This HOP application is expected to include the creation of a medium volume or high volume local road, the addition of a leg to an existing intersection (SR 0926 and Bridlewood Blvd), the addition of a turning lane at an existing intersection (SR 0926 and Bridlewood Blvd), and modification of control at an existing intersection (SR 0926 and Bridlewood Blvd). As such, the applicant shall comply with PennDOT's Intersection Control Evaluation (ICE) Policy. Please refer to Appendix AI of Publication 10X (DM-1X) and the ICE portion of PennDOT's Traffic Signal Portal for additional information, guidance, and standard forms.

(3) TURN LANE WARRANTS

a. Based on the submitted turn lane warrant analysis, left turn lanes are needed on all 4 approaches at the intersection of Street Road (SR 0926) and New Street. Revise the TIS to provide this improvement and include a conceptual plan to show how it will be constructed.

b. Based on the turn lane warrant analysis, a right turn deceleration lane is needed on the southbound approach of Wilmington Pike (SR 0202) at W Pleasant Grove Rd. Please update the "Committed Improvements" section of the TIS to identify that the lane will be constructed by the applicant.

c. The report should include a traffic signal warrant analysis and turn lane warrant analysis section along with summary of results.

d. Please include the input page of the traffic signal warrant analysis in the appendices.

(4) Side-by-side eastbound and westbound left turn lanes must be provided on W Pleasant Grove Road between Collector Road and Orvis Road.

(5) A dedicated right-turn lane along westbound Street Road (SR 0926) along the Robinson Tract property frontage is proposed but not shown on the Synchro files. Please verify and revise.

(6) TRAFFIC SIGNAL WARRANTS

a. The report indicates that a signal is warranted at the site driveway access with Street Road, however all Traffic Signal Warrant analyses in Appendix G (all Alternatives) do not indicate whether volumes utilized are for the 2030 Design Year or 2025 Build-Out Year. Please clarify.

b. If signalization is the chosen alternative for the intersection of Street Road (SR 0926) and Bridlewood Boulevard/ Site Access, it is likely that signalization won't meet warrants for several years while the site is built out. As such, traffic volumes must be monitored during development to determine when a traffic signal is warranted. An intersection monitoring condition statement will

be required.

(7) MUNICIPAL COORDINATION

a. Provide documentation from Westtown Township indicating their review/acceptance of the study.

b. Provide documentation from Thornbury Township indicating their review/acceptance of the study showing a signalized access along Street Rd (SR 0926) opposite Bridlewood Blvd.

(8) TRIP DIVERSIONS

a. 50 percent of southbound Wilmington Pike (SR 0202) right turns to eastbound Street Road (SR 0926) were diverted to Orvis Way. Provide justification for such a substantial amount of trips.

(9) MULTI-MODAL

a. In the Executive Summary and study recommendations, indicate that all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. Describe how these connections connect to existing non-motorized facilities (e.g., Township Trails Plan). If pedestrian accommodations are not proposed, engineering justification must be provided in accordance with PennDOT Publications 236, 46, and 149. Walking school children and school bus stops shall also be noted.

b. The study must describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations.

(10) Provide an updated site plan and/or conceptual improvement plan that reflects all the latest findings of the study and developer commitments.

(11) Provide photographs at all study intersections, including the proposed access driveways. Photos must be in color, 4"X6" in size, and two views of each approach must be provided (approximately 200 feet from the intersection and approximately 50 feet from the intersection showing the opposite approach).

(12) CRASH DATA AND ANALYSIS

a. Contact the municipality to obtain non-reportable crash data for the study area intersections. Include this crash data in the analysis if it is available.

b. The traffic crash data analyses for several of the study area intersections/corridors indicate that crash trends exist, particularly at signalized intersections within the study area. Discuss how traffic generated from the development may impact these locations, and if any improvements would be beneficial in mitigating these trends.

(13) QUEUE ANALYSIS

a. The available storage for eastbound left turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development is 478 feet. This

will block the through and right turn movements. Please revise the analysis and recommendations to address this queue.

b. The available storage for southbound right turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development of southbound traffic is 700 feet. This will block the right turn movements. Please revise the analysis and recommendations to address this queue.

c. The available storage for southbound left turns at Street Road (SR 0926) and Bridlewood Boulevard/Collector Road is 150 feet. The future queue with development of southbound through/right traffic is 360 feet. This will block the left turn movements. Please revise the analysis and recommendations to address this queue.

Sight Distance- Driveways/Local Roads

(1) Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.

Signal Section (Publication 46, 148 And 149)

(1) a. The Peak Hour warrant would not apply for this location.

b. Provide signal plans for review.

c. Provide a TE-160 form and resolution.

d. Provide a Traffic Signal Design Report.

e. Interconnect proposed signal at Street/Bridlewood and Street/New signal, and provide communications back to the District Office.

f. The intersection of SR 0202 and SR 0926 is scheduled to be adaptive under an active state project. The 165-second cycle being proposed is not realistic, even for an adaptive system. This intersection has capacity concerns.

g. Refer to the TIS comments regarding the left turn warrants at the intersection of Street Road (SR 0926) and New Street.

Drainage

(1) Please be aware that the installation of drainage facilities within the Legal Right-of-Way may

necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in Publication 282.

ALBERT FEDERICO CONSULTING, LLC
Traffic Engineering and Mobility Solutions

133 Rutgers Avenue
Swarthmore, PA 19081

October 15, 2019 ***via email only***

Richard Pomerantz, Chair
Westtown Township Planning Commission
1039 Wilmington Pike
West Chester, PA 19382

Re: Conditional Use - Traffic Review
Robinson Tract (aka Crebilly Farms) Development
Westtown Township, Chester County

Mr. Pomerantz:

As requested, a technical review of the following materials has been completed relative to the Westtown Township Zoning Ordinance as well as reasonable and customary standards of Traffic Engineering practice:

- Transportation Impact Study for the Robinson Tract (prepared by McMahon Associates, dated August 13, 2019)
- Conditional Use Subdivision Plan for the Robinson Tract, sheets 10 and 12 of 71 (prepared by ESE Consultants, dated August 9, 2019)

Please note that this review should be considered preliminary and subject to change based on the submission of revised materials to address the comments presented herein.

The site is located on the Crebilly Farm property along the west side of US Route 202, between West Pleasant Grove Road and PA Route 926 (Street Road). The applicant proposes to develop 317 new dwelling units. Vehicular access to the Crebilly Farms property is proposed via connections to PA Route 926 and West Pleasant Grove Road. Onsite vehicular circulation is proposed via a central Collector Road and supporting local roads, including several cul-de-sacs. Limited non-vehicular facilities are also proposed.

The following comments are offered for the Township's consideration:

1. *In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. {§170-906.D(2)}*
    a. In order to allow for consideration of the impact of the proposed development the Transportation Impact Study (TIS) should be revised to address the following:
        i. Table 1 identifies West Pleasant Grove Road as a "Local" roadway. Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. *{Westtown Township Comprehensive Plan Update, page 9-7}*.

ii. The TIS identifies the internal Collector Road as an off-site improvement (page 23). The section of the Collector Road proposed as part of the development traverses the property from West Pleasant Grove Road to PA Route 926 providing access to the property. As such it should be identified as an on-site improvement.

iii. The TIS does not identify any existing pedestrian facilities within the study area (page 6). The following should be noted:
   (1) Facilities within the adjacent Arborview neighborhood
   (2) Facilities within the adjacent Bridlewood neighborhood
   (3) Recently completed facilities along Orvis Way

iv. The traffic data used as the foundation for the capacity analysis was collected a number of different years, from 2015 to 2019. Traffic calming measures were installed along Jacqueline Drive in 2017 to address cut-through traffic. As West Pleasant Grove Road is the next east-west roadway south of Jacqueline Drive new counts are warranted.

v. The Crash Summary (page 5) only includes data for State "Reportable" collisions[1]. In order to provide a more complete assessment of transportation safety within the study area "Non-reportable" collisions should be included.

vi. The proposed sight distance looking left from the proposed internal Collector Road along PA Route 926 is reported as 466 feet (Table 3). The Table should be updated to include the Township requirements (635 feet per the posted speed limit) and the scope of physical improvements required to provide acceptable sight distance reflected on the plans. *{§149-915.K(5)}*

vii. The proposed sight distance looking left from the proposed internal Collector Road along West Pleasant Grove Road is reported as 440 feet (Table 3), the minimum required by Township Code. Confirm that this measurement considered the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. *{§149-903.A(2)}*

viii. The study (*Arborview Transportation Impact Assessment, prepared by Traffic Planning and Design, dated January 2015*) referenced as the basis for the majority of assumed diversions (page 14) is not the most current version of the study. Further, this study relied on data dating as far back as 2012. These volumes are considered substantially outdated. New traffic counts should be completed, and the analysis updated.

ix. There is insufficient information provided to evaluate validity of the "supplemental diversion" of US Route 202 traffic to the Collector Road (page 15). Additional analysis and modeling based on current traffic count data is warranted to support the supplemental diversions.

[1] "Reportable" collisions involve significant property damage, injuries and/or fatalities, and are required to be reported to the State. Collisions not meeting these criteria are not included in PennDOT records.

x. The anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of potential vehicular conflicts. The impact of these increased volumes on the roadway structure of West Pleasant Grove Road, as well as the turning paths at the intersection with New Street should be evaluated.

xi. PennDOT classifies PA Route 926 as a "Critical Corridor". The "optimized" traffic signal timings assumed for the future conditions analyses (page 16) reduces delays by shifting a significant portion of green time from PA Route 926 to serve New Street. This will have an appreciable impact on regional mobility, degrading the peak hour level of service for the PA Route 926 approaches. Provide written confirmation from PennDOT that if the project is approved the assumed "optimized" timings can be implemented.

xii. The Cross Section Assumptions exhibit in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.

xiii. Provide Cost Estimates for necessary improvements to accommodate future traffic. *{§149-804.A(10)}*

xiv. Provide an Implementation Strategy for necessary improvements to accommodate future traffic. *{§149-804.A(11)}*

2. *The burden of proof shall be upon the applicant to prove to the satisfaction of the Board of Supervisors, by credible evidence, that the use will not result in or substantially add to a significant traffic hazard or significant traffic congestion. The peak traffic generated by the development shall be accommodated in a safe and efficient manner. Such analysis shall consider any improvements to streets that the applicant is committed to complete or fund. {§170-2009.D(1)(h)}*
    a. The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 appears to be based in large part on assumed diversions of traffic to Orvis Way and the proposed internal Collector Road. As noted above additional information and analyses should be provided to support the assumed diversions.
    b. As presented the project will impact the following intersections increasing the length of required turn lanes:
        i. US Route 202 at Pleasant Grove Road – Southbound Right Turn (+100 feet post-development over existing)
        ii. PA Route 926 at New Street – Eastbound Left Turn (+50 feet post-development over existing)

c. Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):
    i. Collector Road at PA Route 926 (grading)
    ii. Road M at West Pleasant Grove Road (grading and/or roundabout)
    iii. Collector Road at West Pleasant Grove Road (grading and/or roundabout)
d. In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:
    i. Road M should be removed
    ii. Roads L and N should be extended to form a single road
e. The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.
f. The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, including the exit-only driveway from the Westminster Presbyterian Church and new residential driveways along the north side of West Pleasant Grove Road, west of Hidden Pond Way.
g. The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.
h. The following internal intersections should be reconfigured to remove geometric irregularities:
    i. Road E and Road F
    ii. Road F and Road G
    iii. Road I and Road J
i. Additional facilities should be provided to address non-vehicular connectivity, including:
    i. A perimeter trail around the portion of the site west of the internal Collector Road. *{Westtown Township Comprehensive Plan Update, page 9-15}*
    ii. Connections to existing and planned facilities within along Dunvegan Road and the Arborview neighborhood. *{Westtown Township Comprehensive Plan Update, page 9-15}*
    iii. Sidewalks along proposed roads, including accessible crossings. *{§149-916}*
    iv. Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. *{§149-916}*
j. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.

k. Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.

Please do not hesitate to contact me at 610.608.4336 or albert@federico-consulting.com should you have any questions or require additional information.

Sincerely,

Albert Federico, P.E., PTOE

McMAHON ASSOCIATES, INC.
840 Springdale Drive
Exton, PA 19341
p 610-594-9995 | f 610-594-9565

PRINCIPALS
Joseph W. McMahon, P.E.
Joseph J. DeSantis, P.E., PTOE
John S. DePalma
William T. Steffens
Casey A. Moore, P.E.
Gary R. McNaughton, P.E., PTOE

ASSOCIATES
John J. Mitchell, P.E.
Christopher J. Williams, P.E.
R. Trent Ebersole, P.E.
Matthew M. Kozsuch, P.E.
Maureen Chlebek, P.E., PTOE
Dean A. Carr, P.E.

January 20, 2017

Mr. Francis J. Hanney
Pennsylvania Department of Transportation
District Traffic Services Manager, Engineering District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

RE: **Crebilly Farm Residential Development**
Traffic Log No.: C16-010XP
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Hanney:

McMahon Associates, Inc. is in receipt of the Department's comment letter, dated December 6, 2016, in regards to the Transportation Impact Study Scoping Meeting Application for the Crebilly Farm Residential Development. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

Preliminary Comments

Comment #1: *The following scoping application elements appear to be acceptable:*

a. *Trip Generation: Residential Condominium/Townhouse (230), Single Family Detached Housing (210)*
b. *Study Type: Transportation Impact Study (TIS)*
c. *Study Area Type: Urban*
d. *Growth rate factor 1.71%/year*
e. *Pass-by Trups: None*

Response: No response needed.

Comment #2: *As a regional roadway network improvement, the Department has interest in the provision of a connector road through the subject parcel to be constructed as part of this development. The road should provide a direct connection between SR 0926 (Street Road) and West Pleasant Grove*

Road. The Department strongly encourages the Development and the Township to work toward this goal.

Response: The applicant will continue to coordinate with the Township and PennDOT regarding a connector road through the site between Street Road (S.R. 0926) and West Pleasant Grove Road.

Comment #3: *The site access road to SR 0926 (Street Road) should be aligned with Bridlewood Boulevard for improved intersection spacing along SR 0926, and to eliminate unnecessary left turn movements for traffic traveling to/from Bridlewood Boulevard and the site. Also, there is excessive queuing on the eastbound approach of SR 0926 to SR 0202, therefore the distance between the site access and SR 020 should be increased. Locating the site access to align with Bridlewood Boulevard increased the distance from SR 020.*

Response: The applicant is willing to relocated signalized access along Street Road (S.R. 0926) opposite Bridlewood Boulevard, pending further coordination with Westtown Township, Thornbury Township, and PennDOT. The applicant cannot align opposite the location of the proposed Arborview access along West Pleasant Grove Road since they do not own the property.

Comment #4: *The Traffic Impact Study must analyze both the "With PennDOT Improvements" and the "Without PennDOT Improvements" scenarios.*

Response: Will comply.

Comment #5: *Since the trips between the site and the Borough of West Chester will likely utilize the intersection of New Street and West Pleasant Grove Road, the TIS Study Area should be revised to include this intersection.*

Response: Will comply.

Comment #6: *The TIS must include a Crash Analysis for the study area.*

Response: Will comply.

Comment #7: *Please be aware that the installation of drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in PennDOT Strike-Off Letter 470-10-03. PennDOT is legally bound by Section 421 of the State Highway Law (36 P.S. § 670-421 to enforce this maintenance responsibility for stormwater facilities relating to HOP projects. Please be guided accordingly.*

Response: No response needed.

Comment #8: *Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.*

Response: No response needed.

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline, P.E., PTOE
Senior Project Manager

NRK

cc: Robert Pingar, P.E., Westtown Township
Chris Patriarca, AICP, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart

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OS-2 (11-15)

pennsylvania
DEPARTMENT OF TRANSPORTATION

December 6, 2016

CHESTER COUNTY, WESTTOWN TOWNSHIP
SR 0202 (WILMINGTON PIKE) SEG. 0051 OFF. 0000 TO SEG. 0061 OFF. 0000
SR 0926 (STREET ROAD) SEG. 0390 OFF. 0000 TO SEG. 0400 OFF. 0679
HIGHWAY OCCUPANCY PERMIT APPLICATION NO. PRE1354
CREBILLY FARM – MIXED RESIDENTIAL LAND USE
TRAFFIC LOG NO.: C16-010XP
PRELIMINARY REVIEW

Nicole Kline, PE, PTOE
McMahon Associates, Inc.
840 Springdale Drive
Exton, PA 19341

Dear Ms. Kline:

The Department has reviewed the preliminary scoping application submission for compliance with applicable Department Regulations. This preliminary review has identified deficiencies that must be addressed in order for your application submission to be processed as efficiently as possible.

The Department understands that the provided traffic impact analysis is preliminary in nature. As such, the Department reserves the right to make future additional comments based on a formal submission with a complete Transportation Impact Study.

Our comments on your preliminary submission are as follows:

PRELIMINARY COMMENTS

1. The following scoping application elements appear to be acceptable:
    a. Trip Generation: Residential Condominium/Townhouse (230), Single Family Detached Housing (210)
    b. Study Type: Transportation Impact Study (TIS)
    c. Study Area Type: Urban
    d. Growth rate factor: 1.71%/year
    e. Pass-by Trips: None

2. As a regional roadway network improvement, the Department has interest in the provision of a connector road through the subject parcel to be constructed as part of this development. The road should provide a direct connection between SR 0926 (Street Road) and West Pleasant Grove Road. The Department strongly encourages the Developer and the Township to work toward this goal.

3. The site access road to SR 0926 (Street Road) should be aligned with Bridlewood Boulevard for improved intersection spacing along SR 0926, and to eliminate unnecessary left turn movements for traffic travelling to/from Bridlewood Boulevard and the site. Also, there is excessive queueing on the eastbound approach of SR 0926 to SR 0202, therefore the distance between the site access and SR 0202 should be increased. Locating the site access to align with Bridlewood Boulevard increases the distance from SR 0202.

4. The Traffic Impact Study must analyze both the "With PennDOT Improvements" and the "Without PennDOT Improvements" scenarios at the intersection of SR 0202 and SR 0926.

5. Since trips between the site and the Borough of West Chester will likely utilize the intersection of New Street and West Pleasant Grove Road, the TIS Study Area should be revised to include this intersection.

6. The TIS must include a Crash Analysis for the study area.

7. Please be aware that the installation of drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in PennDOT Strike-Off Letter 470-10-03. PennDOT is legally bound by Section 421 of the State Highway Law (36 P.S. § 670-421) to enforce this maintenance responsibility for stormwater facilities relating to HOP projects. Please be guided accordingly.

8. Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.

9. Please be aware that the Department's policy is that TISs are to be submitted via the ePermitting System. The PennDOT project number, C16-010XP, for this preliminary review must be referenced in the ePermitting System when the application is submitted.

The Department has performed this preliminary review based only on the limited information provided. We reserve the right to make future, additional, detailed comments based on the formal submission and application for a Highway Occupancy Permit. If you have any questions pertaining to the technical aspects of this review, please contact Drew E. Sirianni, PE, PTOE of Pennoni at (215) 254-7893 or DSirianni@pennoni.com.

Respectfully,

Francis J. Hanney
District Traffic Services Manager
Engineering District 6-0

cc: Matthew Miele, PE
Ashwin Patel, PE
Traffic Services File
Westtown Township
Thornbury Township
Chester County Planning Commission

McMAHON ASSOCIATES, INC.
840 Springdale Drive
Exton, PA 19341
p 610-594-9995 | f 610-594-9565

PRINCIPALS
Joseph W. McMahon, P.E.
Joseph J. DeSantis, P.E., PTOE
John S. DePalma
William T. Steffens
Casey A. Moore, P.E.
Gary R. McNaughton, P.E., PTOE

ASSOCIATES
John J. Mitchell, P.E.
Christopher J. Williams, P.E.
R. Trent Ebersole, P.E.
Matthew M. Kozsuch, P.E.
Maureen Chlebek, P.E., PTOE
Dean A. Carr, P.E.

November 7, 2016

Mr. Francis J. Hanney
District Traffic Services Manager
PennDOT District 6-0
7000 Geerdes Boulevard
King of Prussia, PA 19406

RE: **Transportation Impact Study Scoping Meeting Application**
Crebilly Farm Residential Development
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Hanney:

McMahon Associates, Inc. (McMahon) is pleased to submit the following Transportation Impact Study (TIS) Scoping Meeting Application, per the *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits*, Revised October 21, 2013 (Strike-off Letter 494-13-13) for the proposed development, located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. Three potential alternatives are proposed for the development, as follows:

- ***Alternative A (Plan A – Proposed Development):*** The plan includes 317 new dwelling units and 2 existing dwelling units. Access is provided via two full-movement accesses along West Pleasant Grove Road, a right-in/right-out access along U.S. Route 202 (Wilmington Pike), and a full-movement access along Street Road (S.R. 0926). This development alternative does not provide a public connector road.

- ***Alternative B (Plan B – Proposed Density Bonus Development):*** The plan includes 395 new dwelling units and 2 existing dwelling units. Access is identical to Alternative A. This development alternative does not provide a public connector road.

- ***Alternative C (Plan B – Proposed Density Bonus Development with Connector Road):*** The plan includes 395 new dwelling units and 2 existing dwelling units. Access is identical to Alternatives A and B, with the addition of a third full-movement access along West Pleasant Grove Road, which will serve as a connector road provided for public use between U.S. Route 202 (Wilmington Pike), Street Road (S.R. 0926), and West Pleasant Grove Road.

Based on the anticipated trip generation, the site requires a Transportation Impact Study. A Transportation Impact Study has been prepared and submitted to Westtown Township, generally in accordance with the scope outlined in this application.

The applicant would like to request a meeting with the Department to discuss this project. During the Department's review of this scoping application, the applicant respectfully requests available dates and times for a meeting. A preliminary list of meeting attendees is included with this scoping submission, including Westtown Township.

If you have any questions or need additional information, please feel free to contact me.

Sincerely,

Nicole R. Kline, P.E., PTOE
Senior Project Manager

NRK
Attachment

cc: John Otten, PennDOT
Robert Pingar, P.E., Westtown Township
Chris Patriarca, AICP, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers

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Crebilly Farm Residential Development
Scoping Meeting Attendees

Name	Company	Phone	Email
APPLICANT:			
Nicole Kline, P.E., PTOE	McMahon Associates, Inc.	610-594-9995	nkline@mcmahonassociates.com
Michael Downs, P.E.	Toll Brothers	610-358-3611	asemon@tollbrothersinc.com
Andrew Semon	Toll Brothers	215-293-5448	mdowns@tollbrothersinc.com
PRELIMINIARY MUNICIPAL INVITEES:			
Robert Pingar, P.E.	Westtown Township	610-692-1930	rpingar@westtown.org
Chris Patriarca, AICP	Westtown Township	610-692-1930	cpatriarca@westtown.org

The municipality can include additional attendees, as desired.

TRANSPORTATION IMPACT STUDY
(TIS) SCOPING MEETING APPLICATION

Scoping Meeting Date: TBD

Applicant: Toll Brothers, Inc.

Applicant's Consultant: McMahon Associates, Inc.

Applicant's Primary Contact: Nicole Kline, P.E., PTOE

(Attach a list of meeting attendees along with phone numbers and email addresses)

(1) LOCATION OF PROPOSED DEVELOPMENT: (Attach location map if available)

PennDOT Engineering Dist.: 6-0 County: Chester County

Municipality: Westtown Township

State Route(s) (SR): U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Segment(s)/Offset(s): S.R. 0202: 0051/0000 to 0061/0000
S.R. 0926: 0390/0000 to 0400/0679

(2) DESCRIPTION OF PROPOSED DEVELOPMENT: (Attach site plan if available)

There are currently three proposed alternatives for the development. Conceptual site plans for all alternatives, prepared by ESE Consultants and last revised October 7, 2016, are provided with this scoping submission.

Proposed site access: Access is provided via two full-movement accesses along West Pleasant Grove Road, a right-in/right-out access along U.S. Route 202 (Wilmington Pike), and a full-movement access along Street Road (S.R. 0926) for all three alternatives. Alternative C includes a third full-movement access along West Pleasant Grove Road, which will serve as a connector road provided for public use between U.S. Route 202 (Wilmington Pike), Street Road (S.R. 0926), and West Pleasant Grove Road.

Proposed land uses:

- *Alternative A (Plan A – Proposed Development):* 319 residential units (2 existing and 200 new single-family homes and 117 new carriage homes).
- *Alternatives B and C (Plan B – Proposed Density Bonus Development):* 397 residential units (2 existing and 152 new single-family homes and 243 new carriage homes).

Community linkages *(access to neighboring properties, cross easements, pedestrian and transit accommodations)*:

Transit services are currently not provided within the study area. The nearest SEPTA bus stop (SEPTA Bus Route 92) is located just north of the S.R. 0322 (High Street) and U.S. Route 202 intersection, approximately a mile and a half north of the site.

Currently, there are no sidewalks along U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). The signalized intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) has limited pedestrian crossing amenities. There are pedestrian crosswalks, signals, and pushbuttons provided to cross the eastern leg of Street Road (S.R. 0926) and the southern leg of U.S. Route 202 (Wilmington Pike).

(3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: 2018

Full Build-Out Date: 2023

Describe Proposed Development Schedule/Staging**:** No staging is proposed with the development.

(4) TRIP GENERATION

(Use the most recent edition of "Institute of Transportation Engineers (ITE) Trip Generation," unless the Department approves another source. Non-ITE methods must be fully justified based on surveys of multiple sites of the same land use type and size.)

Trip generation for the proposed development will be based on:

__X__ ITE Trip Generation Manual.
(List proposed development land uses and associated ITE Land Use Codes)

_____ Other independent surveys.
(Attach justification for non-ITE methods)

List land development and trip generation information, as appropriate. If necessary, attach additional sheets to indicate additional land uses or development phases.

Table 1 provides the total trips anticipated to be generated by the development. Details regarding the trip generation for each of the alternatives are provided in **Attachment 1.**

Table 1. Trip Generation – Crebilly Residential Development

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
			In	Out	Total	In	Out	Total
Alternative A (1)	319 units	2,742	48	162	210	171	95	266
Alternatives B & C (2)	397 units	2,955	48	175	223	182	98	280

(1) Consisting of 2 existing and 200 new single-family dwelling units and 117 new carriage homes.
(2) Consisting of 2 existing and 152 new single-family dwelling units and 243 new carriage homes.

(5) ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION:

(a) Estimated Daily Trip Generation of Proposed Development – Assuming One Access Point and Full Build out/Occupancy of Entire Tract: 2,742 trips/day for Alternative A or 2,955 trips/day for Alternatives B and C.

(b) Driveway Classification Based on Trip Generation and One Access Point:

Medium Volume: __X__

High Volume: _____

(6) TRANSPORTATION IMPACT STUDY REQUIRED?

_____ No

__X__ Yes, based on: _____ 3,000 or more vehicle trips/day generated

__X__ During any one-hour time period, 100 or more new (added) vehicle trips generated entering or 100 or more new (added) vehicle trips generated exiting development

_____ Other considerations as described below:

(7) TRAFFIC IMPACT ASSESSMENT REQUIRED? __X__ No _____ Yes

(If a TIS is required, the following sections of this checklist will be discussed at the TIS Scoping Meeting. The applicant may provide preliminary information.)

(8) TIS STUDY AREA: (Describe; attach map and/or diagram)

Roadway and Study Intersections

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) (signalized)
- U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road (unsignalized)
- Street Road (S.R. 0926) and Bridlewood Boulevard (unsignalized)
- Street Road (S.R. 0926) and New Street (signalized)

A location map is provided, see **Figure 1**.

Land use context (Refer to Smart Transportation Handbook)

Land Use Context – Suburban Corridor
Transportation Context:

- Wilmington Pike (S.R. 0202) – Regional Arterial
- Street Road (S.R. 0926) – Community Arterial
- New Street – Neighborhood Collector
- West Pleasant Grove Road – Local Road
- Bridlewood Boulevard – Local Road

Known Congestion Areas

The U.S. Route 202 (Wilmington Pike) corridor within the vicinity of the site is a known congestion area. It is our understanding that PennDOT currently has a design project providing improvements to the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection.

Known Safety Concerns

Not known at this time.

Known Environmental Constraints

Not known at this time.

Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.)

Stetson Middle School and Sarah W. Starkweather Elementary School are located along Wilmington Pike (S.R. 0202), approximately 0.5 miles north of the site.

Transit Review (Current routes/stops)

The nearest SEPTA bus stop (SEPTA Bus Route 139) is located at the intersection of Schuylkill Road (S.R. 0724) and Park Road/Cypress Avenue, approximately 0.75 miles south of the site. This bus route continues along New Street (S.R. 1043) and services Limerick, Royersford, Spring City, Phoenixville, and King of Prussia.

(9) STUDY AREA TYPE: Urban __X__ Rural _____

(10) TIS ANALYSIS PERIODS AND TIMES:
(List periods and times. Normal analysis periods are existing conditions, 5 years in the future without development, and 5 years in the future with development. Normal analysis times for each period are the AM peak hour, the PM peak hour, and the peak hour of site-generated traffic).

Study Analysis Periods:

- Existing Conditions
- 2023 Future Build-Out Year Conditions (both without and with the proposed development)
- 2028 Future Design Year Conditions (both without and with the proposed development)

Study Time Periods:

- Weekday morning peak period (7:00 AM to 9:00 AM)
- Weekday afternoon peak period (4:00 PM to 6:00 PM)

(11) TRAFFIC ADJUSTMENT FACTORS:

(a) Seasonal Adjustment: (Identify counts requiring adjustment and methodology)

The traffic counts were completed on September 8, 2016 while school was in session, and therefore, the use of any seasonal adjustment factors is not required.

(b) Annual Base Traffic Growth: 1.71 %/yr.
Source: Bureau of Planning and Research for similar roadways in Chester County

If there are other developments within the study area that must be included as part of the background traffic growth and which have a significant effect on future traffic volumes, then it may be proposed to use a lower annual base traffic growth rate.

(c) Pass-By Trips: (Attach justification where required)

(d) Captured Trips for Multi-Use Sites:
(List % and manner of application. Attach justification where required.)

(e) Modal Split Reductions

No reduction proposed.

(f) Other Reductions

No other reductions proposed.

(12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:
(Identify proposed developments with issues permits that need to be included.)

Please provide information regarding any proposed developments that will have an effect on traffic operations within the study area and should be included in the Transportation Impact Study.

• *Police Station Redevelopment*: 30,000 square feet of office space located on the northeast corner of the intersection of U.S. 202 (Wilmington Pike) and Pleasant Grove Road.

• *Arborview*: 16,800 square feet of office space and an 8,665 square-foot daycare center located on the west side of U.S. Route 202 (Wilmington Pike) between Skiles Boulevard and Pleasant Grove Road.

• *Condominium Development*: 39 condominiums in two buildings remain to be occupied/constructed on the west side of Gilpin Drive just north of Skiles Boulevard.

(13) TRIP DISTRIBUTION AND ASSIGNMENT:
(Describe; explain/justify; attach diagram and related information.)

Trip distributions and assignments have been prepared based on existing traffic patterns and the location of the site accesses upon completion of the data collection efforts. Site distribution and assignment figures are provided in **Attachment 2**.

(14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

Location	Period	Type
U.S. Route 202 and Street Road (S.R. 0926)	Weekday 7-9 AM and 4-6 PM	MTM
U.S. Route 202 and West Pleasant Grove Road		
Street Road (S.R. 0926) and New Street		
Street Road (S.R. 0926) and Bridlewood Boulevard		

Traffic counts were conducted on September 8, 2016, while school was in session and are provided in **Attachment 3**. Existing peak hour traffic volume figures are also provided in **Attachment 3**.

(15) CAPACITY/LOS ANALYSIS:

Location	Period	Type
U.S. Route 202 and Street Road (S.R. 0926)	Weekday 7-9 AM and 4-6 PM	HCM 2010
U.S. Route 202 and West Pleasant Grove Road		utilizing
Street Road (S.R. 0926) and New Street		Synchro 8
Street Road (S.R. 0926) and Bridlewood Boulevard		
All proposed site accesses		

(16) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:
(Projects programmed for construction of other developments with issued permits.)

It is our understanding that a PennDOT project to improve the intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). Based on the current State Transportation Improvement Program (TIP) and the Conceptual Intersection Layout prepared by Urban Engineers and dated June 5, 2014, the project will include improvements that will help reduce traffic congestion and increase safety at the intersection through lane reconfigurations, striping, upgrades to the traffic signal, signal timing, and bicycle and pedestrian improvements. It is our understanding that the following roadway improvements are to be included:

- Southbound 130-foot right-turn deceleration lane on U.S. Route 202.
- Additional eastbound left-turn lane on PA Route 926, creating a double left-turn lane configuration with 380 feet of storage for each lane.

- Pedestrian and bicycle intersection improvements, including high-visibility crosswalks, ADA ramps, and sidewalk extension from the intersection east to Dalmally Drive.
- Traffic signal equipment upgrades, including pedestrian push buttons, countdown signal heads, and lighting.

Based on the TIP, the current project schedule indicates an estimated let date of July 2018; however, in light of the favorable state transportation funding situation, and the high priority for this project within Chester County, we understand this project may be accelerated to be completed more quickly.

(17) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:
(Required for all site access driveways; identify other locations)

Will be completed for all site accesses.

(b) Signal Warrant Analysis:
(Identify locations)

Will be completed for the proposed traffic signal at Street Road (S.R. 0926) and Site Access.

(c) Required Signal Phasing/Timing Modifications:
(Determine for all signalized intersections; specify methodology)

Any recommendations regarding proposed traffic signal phasing/timing modifications will be completed based on the results of the traffic analyses completed in Synchro, and based on the calculation of conflict factors, in accordance with PennDOT warrants and guidelines.

(d) Traffic Signal Corridor/Network Analysis:
(Identify locations/methodology)

Traffic signal coordination will be included within the traffic analyses in Synchro, as needed.

(e) Analysis of the Need for Turning Lanes:
(Identify locations/methodology)

The need for auxiliary turning lanes will be evaluated based on PennDOT guidelines, as contained in PennDOT's *Publication 46, Chapter 11*, for the proposed site accesses.

(f) Turning Lane Lengths:
(Identify methodology to be used)

Turning lane lengths will be evaluated based on PennDOT guidelines, as contained in PennDOT's *Publication 46, Chapter 11*, including the 95th percentile queues from the Synchro analyses.

(g) Left Turn Signal Phasing Analysis:
(Identify locations/methodology)

Will be completed at the proposed Street Road (S.R. 0926) Site Access.

(h) Queuing Analysis:
(Identify locations/methodology)

Will be completed at all study intersections and proposed site accesses utilizing Synchro 8.

(i) Gap Studies:
(Identify locations/methodology)

Not proposed at this time.

(j) Crash Analysis:
(Identify locations)

Crash data will be reviewed, upon request.

(k) Weaving Analysis:
(Identify locations)

N/A

(l) Other Required Studies:
(Specify locations/methodology)

None proposed at this time.

(18) ADDITIONAL COMMENTS OR RECOMMENDATIONS RELATIVE TO THE SCOPE OF THE TIS:

_____ Date: _____
Signature of Applicant's Engineer

_____ Date: _____
Signature of District Traffic PennDOT Representative

_____ Date: _____
Signature of District Permit PennDOT Representative (if present)

_____ Date: _____
Signature of Municipal Traffic Representative

FIGURE 1

Site Location Map

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON

(10/7/2016) I:\eng\816451 - Crebilly Farm\dwg\Figure 1.dwg

Project Information	
Project Name:	Crebily Farm Residential Development - Alternative A
McMahon Project No:	816451
Date:	10/3/2016
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 9th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
230 - Residential Condominium / Townhouse	117 dwelling units	737	10	49	59	46	22	68
210 - Single Family Detached Housing	202 dwelling units	2,005	38	113	151	125	73	198
Total Trips		***2,742***	***48***	***162***	***210***	***171***	***95***	***266***

Project Information	
Project Name:	Crebily Farm Residential Development - Alternatives B and C
McMahon Project No:	816451
Date:	10/10/2016
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 9th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
230 - Residential Condominium / Townhouse	243 dwelling units	1,393	18	87	105	84	41	125
210 - Single Family Detached Housing	154 dwelling units	1,562	30	88	118	98	57	155
Total Trips		***2,955***	***48***	***175***	***223***	***182***	***98***	***280***

ATTACHMENT 2

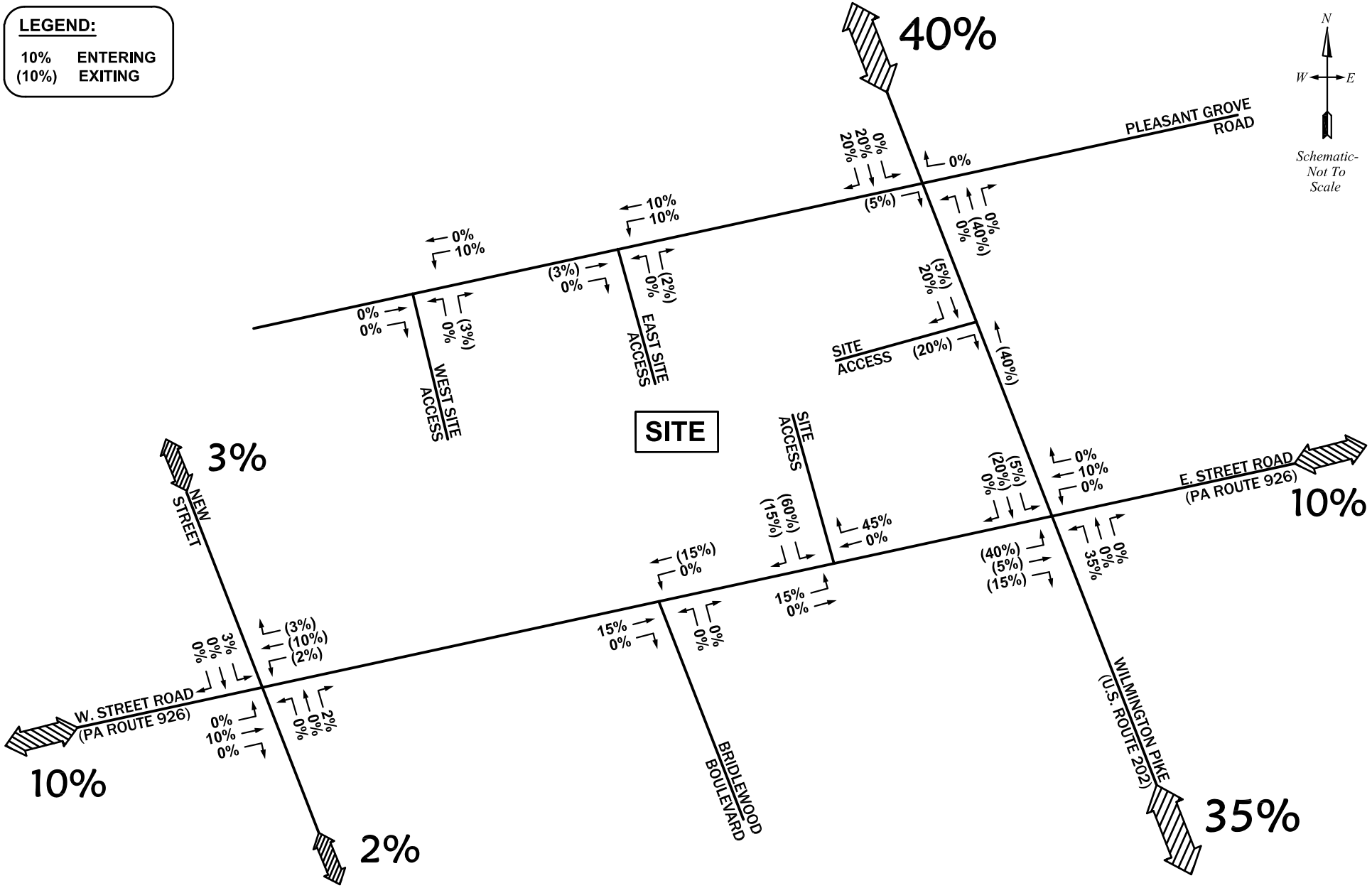


FIGURE 4A
Site Trip Distribution
Alternatives A and B

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

(10/7/2016) I:\eng\816451 - Crebilly Farm\dwg\TIS Township Submission 2016-10-7\Figure 4A.dwg

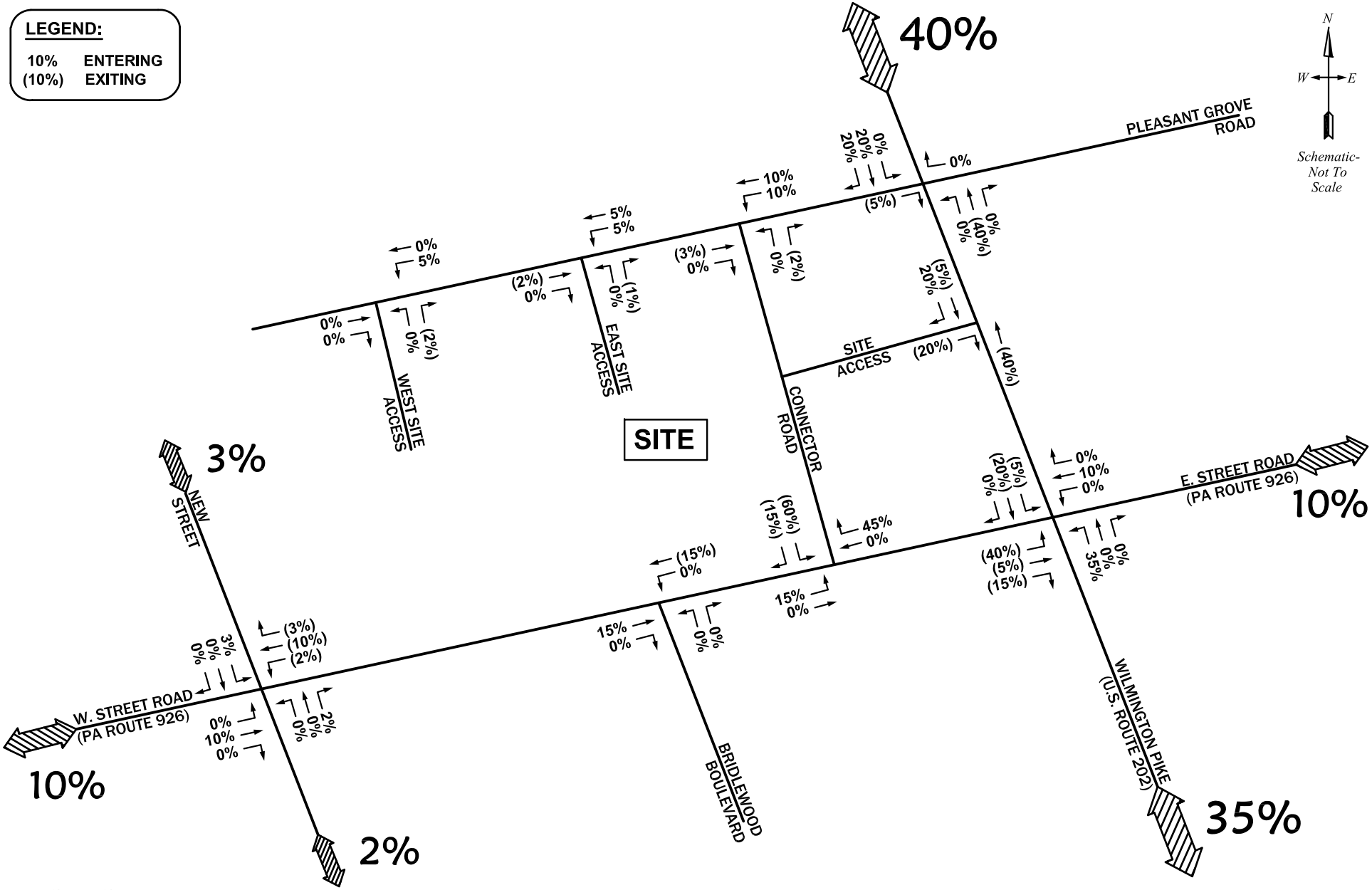


FIGURE 4B

Site Trip Distribution

Alternative C

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

(10/7/2016) I:\eng\816451 - Crebilly Farm\dwg\TIS Township Submission 2016-10-7\Figure 4B.dwg

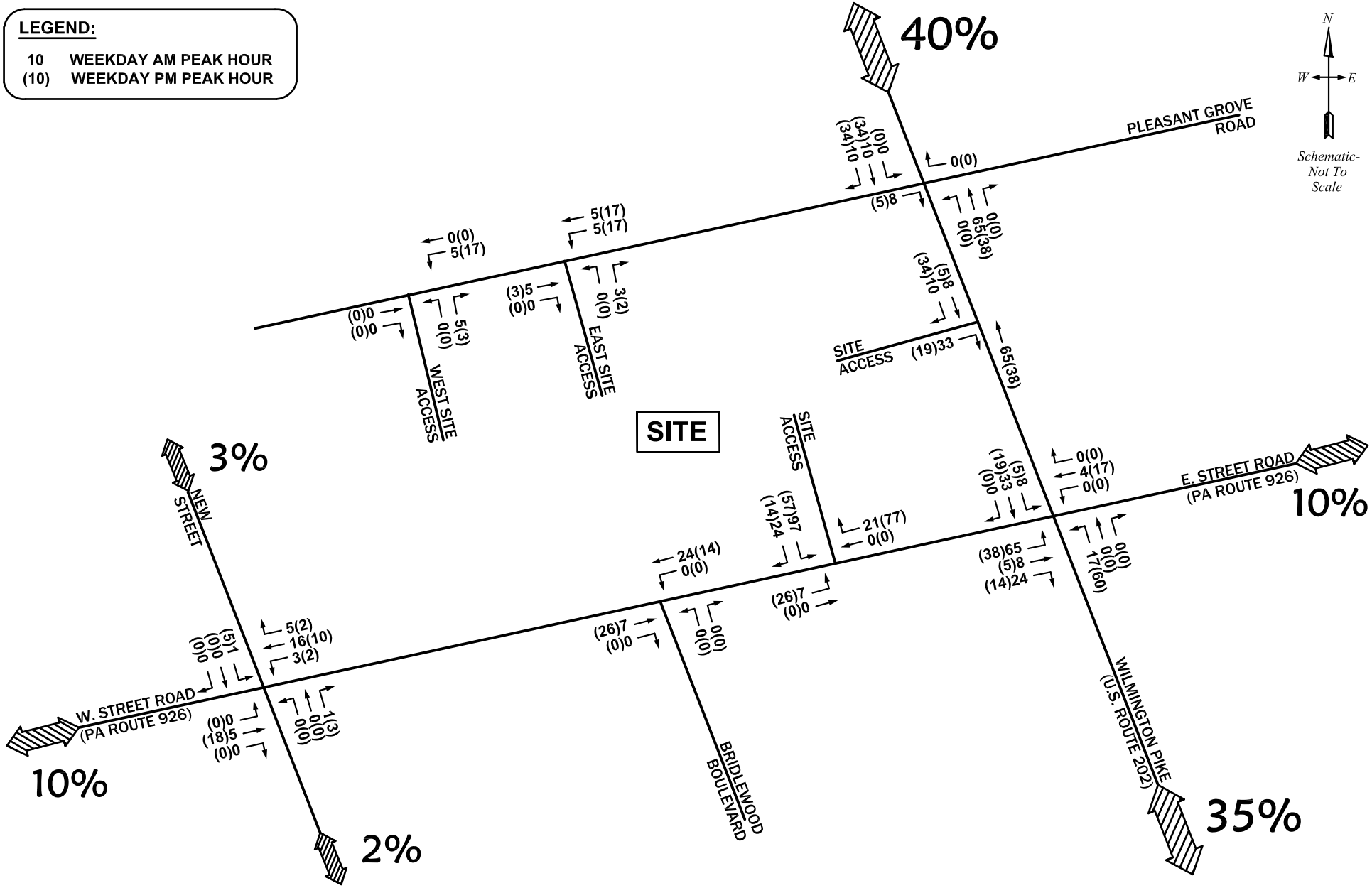


FIGURE 4C
Site Trip Assignment
Alternative A

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

(10/7/2016) I:\eng\816451 - Crebilly Farm\dwg\TIS Township Submission 2016-10-7\Figure 4C.dwg

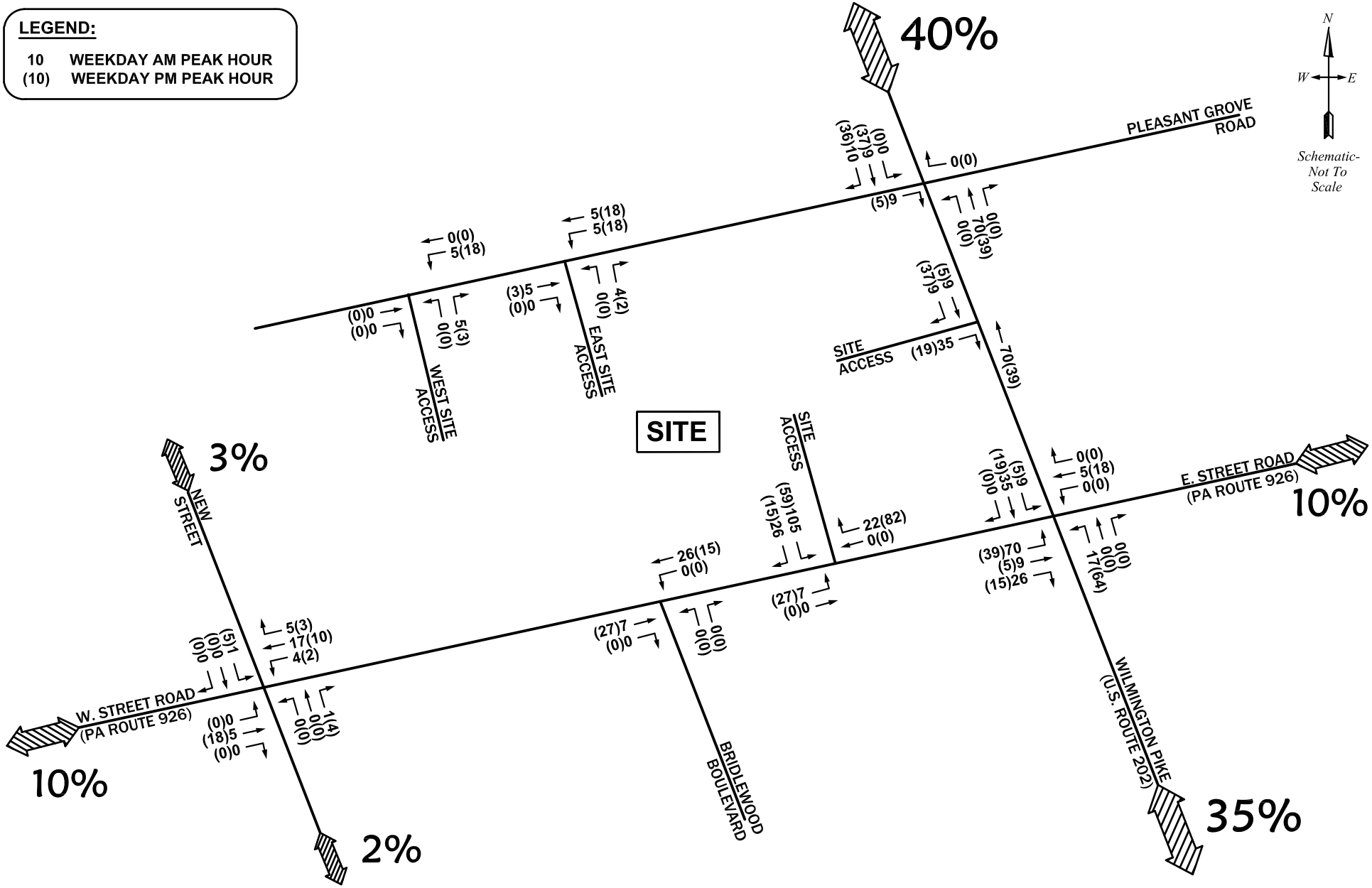


FIGURE 4D
Site Trip Assignment
Alternative B

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

(10/11/2016) I:\eng\816451 - Crebilly Farm\dwg\TIS Township Submission 2016-10-7\Figure 4D.dwg

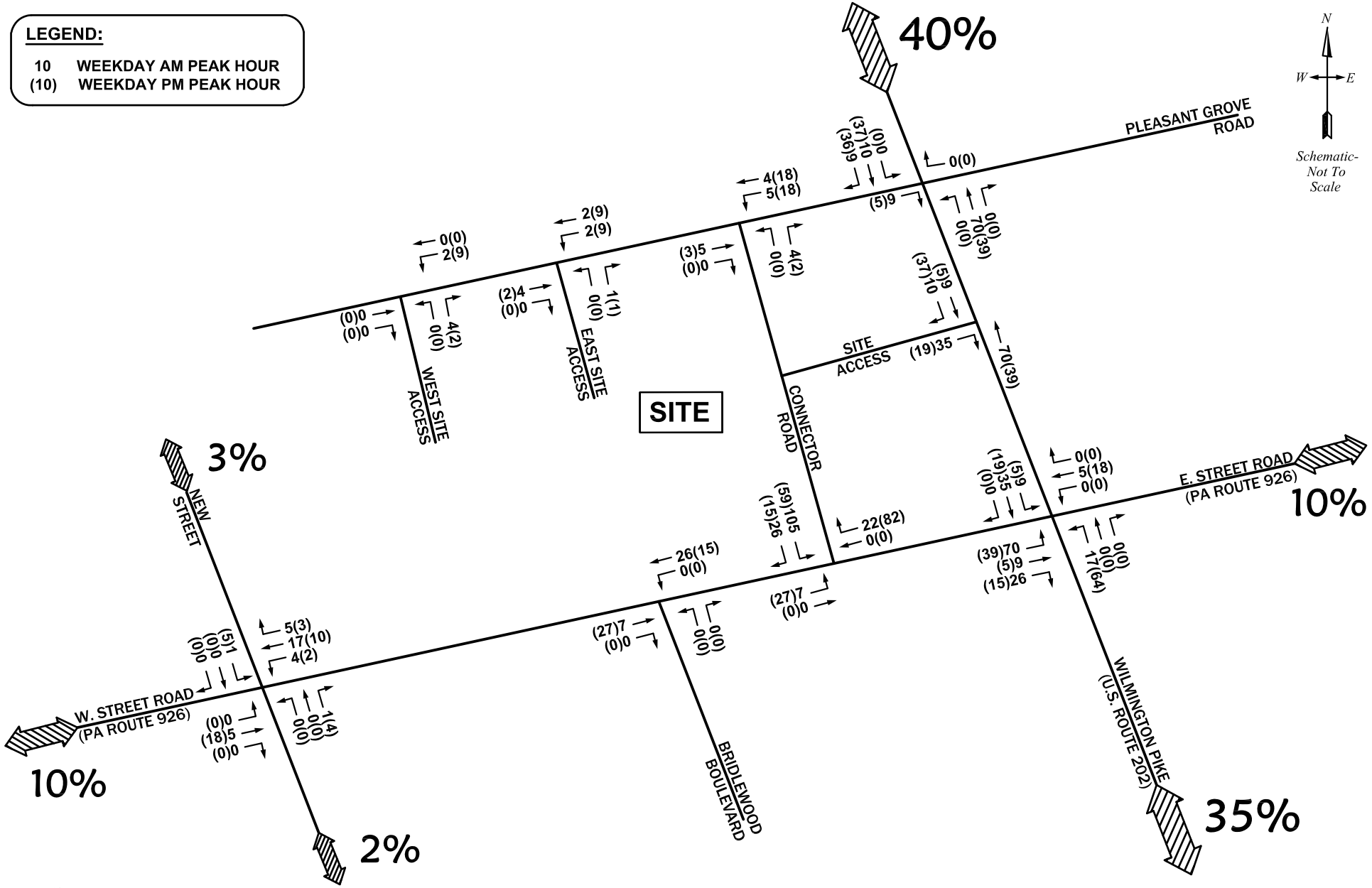


FIGURE 4E

Site Trip Assignment

Alternative C

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

ATTACHMENT 3

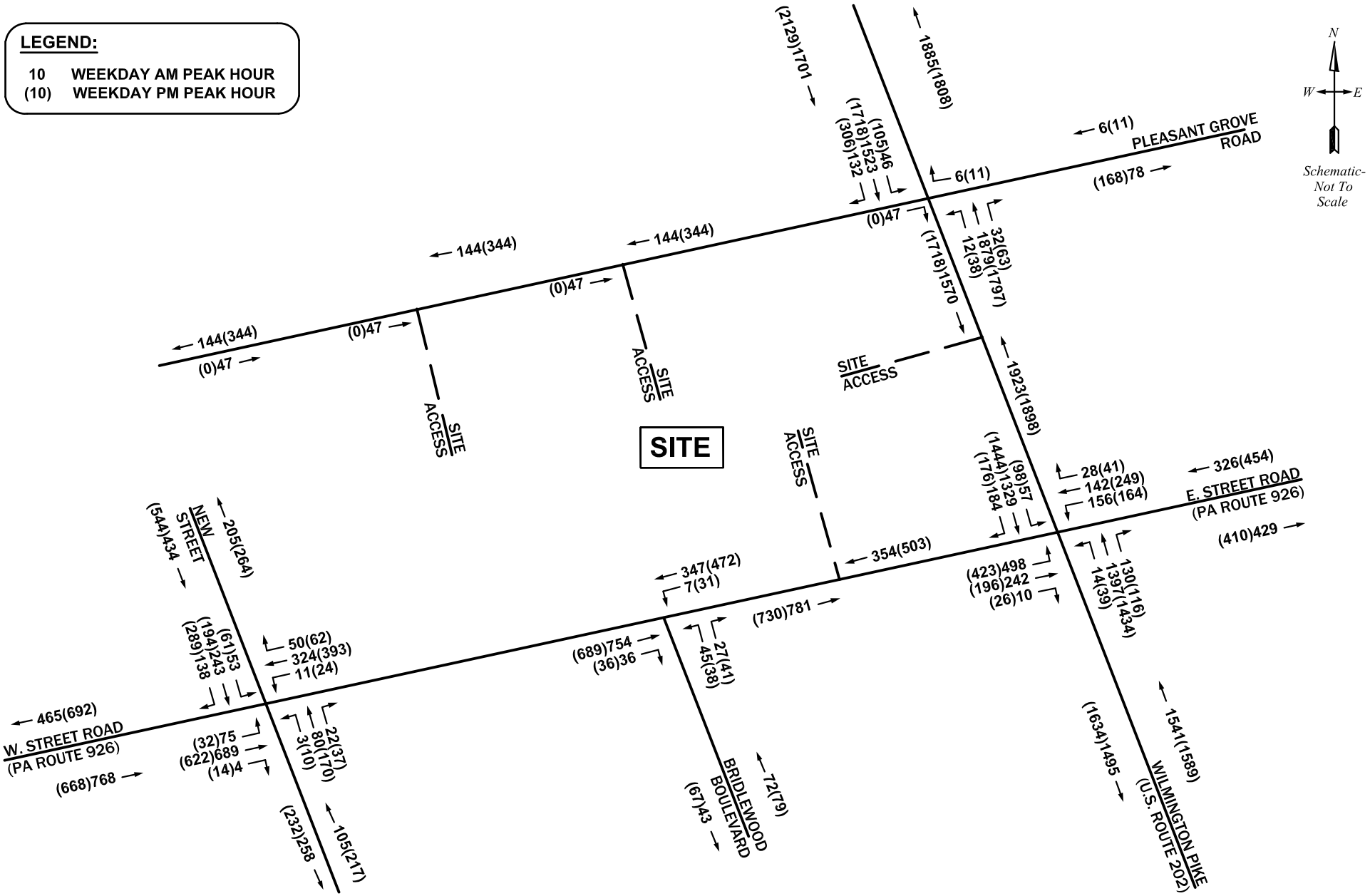


FIGURE 3A

2016 Existing Peak Hour Traffic Volumes

CREBILLY FARM RESIDENTIAL DEVELOPMENT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

(10/7/2016) I:\eng\816451 - Crebilly Farm\dwg\TIS Township Submission 2016-10-7\Figure 3A.dwg

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: New Street &
Street Road (Route 926)
Counter/Board #: HR

File Name : westtown01w
Site Code : 81645101
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	New Street Southbound				Street Rd (Rt 926) Westbound				New Street Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	14	44	0	12	3	79	2	3	6	7	1	9	9	206	0	0	395
07:15	10	50	0	20	4	85	3	4	3	21	0	5	26	173	0	0	404
07:30	6	46	0	29	2	82	2	14	2	27	0	4	16	167	0	6	403
07:45	15	61	0	28	4	86	1	19	0	23	0	7	25	173	0	1	443
Total	45	201	0	89	13	332	8	40	11	78	1	25	76	719	0	7	1645
08:00	4	66	0	41	0	82	0	11	0	22	0	5	22	172	1	1	427
08:15	14	63	0	37	7	83	0	8	1	17	0	3	16	154	0	0	403
08:30	20	53	0	32	0	73	2	9	2	18	0	7	12	190	0	1	419
08:45	10	40	0	41	1	66	0	12	0	18	0	9	11	155	0	0	363
Total	48	222	0	151	8	304	2	40	3	75	0	24	61	671	1	2	1612
16:00	21	39	0	67	2	107	0	19	5	23	0	3	6	130	0	2	424
16:15	22	46	0	77	2	117	1	14	5	32	0	3	7	120	0	4	450
16:30	14	37	0	86	1	102	1	19	2	23	0	5	5	149	0	1	445
16:45	16	57	0	72	1	104	1	18	2	32	0	4	5	139	0	1	452
Total	73	179	0	302	6	430	3	70	14	110	0	15	23	538	0	8	1771
17:00	15	52	0	75	2	96	2	16	4	62	1	8	6	138	1	3	481
17:15	20	52	0	64	4	86	2	13	2	43	0	10	7	160	0	3	466
17:30	17	34	0	80	5	124	2	11	3	28	0	11	8	160	0	3	486
17:45	9	56	0	70	13	87	1	15	1	37	0	7	11	164	0	4	475
Total	61	194	0	289	24	393	7	55	10	170	1	36	32	622	1	13	1908
Grand Total	227	796	0	831	51	1459	20	205	38	433	2	100	192	2550	2	30	6936
Apprch %	12.2	42.9	0	44.8	2.9	84.1	1.2	11.8	6.6	75.6	0.3	17.5	6.9	91.9	0.1	1.1	
Total %	3.3	11.5	0	12	0.7	21	0.3	3	0.5	6.2	0	1.4	2.8	36.8	0	0.4	
Passenger Vehicles	221	792	0	814	46	1398	20	201	34	425	2	96	189	2473	2	30	6743
% Passenger Vehicles	97.4	99.5	0	98	90.2	95.8	100	98	89.5	98.2	100	96	98.4	97	100	100	97.2
Heavy Vehicles	6	4	0	17	5	61	0	4	4	8	0	4	3	77	0	0	193
% Heavy Vehicles	2.6	0.5	0	2	9.8	4.2	0	2	10.5	1.8	0	4	1.6	3	0	0	2.8

Zero Pedestrians were observed during this study.

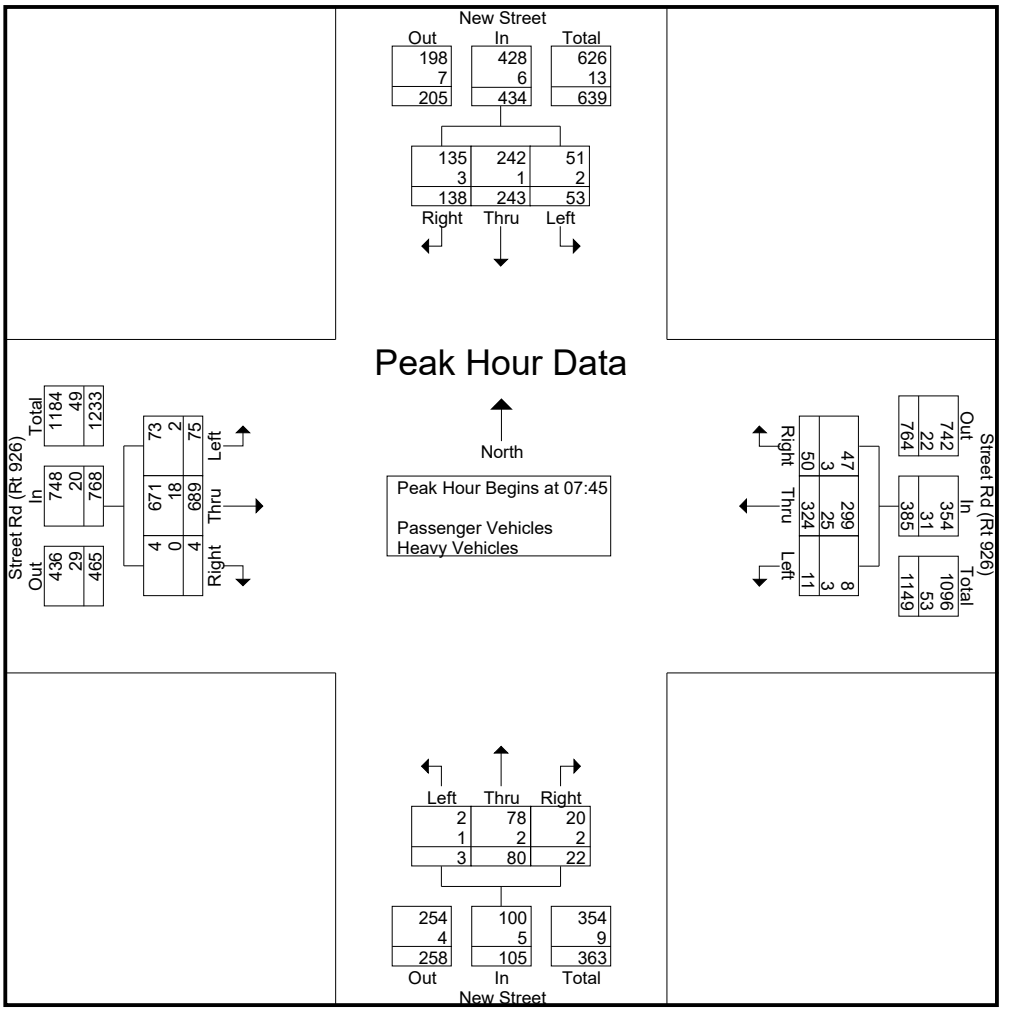
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: New Street &
Street Road (Route 926)
Counter/Board #: HR

File Name : westtown01w
Site Code : 81645101
Start Date : 9/8/2016
Page No : 2

	New Street Southbound					Street Rd (Rt 926) Westbound					New Street Northbound					Street Rd (Rt 926) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	RO R	Right	App. Total	Left	Thru	RO R	Right	App. Total	Left	Thru	RO R	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45																					
07:45	15	61	0	28	104	4	86	1	19	110	0	23	0	7	30	25	173	0	1	199	443
08:00	4	66	0	41	111	0	82	0	11	93	0	22	0	5	27	22	172	1	1	196	427
08:15	14	63	0	37	114	7	83	0	8	98	1	17	0	3	21	16	154	0	0	170	403
08:30	20	53	0	32	105	0	73	2	9	84	2	18	0	7	27	12	190	0	1	203	419
Total Volume	53	243	0	138	434	11	324	3	47	385	3	80	0	22	105	75	689	1	3	768	1692
% App. Total	12.2	56	0	31.8		2.9	84.2	0.8	12.2		2.9	76.2	0	21		9.8	89.7	0.1	0.4		
PHF	.663	.920	.000	.841	.952	.393	.942	.375	.618	.875	.375	.870	.000	.786	.875	.750	.907	.250	.750	.946	.955
Passenger Vehicles																					
% Passenger Vehicles	96.2	99.6	0	97.8	98.6	72.7	92.3	100	93.6	91.9	66.7	97.5	0	90.9	95.2	97.3	97.4	100	100	97.4	96.3
Heavy Vehicles																					
% Heavy Vehicles	3.8	0.4	0	2.2	1.4	27.3	7.7	0	6.4	8.1	33.3	2.5	0	9.1	4.8	2.7	2.6	0	0	2.6	3.7



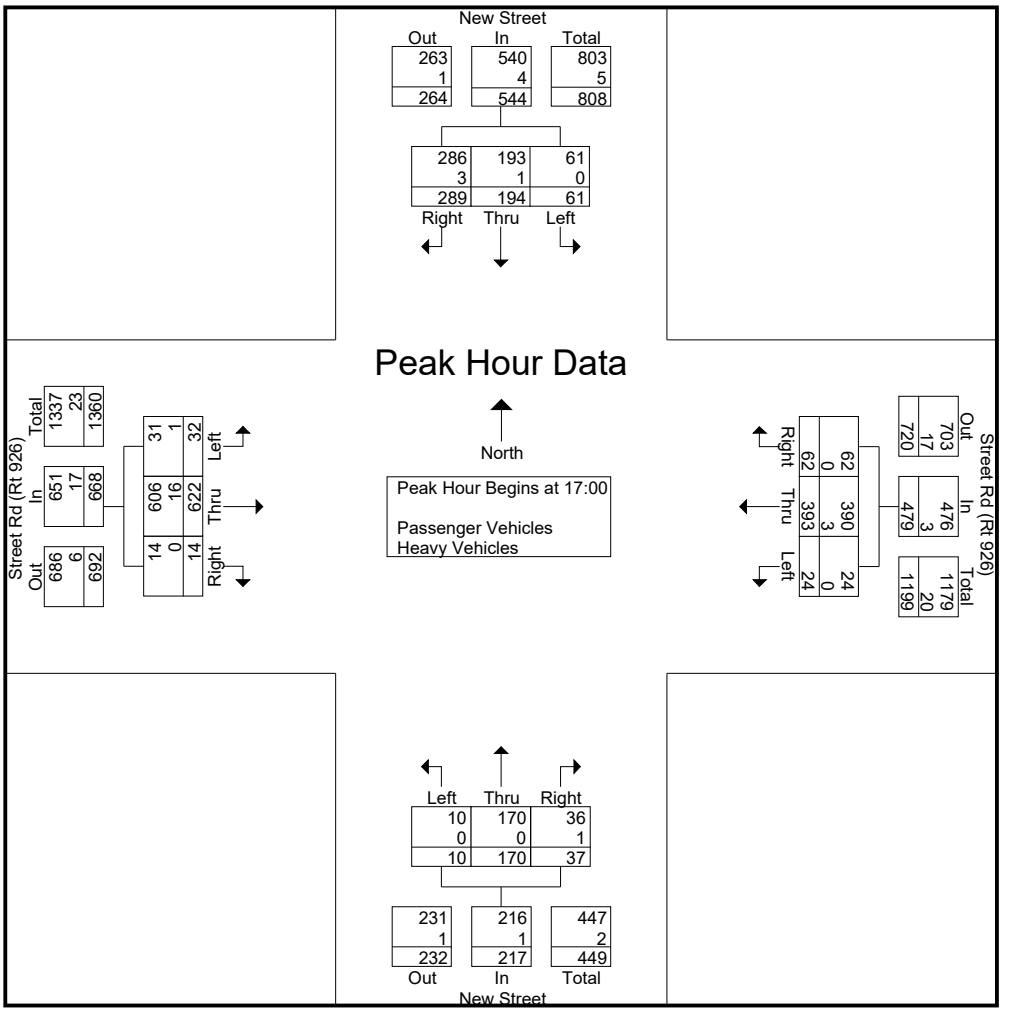
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: New Street &
Street Road (Route 926)
Counter/Board #: HR

File Name : westtown01w
Site Code : 81645101
Start Date : 9/8/2016
Page No : 3

	New Street Southbound					Street Rd (Rt 926) Westbound					New Street Northbound					Street Rd (Rt 926) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 17:00																					
17:00	15	52	0	75	142	2	96	2	16	116	4	62	1	8	75	6	138	1	3	148	481
17:15	20	52	0	64	136	4	86	2	13	105	2	43	0	10	55	7	160	0	3	170	466
17:30	17	34	0	80	131	5	124	2	11	142	3	28	0	11	42	8	160	0	3	171	486
17:45	9	56	0	70	135	13	87	1	15	116	1	37	0	7	45	11	164	0	4	179	475
Total Volume	61	194	0	289	544	24	393	7	55	479	10	170	1	36	217	32	622	1	13	668	1908
% App. Total	11.2	35.7	0	53.1		5	82	1.5	11.5		4.6	78.3	0.5	16.6		4.8	93.1	0.1	1.9		
PHF	.763	.866	.000	.903	.958	.462	.792	.875	.859	.843	.625	.685	.250	.818	.723	.727	.948	.250	.813	.933	.981
Passenger Vehicles																					
% Passenger Vehicles	100	99.5	0	99.0	99.3	100	99.2	100	100	99.4	100	100	100	97.2	99.5	96.9	97.4	100	100	97.5	98.7
Heavy Vehicles																					
% Heavy Vehicles	0	0.5	0	1.0	0.7	0	0.8	0	0	0.6	0	0	0	2.8	0.5	3.1	2.6	0	0	2.5	1.3



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: New Street &
Street Road (Route 926)
Counter/Board #: HR

File Name : westtown01w
Site Code : 81645101
Start Date : 9/8/2016
Page No : 1

Groups Printed- Heavy Vehicles

	New Street Southbound				Street Rd (Rt 926) Westbound				New Street Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	1	0	0	0	1	6	0	0	0	0	0	0	0	3	0	0	11
07:15	0	0	0	0	1	5	0	1	1	0	0	1	0	2	0	0	11
07:30	2	0	0	1	0	6	0	0	0	1	0	0	0	10	0	0	20
07:45	0	0	0	0	0	5	0	2	0	1	0	0	0	4	0	0	12
Total	3	0	0	1	2	22	0	3	1	2	0	1	0	19	0	0	54
08:00	0	0	0	1	0	9	0	0	0	0	0	0	0	10	0	0	20
08:15	0	0	0	1	3	4	0	1	0	0	0	0	2	1	0	0	12
08:30	2	1	0	1	0	7	0	0	1	1	0	2	0	3	0	0	18
08:45	0	0	0	3	0	4	0	0	0	1	0	0	0	6	0	0	14
Total	2	1	0	6	3	24	0	1	1	2	0	2	2	20	0	0	64
16:00	1	1	0	1	0	4	0	0	1	2	0	0	0	7	0	0	17
16:15	0	0	0	2	0	4	0	0	1	1	0	0	0	7	0	0	15
16:30	0	1	0	3	0	1	0	0	0	1	0	0	0	4	0	0	10
16:45	0	0	0	1	0	3	0	0	0	0	0	0	0	4	0	0	8
Total	1	2	0	7	0	12	0	0	2	4	0	0	0	22	0	0	50
17:00	0	0	0	2	0	2	0	0	0	0	0	1	0	5	0	0	10
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
17:30	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
17:45	0	0	0	1	0	1	0	0	0	0	0	0	1	5	0	0	8
Total	0	1	0	3	0	3	0	0	0	0	0	1	1	16	0	0	25
Grand Total	6	4	0	17	5	61	0	4	4	8	0	4	3	77	0	0	193
Apprch %	22.2	14.8	0	63	7.1	87.1	0	5.7	25	50	0	25	3.8	96.2	0	0	
Total %	3.1	2.1	0	8.8	2.6	31.6	0	2.1	2.1	4.1	0	2.1	1.6	39.9	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: New Street &
Street Road (Route 926)
Counter/Board #: HR

File Name : westtown01w
Site Code : 81645101
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles

	New Street Southbound				Street Rd (Rt 926) Westbound				New Street Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	13	44	0	12	2	73	2	3	6	7	1	9	9	203	0	0	384
07:15	10	50	0	20	3	80	3	3	2	21	0	4	26	171	0	0	393
07:30	4	46	0	28	2	76	2	14	2	26	0	4	16	157	0	6	383
07:45	15	61	0	28	4	81	1	17	0	22	0	7	25	169	0	1	431
Total	42	201	0	88	11	310	8	37	10	76	1	24	76	700	0	7	1591
08:00	4	66	0	40	0	73	0	11	0	22	0	5	22	162	1	1	407
08:15	14	63	0	36	4	79	0	7	1	17	0	3	14	153	0	0	391
08:30	18	52	0	31	0	66	2	9	1	17	0	5	12	187	0	1	401
08:45	10	40	0	38	1	62	0	12	0	17	0	9	11	149	0	0	349
Total	46	221	0	145	5	280	2	39	2	73	0	22	59	651	1	2	1548
16:00	20	38	0	66	2	103	0	19	4	21	0	3	6	123	0	2	407
16:15	22	46	0	75	2	113	1	14	4	31	0	3	7	113	0	4	435
16:30	14	36	0	83	1	101	1	19	2	22	0	5	5	145	0	1	435
16:45	16	57	0	71	1	101	1	18	2	32	0	4	5	135	0	1	444
Total	72	177	0	295	6	418	3	70	12	106	0	15	23	516	0	8	1721
17:00	15	52	0	73	2	94	2	16	4	62	1	7	6	133	1	3	471
17:15	20	52	0	64	4	86	2	13	2	43	0	10	7	156	0	3	462
17:30	17	33	0	80	5	124	2	11	3	28	0	11	8	158	0	3	483
17:45	9	56	0	69	13	86	1	15	1	37	0	7	10	159	0	4	467
Total	61	193	0	286	24	390	7	55	10	170	1	35	31	606	1	13	1883
Grand Total	221	792	0	814	46	1398	20	201	34	425	2	96	189	2473	2	30	6743
Apprch %	12.1	43.3	0	44.6	2.8	84	1.2	12.1	6.1	76.3	0.4	17.2	7	91.8	0.1	1.1	
Total %	3.3	11.7	0	12.1	0.7	20.7	0.3	3	0.5	6.3	0	1.4	2.8	36.7	0	0.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Street Road (Route 926) &
Bridlewood Boulevard
Counter/Board #: RR

File Name : westtown02w
Site Code : 00000000
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Street Rd (Rt 926) Westbound		Bridlewood Blvd Northbound		Street Rd (Rt 926) Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	5	82	5	10	192	4	298
07:15	2	94	6	11	191	12	316
07:30	5	92	6	6	165	7	281
07:45	4	94	11	5	189	10	313
Total	16	362	28	32	737	33	1208
08:00	0	90	9	6	184	2	291
08:15	3	86	13	3	178	7	290
08:30	0	77	12	13	203	17	322
08:45	0	75	10	8	183	11	287
Total	3	328	44	30	748	37	1190
16:00	3	128	4	3	140	14	292
16:15	2	112	4	4	143	3	268
16:30	5	129	5	5	163	8	315
16:45	6	110	6	7	142	6	277
Total	16	479	19	19	588	31	1152
17:00	5	115	10	9	158	11	308
17:15	6	110	14	11	186	7	334
17:30	8	134	7	12	164	9	334
17:45	12	113	7	9	181	9	331
Total	31	472	38	41	689	36	1307
Grand Total	66	1641	129	122	2762	137	4857
Apprch %	3.9	96.1	51.4	48.6	95.3	4.7	
Total %	1.4	33.8	2.7	2.5	56.9	2.8	
Passenger Vehicles	66	1558	129	122	2649	136	4660
% Passenger Vehicles	100	94.9	100	100	95.9	99.3	95.9
Heavy Vehicles	0	83	0	0	113	1	197
% Heavy Vehicles	0	5.1	0	0	4.1	0.7	4.1

Zero Pedestrians were observed during this study.

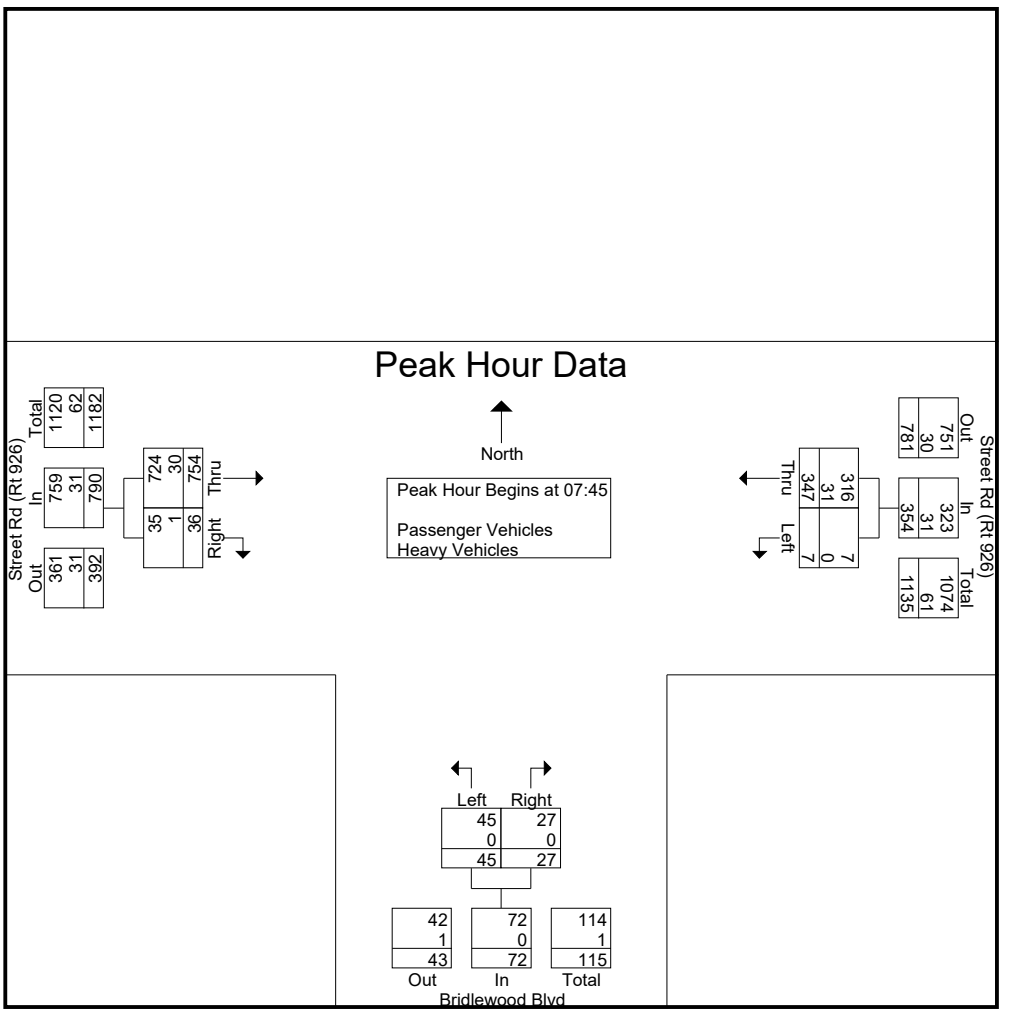
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Street Road (Route 926) &
Bridlewood Boulevard
Counter/Board #: RR

File Name : westtown02w
Site Code : 00000000
Start Date : 9/8/2016
Page No : 2

	Street Rd (Rt 926) Westbound			Bridlewood Blvd Northbound			Street Rd (Rt 926) Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	4	94	98	11	5	16	189	10	199	313
08:00	0	90	90	9	6	15	184	2	186	291
08:15	3	86	89	13	3	16	178	7	185	290
08:30	0	77	77	12	13	25	203	17	220	322
Total Volume	7	347	354	45	27	72	754	36	790	1216
% App. Total	2	98		62.5	37.5		95.4	4.6		
PHF	.438	.923	.903	.865	.519	.720	.929	.529	.898	.944
Passenger Vehicles	7	316	323	45	27	72	724	35	759	1154
% Passenger Vehicles	100	91.1	91.2	100	100	100	96.0	97.2	96.1	94.9
Heavy Vehicles	0	31	31	0	0	0	30	1	31	62
% Heavy Vehicles	0	8.9	8.8	0	0	0	4.0	2.8	3.9	5.1



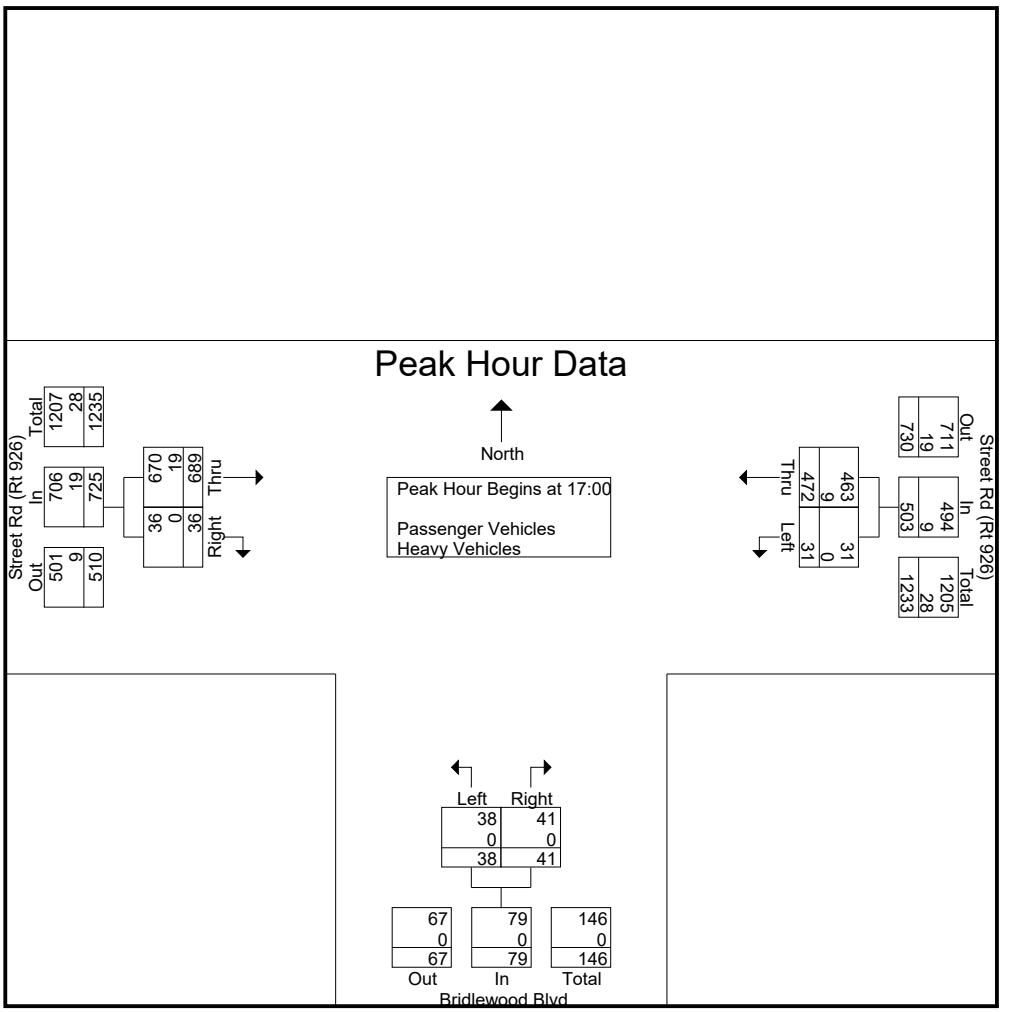
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Street Road (Route 926) &
Bridlewood Boulevard
Counter/Board #: RR

File Name : westtown02w
Site Code : 00000000
Start Date : 9/8/2016
Page No : 3

	Street Rd (Rt 926) Westbound			Bridlewood Blvd Northbound			Street Rd (Rt 926) Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 17:00										
17:00	5	115	120	10	9	19	158	11	169	308
17:15	6	110	116	14	11	25	186	7	193	334
17:30	8	134	142	7	12	19	164	9	173	334
17:45	12	113	125	7	9	16	181	9	190	331
Total Volume	31	472	503	38	41	79	689	36	725	1307
% App. Total	6.2	93.8		48.1	51.9		95	5		
PHF	.646	.881	.886	.679	.854	.790	.926	.818	.939	.978
Passenger Vehicles	31	463	494	38	41	79	670	36	706	1279
% Passenger Vehicles	100	98.1	98.2	100	100	100	97.2	100	97.4	97.9
Heavy Vehicles	0	9	9	0	0	0	19	0	19	28
% Heavy Vehicles	0	1.9	1.8	0	0	0	2.8	0	2.6	2.1



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Municipality: Westtown Township
Location: Street Road (Route 926) &
Bridlewood Boulevard
Counter/Board #: RR

File Name : westtown02w
Site Code : 00000000
Start Date : 9/8/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Street Rd (Rt 926) Westbound		Bridlewood Blvd Northbound		Street Rd (Rt 926) Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	6	0	0	6	0	12
07:15	0	9	0	0	6	0	15
07:30	0	6	0	0	12	0	18
07:45	0	6	0	0	6	0	12
Total	0	27	0	0	30	0	57
08:00	0	10	0	0	14	0	24
08:15	0	7	0	0	3	0	10
08:30	0	8	0	0	7	1	16
08:45	0	6	0	0	10	0	16
Total	0	31	0	0	34	1	66
16:00	0	4	0	0	11	0	15
16:15	0	5	0	0	9	0	14
16:30	0	4	0	0	6	0	10
16:45	0	3	0	0	4	0	7
Total	0	16	0	0	30	0	46
17:00	0	3	0	0	6	0	9
17:15	0	1	0	0	6	0	7
17:30	0	2	0	0	2	0	4
17:45	0	3	0	0	5	0	8
Total	0	9	0	0	19	0	28
Grand Total	0	83	0	0	113	1	197
Apprch %	0	100	0	0	99.1	0.9	
Total %	0	42.1	0	0	57.4	0.5	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Street Road (Route 926) &
Bridlewood Boulevard
Counter/Board #: RR

File Name : westtown02w
Site Code : 00000000
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Street Rd (Rt 926) Westbound		Bridlewood Blvd Northbound		Street Rd (Rt 926) Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	5	76	5	10	186	4	286
07:15	2	85	6	11	185	12	301
07:30	5	86	6	6	153	7	263
07:45	4	88	11	5	183	10	301
Total	16	335	28	32	707	33	1151
08:00	0	80	9	6	170	2	267
08:15	3	79	13	3	175	7	280
08:30	0	69	12	13	196	16	306
08:45	0	69	10	8	173	11	271
Total	3	297	44	30	714	36	1124
16:00	3	124	4	3	129	14	277
16:15	2	107	4	4	134	3	254
16:30	5	125	5	5	157	8	305
16:45	6	107	6	7	138	6	270
Total	16	463	19	19	558	31	1106
17:00	5	112	10	9	152	11	299
17:15	6	109	14	11	180	7	327
17:30	8	132	7	12	162	9	330
17:45	12	110	7	9	176	9	323
Total	31	463	38	41	670	36	1279
Grand Total	66	1558	129	122	2649	136	4660
Apprch %	4.1	95.9	51.4	48.6	95.1	4.9	
Total %	1.4	33.4	2.8	2.6	56.8	2.9	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name : westtown03w
Site Code : 81645103
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound				Street Rd (Rt 926) Westbound				Route 202 Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	25	278	2	41	32	26	1	1	2	261	5	33	131	68	0	4	910
07:15	10	321	5	45	49	37	0	11	1	319	6	32	114	54	0	2	1006
07:30	9	283	6	37	28	37	0	6	5	309	2	21	128	63	0	1	935
07:45	13	267	5	43	47	42	2	7	6	264	5	26	125	57	0	3	912
Total	57	1149	18	166	156	142	3	25	14	1153	18	112	498	242	0	10	3763
08:00	14	306	1	25	24	40	1	9	4	274	4	27	92	56	0	0	877
08:15	13	267	5	30	41	43	0	6	6	230	5	30	131	57	0	2	866
08:30	10	279	1	34	40	31	0	8	3	238	1	30	118	55	0	3	851
08:45	13	275	4	48	42	17	1	9	3	247	4	28	111	50	0	5	857
Total	50	1127	11	137	147	131	2	32	16	989	14	115	452	218	0	10	3451
16:00	28	312	15	31	29	58	0	9	16	355	1	26	105	49	0	6	1040
16:15	13	343	7	40	44	62	3	11	5	384	9	22	87	41	0	4	1075
16:30	22	287	13	30	43	67	5	3	12	338	10	14	130	62	0	8	1044
16:45	35	358	11	29	48	62	6	4	6	357	14	20	101	44	0	8	1103
Total	98	1300	46	130	164	249	14	27	39	1434	34	82	423	196	0	26	4262
17:00	21	303	10	25	38	57	1	5	7	312	13	17	77	35	0	7	928
17:15	33	318	13	35	37	47	1	6	7	335	10	18	113	69	0	4	1046
17:30	22	336	9	37	41	63	3	0	9	356	7	18	102	33	0	7	1043
17:45	12	319	13	33	62	73	1	2	11	364	7	19	113	41	0	3	1073
Total	88	1276	45	130	178	240	6	13	34	1367	37	72	405	178	0	21	4090
Grand Total	293	4852	120	563	645	762	25	97	103	4943	103	381	1778	834	0	67	15566
Apprch %	5	83.3	2.1	9.7	42.2	49.8	1.6	6.3	1.9	89.4	1.9	6.9	66.4	31.1	0	2.5	
Total %	1.9	31.2	0.8	3.6	4.1	4.9	0.2	0.6	0.7	31.8	0.7	2.4	11.4	5.4	0	0.4	
Passenger Vehicles	280	4505	120	520	622	747	25	82	98	4640	103	351	1743	797	0	64	14697
% Passenger Vehicles	95.6	92.8	100	92.4	96.4	98	100	84.5	95.1	93.9	100	92.1	98	95.6	0	95.5	94.4
Heavy Vehicles	13	347	0	43	23	15	0	15	5	303	0	30	35	37	0	3	869
% Heavy Vehicles	4.4	7.2	0	7.6	3.6	2	0	15.5	4.9	6.1	0	7.9	2	4.4	0	4.5	5.6

Zero Pedestrians were observed during this study.

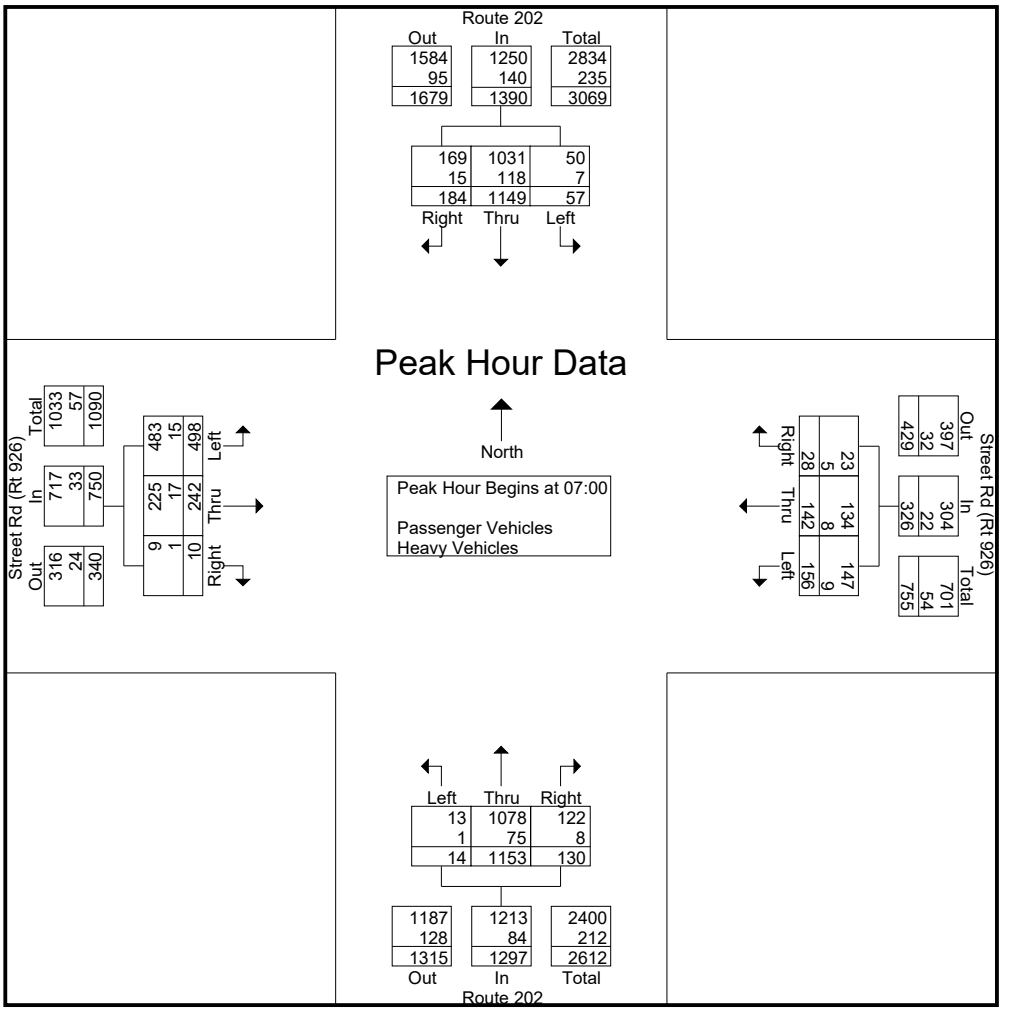
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name : westtown03w
Site Code : 81645103
Start Date : 9/8/2016
Page No : 2

	Route 202 Southbound					Street Rd (Rt 926) Westbound					Route 202 Northbound					Street Rd (Rt 926) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	RO R	Right	App. Total	Left	Thru	RO R	Right	App. Total	Left	Thru	RO R	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00																					
07:00	25	278	2	41	346	32	26	1	1	60	2	261	5	33	301	131	68	0	4	203	910
07:15	10	321	5	45	381	49	37	0	11	97	1	319	6	32	358	114	54	0	2	170	1006
07:30	9	283	6	37	335	28	37	0	6	71	5	309	2	21	337	128	63	0	1	192	935
07:45	13	267	5	43	328	47	42	2	7	98	6	264	5	26	301	125	57	0	3	185	912
Total Volume	57	1149	18	166	1390	156	142	3	25	326	14	1153	18	112	1297	498	242	0	10	750	3763
% App. Total	4.1	82.7	1.3	11.9		47.9	43.6	0.9	7.7		1.1	88.9	1.4	8.6		66.4	32.3	0	1.3		
PHF	.570	.895	.750	.922	.912	.796	.845	.375	.568	.832	.583	.904	.750	.848	.906	.950	.890	.000	.625	.924	.935
Passenger Vehicles		1031										1078									
% Passenger Vehicles	87.7	89.7	100	91.0	89.9	94.2	94.4	100	80.0	93.3	92.9	93.5	100	92.9	93.5	97.0	93.0	0	90.0	95.6	92.6
Heavy Vehicles																					
% Heavy Vehicles	12.3	10.3	0	9.0	10.1	5.8	5.6	0	20.0	6.7	7.1	6.5	0	7.1	6.5	3.0	7.0	0	10.0	4.4	7.4



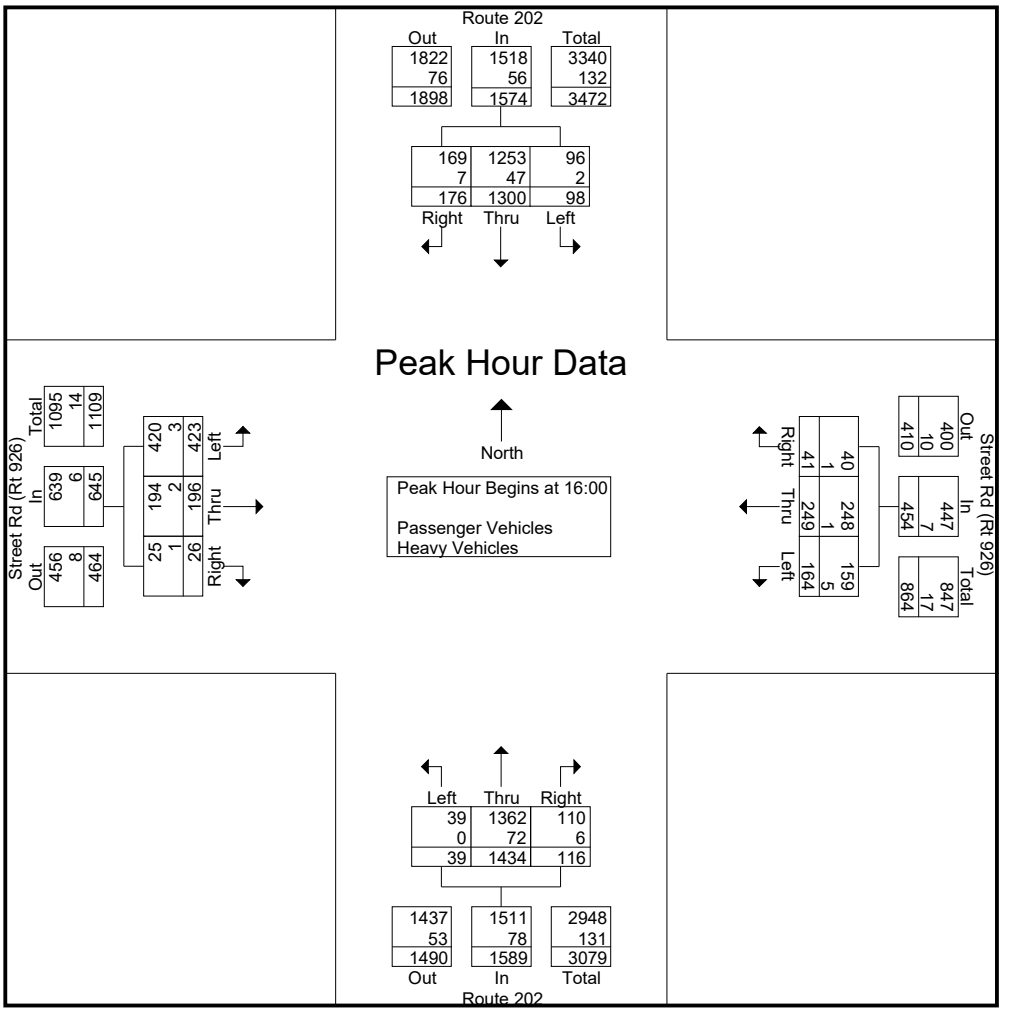
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name : westtown03w
Site Code : 81645103
Start Date : 9/8/2016
Page No : 3

	Route 202 Southbound					Street Rd (Rt 926) Westbound					Route 202 Northbound					Street Rd (Rt 926) Eastbound					
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 16:00																					
16:00	28	312	15	31	386	29	58	0	9	96	16	355	1	26	398	105	49	0	6	160	1040
16:15	13	343	7	40	403	44	62	3	11	120	5	384	9	22	420	87	41	0	4	132	1075
16:30	22	287	13	30	352	43	67	5	3	118	12	338	10	14	374	130	62	0	8	200	1044
16:45	35	358	11	29	433	48	62	6	4	120	6	357	14	20	397	101	44	0	8	153	1103
Total Volume	98	1300	46	130	1574	164	249	14	27	454	39	1434	34	82	1589	423	196	0	26	645	4262
% App. Total	6.2	82.6	2.9	8.3		36.1	54.8	3.1	5.9		2.5	90.2	2.1	5.2		65.6	30.4	0	4		
PHF	.700	.908	.767	.813	.909	.854	.929	.583	.614	.946	.609	.934	.607	.788	.946	.813	.790	.000	.813	.806	.966
Passenger Vehicles		1253										1362									
% Passenger Vehicles	98.0	96.4	100	94.6	96.4	97.0	99.6	100	96.3	98.5	100	95.0	100	92.7	95.1	99.3	99.0	0	96.2	99.1	96.6
Heavy Vehicles																					
% Heavy Vehicles	2.0	3.6	0	5.4	3.6	3.0	0.4	0	3.7	1.5	0	5.0	0	7.3	4.9	0.7	1.0	0	3.8	0.9	3.4



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name : westtown03w
Site Code : 81645103
Start Date : 9/8/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Route 202 Southbound				Street Rd (Rt 926) Westbound				Route 202 Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	3	31	0	4	2	1	0	1	1	17	0	3	1	5	0	0	69
07:15	0	36	0	6	3	4	0	3	0	12	0	2	1	4	0	0	71
07:30	2	26	0	2	2	1	0	1	0	21	0	0	5	2	0	0	62
07:45	2	25	0	3	2	2	0	0	0	25	0	3	8	6	0	1	77
Total	7	118	0	15	9	8	0	5	1	75	0	8	15	17	0	1	279
08:00	2	38	0	4	1	3	0	1	2	28	0	3	4	3	0	0	89
08:15	0	25	0	6	1	2	0	0	1	25	0	4	3	7	0	0	74
08:30	0	32	0	6	2	1	0	0	1	26	0	3	3	2	0	0	76
08:45	1	34	0	4	2	0	0	1	0	21	0	2	2	6	0	1	74
Total	3	129	0	20	6	6	0	2	4	100	0	12	12	18	0	1	313
16:00	1	12	0	2	1	1	0	1	0	23	0	3	0	0	0	1	45
16:15	0	14	0	4	1	0	0	0	0	22	0	2	2	2	0	0	47
16:30	1	11	0	1	3	0	0	0	0	13	0	1	1	0	0	0	31
16:45	0	10	0	0	0	0	0	0	0	14	0	0	0	0	0	0	24
Total	2	47	0	7	5	1	0	1	0	72	0	6	3	2	0	1	147
17:00	0	17	0	1	0	0	0	2	0	11	0	0	2	0	0	0	33
17:15	1	12	0	0	2	0	0	5	0	16	0	3	1	0	0	0	40
17:30	0	11	0	0	1	0	0	0	0	15	0	0	1	0	0	0	28
17:45	0	13	0	0	0	0	0	0	0	14	0	1	1	0	0	0	29
Total	1	53	0	1	3	0	0	7	0	56	0	4	5	0	0	0	130
Grand Total	13	347	0	43	23	15	0	15	5	303	0	30	35	37	0	3	869
Apprch %	3.2	86.1	0	10.7	43.4	28.3	0	28.3	1.5	89.6	0	8.9	46.7	49.3	0	4	
Total %	1.5	39.9	0	4.9	2.6	1.7	0	1.7	0.6	34.9	0	3.5	4	4.3	0	0.3	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name : westtown03w
Site Code : 81645103
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles

	Route 202 Southbound				Street Rd (Rt 926) Westbound				Route 202 Northbound				Street Rd (Rt 926) Eastbound				
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	22	247	2	37	30	25	1	0	1	244	5	30	130	63	0	4	841
07:15	10	285	5	39	46	33	0	8	1	307	6	30	113	50	0	2	935
07:30	7	257	6	35	26	36	0	5	5	288	2	21	123	61	0	1	873
07:45	11	242	5	40	45	40	2	7	6	239	5	23	117	51	0	2	835
Total	50	1031	18	151	147	134	3	20	13	1078	18	104	483	225	0	9	3484
08:00	12	268	1	21	23	37	1	8	2	246	4	24	88	53	0	0	788
08:15	13	242	5	24	40	41	0	6	5	205	5	26	128	50	0	2	792
08:30	10	247	1	28	38	30	0	8	2	212	1	27	115	53	0	3	775
08:45	12	241	4	44	40	17	1	8	3	226	4	26	109	44	0	4	783
Total	47	998	11	117	141	125	2	30	12	889	14	103	440	200	0	9	3138
16:00	27	300	15	29	28	57	0	8	16	332	1	23	105	49	0	5	995
16:15	13	329	7	36	43	62	3	11	5	362	9	20	85	39	0	4	1028
16:30	21	276	13	29	40	67	5	3	12	325	10	13	129	62	0	8	1013
16:45	35	348	11	29	48	62	6	4	6	343	14	20	101	44	0	8	1079
Total	96	1253	46	123	159	248	14	26	39	1362	34	76	420	194	0	25	4115
17:00	21	286	10	24	38	57	1	3	7	301	13	17	75	35	0	7	895
17:15	32	306	13	35	35	47	1	1	7	319	10	15	112	69	0	4	1006
17:30	22	325	9	37	40	63	3	0	9	341	7	18	101	33	0	7	1015
17:45	12	306	13	33	62	73	1	2	11	350	7	18	112	41	0	3	1044
Total	87	1223	45	129	175	240	6	6	34	1311	37	68	400	178	0	21	3960
Grand Total	280	4505	120	520	622	747	25	82	98	4640	103	351	1743	797	0	64	14697
Apprch %	5.2	83	2.2	9.6	42.1	50.6	1.7	5.6	1.9	89.4	2	6.8	66.9	30.6	0	2.5	
Total %	1.9	30.7	0.8	3.5	4.2	5.1	0.2	0.6	0.7	31.6	0.7	2.4	11.9	5.4	0	0.4	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 20 &
Pleasant Grove Road
Counter/Board #: LB+JB

File Name : westtown04w
Site Code : 81645104
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound			Pleasant Grove Rd Westbound			Route 202 Northbound			Pleasant Grove Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	19	370	14	0	0	2	2	455	5	0	0	14	881
07:15	9	433	31	0	0	2	2	545	6	0	0	13	1041
07:30	5	397	37	0	0	0	2	522	4	0	0	10	977
07:45	13	323	50	0	0	2	6	357	17	0	0	10	778
Total	46	1523	132	0	0	6	12	1879	32	0	0	47	3677
08:00	13	367	50	0	0	2	4	407	4	0	1	4	852
08:15	9	252	37	0	0	0	3	290	5	1	0	6	603
08:30	19	275	37	0	0	0	1	231	0	0	0	10	573
08:45	13	332	57	0	0	2	17	304	5	0	0	8	738
Total	54	1226	181	0	0	4	25	1232	14	1	1	28	2766
16:00	22	430	79	0	0	4	15	469	8	0	0	0	1027
16:15	18	424	71	0	0	2	8	518	7	0	0	0	1048
16:30	23	401	91	0	0	0	9	490	4	0	0	0	1018
16:45	19	452	67	0	0	2	7	503	6	0	0	0	1056
Total	82	1707	308	0	0	8	39	1980	25	0	0	0	4149
17:00	32	412	67	0	0	2	5	523	13	0	0	0	1054
17:15	25	461	72	0	0	2	13	545	8	0	0	0	1126
17:30	29	531	90	0	0	0	8	534	14	0	0	0	1206
17:45	19	428	77	0	0	7	12	522	28	0	0	0	1093
Total	105	1832	306	0	0	11	38	2124	63	0	0	0	4479
Grand Total	287	6288	927	0	0	29	114	7215	134	1	1	75	15071
Apprch %	3.8	83.8	12.4	0	0	100	1.5	96.7	1.8	1.3	1.3	97.4	
Total %	1.9	41.7	6.2	0	0	0.2	0.8	47.9	0.9	0	0	0.5	
Passenger Vehicles	281	5903	908	0	0	26	109	6869	130	1	1	75	14303
% Passenger Vehicles	97.9	93.9	98	0	0	89.7	95.6	95.2	97	100	100	100	94.9
Heavy Vehicles	6	385	19	0	0	3	5	346	4	0	0	0	768
% Heavy Vehicles	2.1	6.1	2	0	0	10.3	4.4	4.8	3	0	0	0	5.1

Zero Pedestrians were observed during this study.

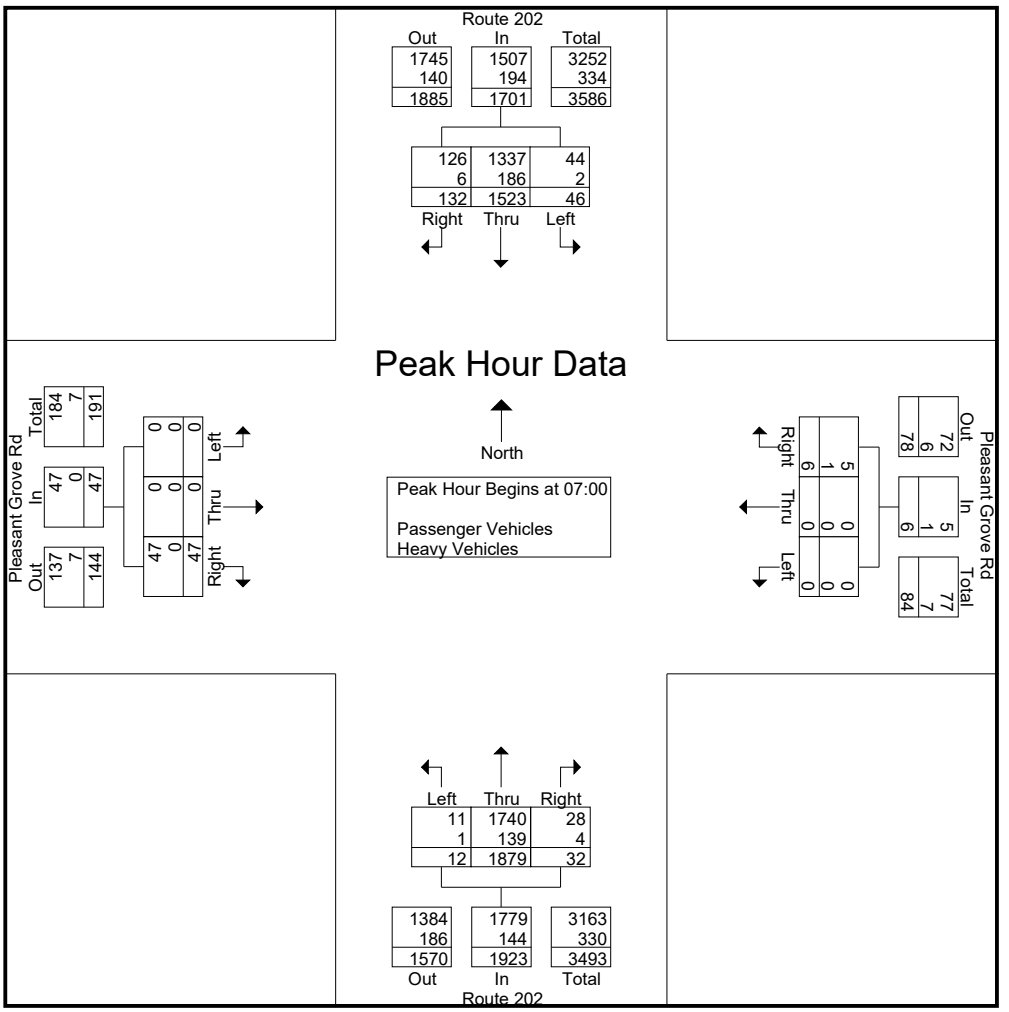
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 20 &
Pleasant Grove Road
Counter/Board #: LB+JB

File Name : westtown04w
Site Code : 81645104
Start Date : 9/8/2016
Page No : 2

	Route 202 Southbound				Pleasant Grove Rd Westbound				Route 202 Northbound				Pleasant Grove Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	19	370	14	403	0	0	2	2	2	455	5	462	0	0	14	14	881
07:15	9	433	31	473	0	0	2	2	2	545	6	553	0	0	13	13	1041
07:30	5	397	37	439	0	0	0	0	2	522	4	528	0	0	10	10	977
07:45	13	323	50	386	0	0	2	2	6	357	17	380	0	0	10	10	778
Total Volume	46	1523	132	1701	0	0	6	6	12	1879	32	1923	0	0	47	47	3677
% App. Total	2.7	89.5	7.8		0	0	100		0.6	97.7	1.7		0	0	100		
PHF	.605	.879	.660	.899	.000	.000	.750	.750	.500	.862	.471	.869	.000	.000	.839	.839	.883
Passenger Vehicles	44	1337	126	1507	0	0	5	5	11	1740	28	1779	0	0	47	47	3338
% Passenger Vehicles	95.7	87.8	95.5	88.6	0	0	83.3	83.3	91.7	92.6	87.5	92.5	0	0	100	100	90.8
Heavy Vehicles	2	186	6	194	0	0	1	1	1	139	4	144	0	0	0	0	339
% Heavy Vehicles	4.3	12.2	4.5	11.4	0	0	16.7	16.7	8.3	7.4	12.5	7.5	0	0	0	0	9.2



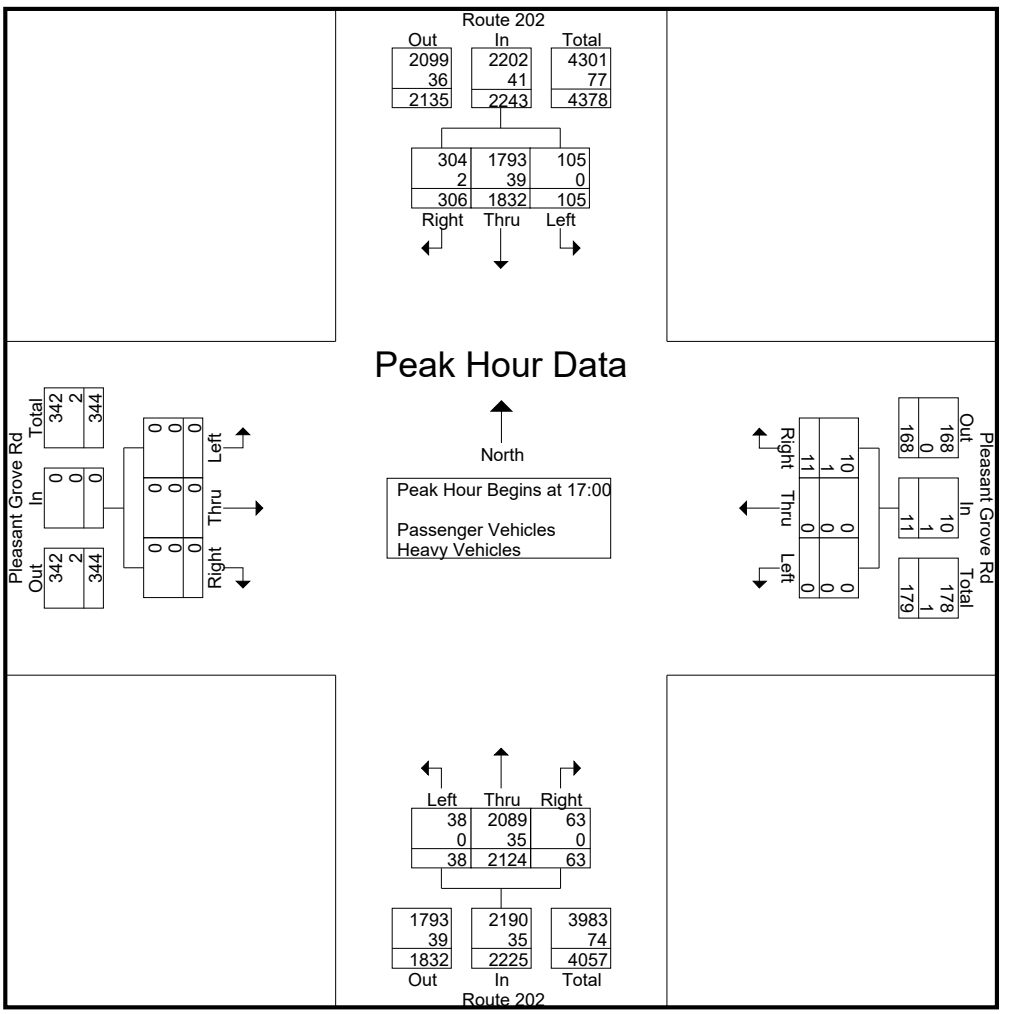
McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 20 &
Pleasant Grove Road
Counter/Board #: LB+JB

File Name : westtown04w
Site Code : 81645104
Start Date : 9/8/2016
Page No : 3

	Route 202 Southbound				Pleasant Grove Rd Westbound				Route 202 Northbound				Pleasant Grove Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	32	412	67	511	0	0	2	2	5	523	13	541	0	0	0	0	1054
17:15	25	461	72	558	0	0	2	2	13	545	8	566	0	0	0	0	1126
17:30	29	531	90	650	0	0	0	0	8	534	14	556	0	0	0	0	1206
17:45	19	428	77	524	0	0	7	7	12	522	28	562	0	0	0	0	1093
Total Volume	105	1832	306	2243	0	0	11	11	38	2124	63	2225	0	0	0	0	4479
% App. Total	4.7	81.7	13.6		0	0	100		1.7	95.5	2.8		0	0	0		
PHF	.820	.863	.850	.863	.000	.000	.393	.393	.731	.974	.563	.983	.000	.000	.000	.000	.928
Passenger Vehicles	105	1793	304	2202	0	0	10	10	38	2089	63	2190	0	0	0	0	4402
% Passenger Vehicles	100	97.9	99.3	98.2	0	0	90.9	90.9	100	98.4	100	98.4	0	0	0	0	98.3
Heavy Vehicles	0	39	2	41	0	0	1	1	0	35	0	35	0	0	0	0	77
% Heavy Vehicles	0	2.1	0.7	1.8	0	0	9.1	9.1	0	1.6	0	1.6	0	0	0	0	1.7



McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 20 &
Pleasant Grove Road
Counter/Board #: LB+JB

File Name : westtown04w
Site Code : 81645104
Start Date : 9/8/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Route 202 Southbound			Pleasant Grove Rd Westbound			Route 202 Northbound			Pleasant Grove Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	31	2	0	0	0	0	27	3	0	0	0	63
07:15	0	53	2	0	0	0	1	20	0	0	0	0	76
07:30	0	42	1	0	0	0	0	31	0	0	0	0	74
07:45	2	60	1	0	0	1	0	61	1	0	0	0	126
Total	2	186	6	0	0	1	1	139	4	0	0	0	339
08:00	2	43	2	0	0	0	0	42	0	0	0	0	89
08:15	0	21	1	0	0	0	1	41	0	0	0	0	64
08:30	1	33	2	0	0	0	0	23	0	0	0	0	59
08:45	0	28	1	0	0	0	1	21	0	0	0	0	51
Total	3	125	6	0	0	0	2	127	0	0	0	0	263
16:00	1	10	1	0	0	1	1	12	0	0	0	0	26
16:15	0	2	1	0	0	0	1	9	0	0	0	0	13
16:30	0	12	2	0	0	0	0	10	0	0	0	0	24
16:45	0	11	1	0	0	0	0	14	0	0	0	0	26
Total	1	35	5	0	0	1	2	45	0	0	0	0	89
17:00	0	13	1	0	0	0	0	13	0	0	0	0	27
17:15	0	8	0	0	0	1	0	9	0	0	0	0	18
17:30	0	9	0	0	0	0	0	10	0	0	0	0	19
17:45	0	9	1	0	0	0	0	3	0	0	0	0	13
Total	0	39	2	0	0	1	0	35	0	0	0	0	77
Grand Total	6	385	19	0	0	3	5	346	4	0	0	0	768
Apprch %	1.5	93.9	4.6	0	0	100	1.4	97.5	1.1	0	0	0	
Total %	0.8	50.1	2.5	0	0	0.4	0.7	45.1	0.5	0	0	0	

McMahon Associates, Inc.

425 Commerce Drive, Suite 200
Fort Washington, P A 19034

Municipality: Westtown Township
Location: Route 20 &
Pleasant Grove Road
Counter/Board #: LB+JB

File Name : westtown04w
Site Code : 81645104
Start Date : 9/8/2016
Page No : 1

Groups Printed- Passenger Vehicles

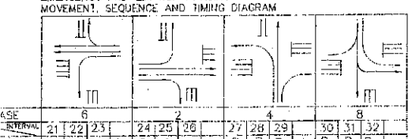
	Route 202 Southbound			Pleasant Grove Rd Westbound			Route 202 Northbound			Pleasant Grove Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	19	339	12	0	0	2	2	428	2	0	0	14	818
07:15	9	380	29	0	0	2	1	525	6	0	0	13	965
07:30	5	355	36	0	0	0	2	491	4	0	0	10	903
07:45	11	263	49	0	0	1	6	296	16	0	0	10	652
Total	44	1337	126	0	0	5	11	1740	28	0	0	47	3338
08:00	11	324	48	0	0	2	4	365	4	0	1	4	763
08:15	9	231	36	0	0	0	2	249	5	1	0	6	539
08:30	18	242	35	0	0	0	1	208	0	0	0	10	514
08:45	13	304	56	0	0	2	16	283	5	0	0	8	687
Total	51	1101	175	0	0	4	23	1105	14	1	1	28	2503
16:00	21	420	78	0	0	3	14	457	8	0	0	0	1001
16:15	18	422	70	0	0	2	7	509	7	0	0	0	1035
16:30	23	389	89	0	0	0	9	480	4	0	0	0	994
16:45	19	441	66	0	0	2	7	489	6	0	0	0	1030
Total	81	1672	303	0	0	7	37	1935	25	0	0	0	4060
17:00	32	399	66	0	0	2	5	510	13	0	0	0	1027
17:15	25	453	72	0	0	1	13	536	8	0	0	0	1108
17:30	29	522	90	0	0	0	8	524	14	0	0	0	1187
17:45	19	419	76	0	0	7	12	519	28	0	0	0	1080
Total	105	1793	304	0	0	10	38	2089	63	0	0	0	4402
Grand Total	281	5903	908	0	0	26	109	6869	130	1	1	75	14303
Apprch %	4	83.2	12.8	0	0	100	1.5	96.6	1.8	1.3	1.3	97.4	
Total %	2	41.3	6.3	0	0	0.2	0.8	48	0.9	0	0	0.5	

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix B

Traffic Signal Permit Plans, Intersection Sketches, and Existing Crash Data

EMERGENCY PRE-EMPTION PHASING
MOVEMENT, SEQUENCE AND TIMING DIAGRAM



PHASE	6			2			4			8		
INTERVAL	21	22	23	24	25	26	27	28	29	30	31	32
1	G	Y	R	R	R	R	R	R	R	R	R	R
2,3	G	Y	R	R	R	R	R	R	R	R	R	R
4	G	Y	R	R	R	R	G	Y	R	R	R	R
5,6	R	R	R	G	Y	R	R	R	R	R	R	R
7	R	R	R	R	R	R	R	R	R	G	Y	R
8	R	R	R	R	R	R	R	R	R	G	Y	R
9	R	R	R	R	R	R	G	Y	R	R	R	R
10	R	R	R	R	R	R	G	Y	R	R	R	R
11, 12	H	H	H	H	H	H	H	H	H	DW	DW	DW
13, 14	H	H	H	H	H	H	H	H	H	DW	DW	DW
TIME	**	4	2	**	4	2	**	4	2	**	4	3

R DURATION OF PRE-EMPTION

OTE:

PRE-EMPTION EQUIPMENT HAS ENCODING CAPABILITIES FOR HICLE IDENTIFICATION. IT IS RECOMMENDED TO HAVE THE ZERO 0" FEATURE ON, TO GIVE UNCODED EMITTERS THE ABILITY TO TIVATE THE EMERGENCY PRE-EMPTION.

WHEN RETURNING TO NORMAL OPERATION

MERGENCY PRE-EMPTION NOTES

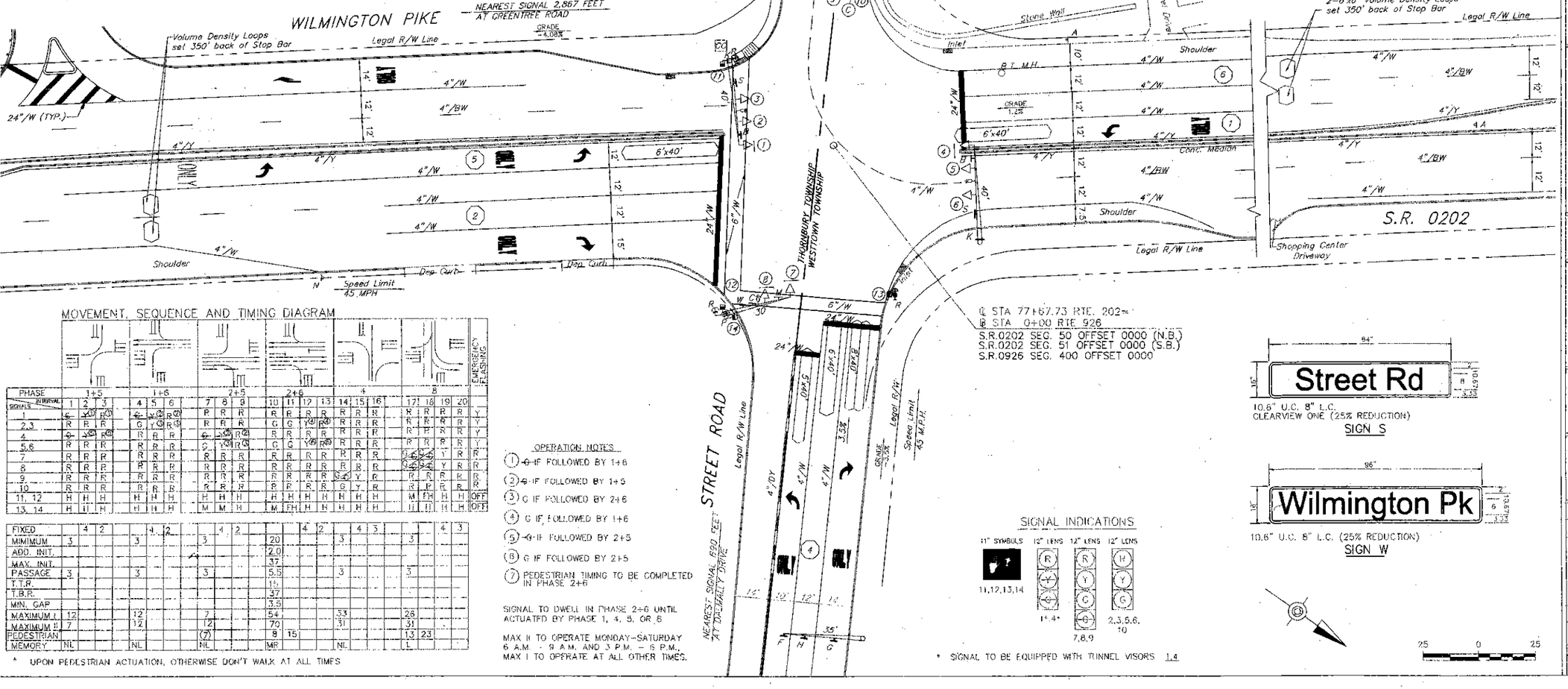
CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR BOTH APPROACHES OF STREET ROAD AND BOTH APPROACHES OF WILMINGTON PIKE WITH A FAIL SAFE DEVICE FOR EACH DIRECTION OF TRAFFIC. THIS EMERGENCY BEACON SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.

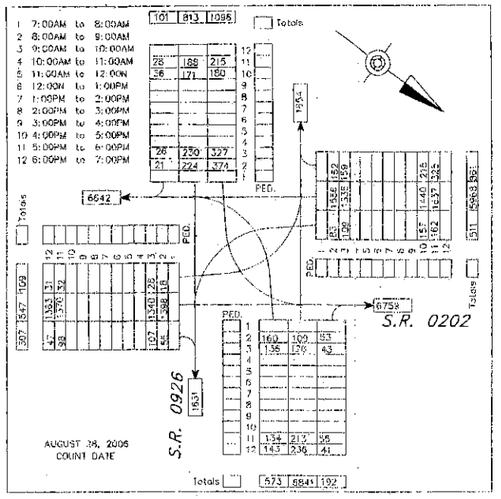
THE SIGNALS SHALL TERMINATE ALL GREEN INDICATIONS IMMEDIATELY, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, FOLLOWED BY THE COMPLETE YELLOW AND RED CLEARANCE INTERVALS, ACCORDINGLY. THEN THE GREEN INTERVAL FOR THE PRE-EMPTED PHASE SHALL FOLLOW.

SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE (INCHES)	REMARKS
A	R3-7L	30X30	LEFT LANE MUST TURN LEFT
B	R10-10L	90X36	LEFT TURN SIGNAL
C	R10-11	30X36	NO TURN ON RED
D	R10-6AL	24X30	STOP HERE ON RED
E	R3-8L/R	30X36	OPTIONAL LEFT,STRAIGHT AND RIGHT TURN SIGN
F	R3-5L	30X36	LEFT TURN SIGN
G	R3-5R	30X36	RIGHT TURN SIGN
H	R3-5S	30X36	STRAIGHT-THROUGH SIGN
I	R1-1	30X30	STOP SIGN
J	R3-2	24X24	NO LEFT TURN SIGN
K	R9-3A	18X18	NO PEDESTRIAN CROSSING
L	R5-1	30X30	DO NOT ENTER SIGN
M	R3-7 1R	30X30	ALL TRAFFIC MUST TURN RIGHT
N	R3-7R	30X30	RIGHT LANE MUST TURN RIGHT
P	R10-4(R)	9X18	PUSH BUTTON FOR WALK SIGNAL —
R	R10-4(L)	9X18	— PUSH BUTTON FOR WALK SIGNAL
S	D3-4	18X84	STREET RD
T	R10-7	24X30	DO NOT BLOCK INTERSECTION
W	D3-4	16X96	WILMINGTON PK

EMERGENCY PRE-EMPTION NOTES CONTINUED...

- IF SIGNALS HAS BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON AND THE SIGNALS IS PRE-EMPTED DURING THE MAN INTERVAL, THE "MAN" INTERVAL SHALL TERMINATE IMMEDIATELY FOLLOWED BY THE "FLASHING HAND" INDICATION IN IT'S ENTIRETY, FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES BEFORE PROCEEDING INTO THE PRE-EMPTION PHASE.
- IF SIGNALS ARE FLASHING WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION, PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2 & 6 INTERVAL 10 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.
- THE SIGNALS SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, WHEN ACTIVATED BY EMERGENCY VEHICLE, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- LOCATION OF EMERGENCY VEHICLE DETECTIONS ARE TO BE FIELD ADJUSTED TO ACHIEVE MAXIMUM OPERATION





MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	1+5			1+6			2+5			2+6				4			8			EMERGENCY FLASHING
INTERVAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
SIGNALS																				
1	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y
2,3	R	R	R	G	Y	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	Y
4	G	Y	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	Y
5,6	R	R	R	R	R	R	G	Y	R	G	G	Y	R	R	R	R	R	R	R	Y
7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R
9	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R
10	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R
11, 12	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	FH	H	H	OFF
13, 14	H	H	H	H	H	H	M	M	H	M	FH	H	H	H	H	H	H	H	H	H	OFF

FIXED		4	2			4	2			4	2			4	2			4	3	
MINIMUM	3				3				3				20			3			3	
ADD. INIT.													2.0							
MAX. INIT.													37							
PASSAGE	3				3				3				5.5			3			3	
T.T.R.													15							
T.B.R.													37							
MIN. GAP													3.5							
MAXIMUM I	12				12				7				54			33			26	
MAXIMUM II	7				12				12				70			31			31	
PEDESTRIAN									(7)				8	15					13	23
MEMORY	NL				NL				NL				MP			NL			L	

* UPON PEDESTRIAN ACTUATION, OTHERWISE DON'T WALK AT ALL TIMES

OPERATION NOTES

1. G IF FOLLOWED BY 1+6
2. G IF FOLLOWED BY 1+5
3. G IF FOLLOWED BY 2+6
4. G IF FOLLOWED BY 1+6
5. G IF FOLLOWED BY 2+5
6. G IF FOLLOWED BY 2+5
7. PEDESTRIAN TIMING TO BE COMPLETED IN PHASE 2+6

SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 1, 4, 5, OR 8

MAX II TO OPERATE MONDAY-SATURDAY 6 A.M. - 9 A.M. AND 3 P.M. - 6 P.M., MAX I TO OPERATE AT ALL OTHER TIMES.

SIGNAL INDICATIONS

* SIGNAL TO BE EQUIPPED WITH TUNNEL VISORS 1,4

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 68.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 38, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 12, 1991.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT FOR REVIEW PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

LEGEND

- 20' — EXISTING MAST ARM/ IDENTIFYING LENGTH
- (2) — VEHICULAR SIGNAL HEAD/ VISORS/DIRECTIONAL ARROW/ IDENTIFYING NUMBER
- (2) — PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER
- — PEDESTRIAN PUSHBUTTON/ SIGN
- — SIGN/IDENTIFYING LETTER
- — PAD MOUNTED CONTROL CABINET
- 12'x6' — LOOP SENSOR/SIZE
- — ENERGENCY PREEMPTION FLASHING BEACON
- — EMERGENCY PREEMPTION DETECTOR
- — LUMINAIRE
- — CURB CUT RAMP
- — UTILITY POLE
- (7) — PHASE NUMBER

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: WESTTOWN TWP./THORNBURY TWP.
INTERSECTION: WILMINGTON PIKE (S.R. 0202)
STREET ROAD (S.R. 0926)

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:

MARK L. KRAY 3/7/97
DATE

DOUGLAS MAY 3/10/97
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ RECM.	DATE	REVR.	DATE	RECOM.	DATE
1	MODERNIZATION & WIDENING OF DUAL LEFT TURN LANE	MV	3/3/97	MK	5/27/97	DM	6/10/97
2	TIMING ADJUSTMENT - MAX II	RRB	10/2/98	MK	10/2/98	DM	10/9/98
3	TIMING CHANGE	SGH	9/9/03	MLK	9/10/03	LRB	9/11/03
4	TIMING CHANGE	SGH	10/21/03	MLK	11/18/03	LRB	11/6/03
5	TIMING CHANGE	MAL	6/18/04	MLK	8/20/04	LRB	8/30/04
6	WEST LEG STREET ROAD IMPROVEMENT	MCM/PB/SJS	6/28/07	MLK	6/29/07	LRB	6/29/07
7	CVS S.W. CORNER	RFL	5/27/08	MLK	6/9/08	LRB	6/11/08
8							

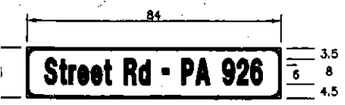
SHEET 2 OF 2 | PERMIT # 62-1123 | FILE # 1123

WESTTOWN TWP. & THORNBURY TWP.

File # 3118

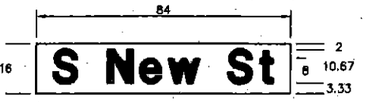
SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R9-3	18"X18"	NO PEDESTRIAN CROSSING
B	W3-3	36"X36"	SIGNAL AHEAD
C	R10-11	24"X30"	NO TURN ON RED
D	R10-11	30"X36"	NO TURN ON RED
E	D3-4	72"X16"	SINGLE LINE OVERHEAD STREET NAME
F	D3-4	96"X16"	SINGLE LINE OVERHEAD STREET NAME
G	R10-6L	24"x30"	STOP HERE ON RED

SIGN 'E'

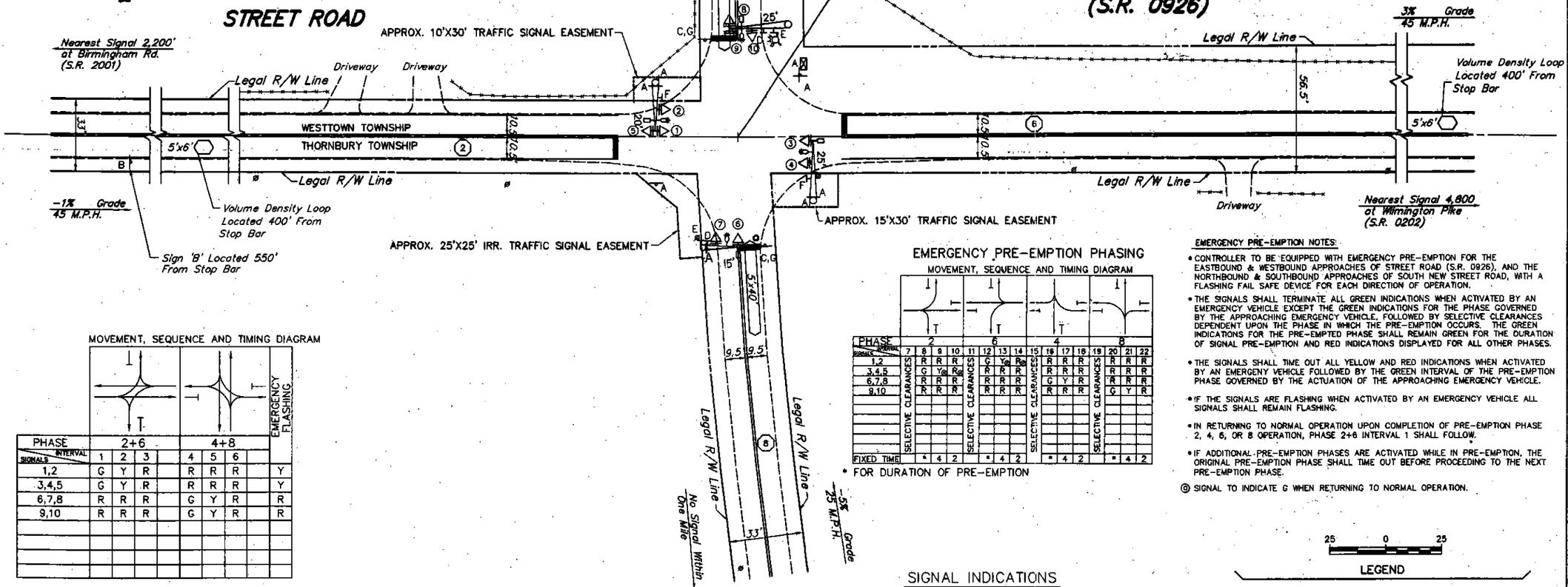


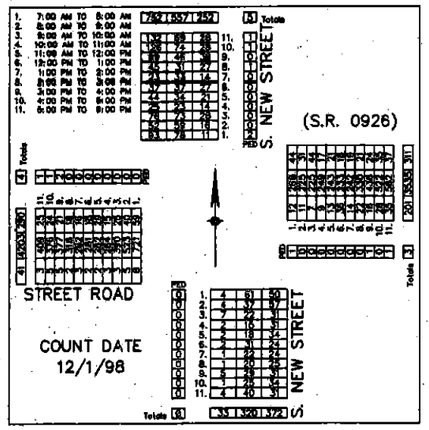
HELVETICA BOLD (20% REDUCTION)
8" U.C.
6" L.C.

SIGN 'F'



HELVETICA BOLD
10.6" U.C.
8" L.C.





MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+6			4+8			EMERGENCY FLASHING
INTERVAL / SIGNALS	1	2	3	4	5	6	
1,2	G	Y	R	R	R	R	Y
3,4,5	G	Y	R	R	R	R	Y
6,7,8	R	R	R	G	Y	R	R
9,10	R	R	R	G	Y	R	R

FIXED		4	2			4	2	
MINIMUM	22				3			
SEC./ACT.	2							
MAX.INIT.	42							
PASSAGE	5				3			
TBR	42							
TTR	21							
MIN. GAP	2							
MAXIMUM 1	63				15			
MAXIMUM 2	68				25			
PEDESTRIAN								
MEMORY	MR				L			

OPERATION NOTES:

- SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4+8.
- MAXIMUM 2 TO OPERATE FROM 1500 TO 1900 MONDAY THROUGH FRIDAY
  MAXIMUM 1 TO OPERATE ALL OTHER TIMES.
- VOLUME DENSITY DETECTOR AMPLIFIER TO BE SET ON PRESENCE MODE.

EMERGENCY PRE-EMPTION PHASING

MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2				6				4				8			
INTERVAL / SIGNALS	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1,2	R	R	R			G	Ye	Re		R	R	R		R	R	R
3,4,5	G	Ye	Re			R	R	R		R	R	R		R	R	R
6,7,8	R	R	R			R	R	R		G	Y	R		R	R	R
9,10	R	R	R			R	R	R		R	R	R		G	Y	R
SELECTIVE CLEARANCES																
FIXED TIME	*	4	2			*	4	2		*	4	2		*	4	2

* FOR DURATION OF PRE-EMPTION

SIGNAL INDICATIONS

12" LENS

1,2,3,4,
5,6,7,8,
9,10

SIGNALS TO BE EQUIPPED WITH RED LED LENSES 1-10
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS _____
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS & LOUVERS _____

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF STREET ROAD (S.R. 0926), AND THE NORTHBOUND & SOUTHBOUND APPROACHES OF SOUTH NEW STREET ROAD, WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
- THE SIGNALS SHALL TERMINATE ALL GREEN INDICATIONS WHEN ACTIVATED BY AN EMERGENCY VEHICLE EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.
- THE SIGNALS SHALL TIME OUT ALL YELLOW AND RED INDICATIONS WHEN ACTIVATED BY AN EMERGENY VEHICLE FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNALS ARE FLASHING WHEN ACTIVATED BY AN EMERGENCY VEHICLE ALL SIGNALS SHALL REMAIN FLASHING.
- IN RETURNING TO NORMAL OPERATION UPON COMPLETION OF PRE-EMPTION PHASE 2, 4, 6, OR 8 OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.

(G) SIGNAL TO INDICATE G WHEN RETURNING TO NORMAL OPERATION.

25 0 25

LEGEND

20'	MAST ARM/ IDENTIFYING LENGTH	12'x6'	LOOP SENSOR/SIZE
(2)	VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER		MICROWAVE DETECTOR
			EMERGENCY PREEMPTION BEACON
(2)	PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER		EMERGENCY PREEMPTION DETECTOR
	PEDESTRIAN PUSHBUTTON/ SIGN		CURB CUT RAMP
			UTILITY POLE
A	SIGN/IDENTIFYING LETTER	(2)	PHASE NUMBER
	FIRE HYDRANT		INLET
	CONTROLLER CABINET		MAN HOLE

GENERAL NOTES

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ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 68.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 19, 1996.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER COUNTY
MUNICIPALITY: WESTTOWN & THORNBURY TOWNSHIP
INTERSECTION: STREET ROAD (S.R. 0926) AND SOUTH NEW STREET

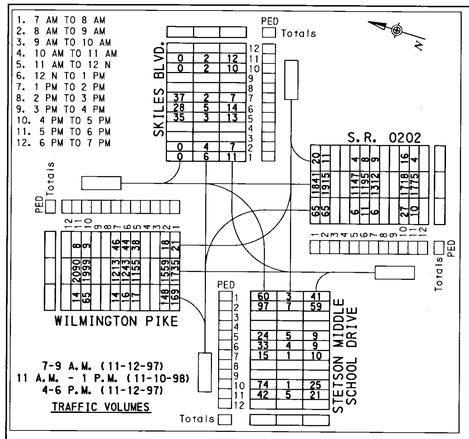
REVIEWED: _____ DATE _____
MUNICIPAL OFFICIAL

RECOMMENDED:
MARK L KRAY 5/6/99
DOUGLAS MAY 5/7/99
DISTRICT TRAFFIC ENGINEER DATE

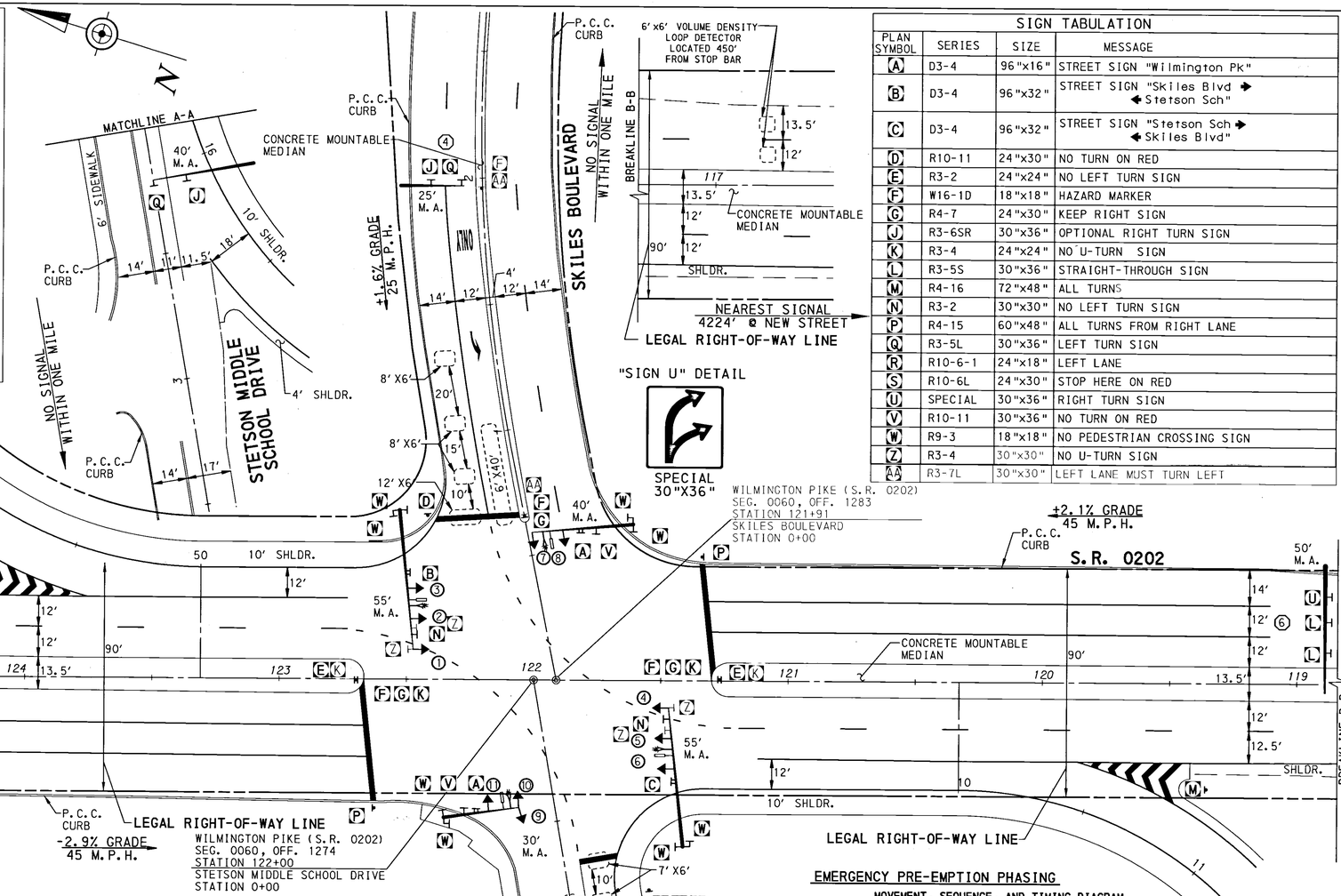
NO.	REVISION	DES./ REVR.	DATE	REVR.	DATE	RECOM.	DATE
1	Revise OSN Signs	PAI	5/4/99	[illegible]	5/12/99	[illegible]	6/4/99
2	Shorten MA	HJK	12/17/99	[illegible]	12/17/99	[illegible]	7/14/03
3	MINIMUM TIME REVISED	SM	7/8/03	[illegible]	7/8/03	[illegible]	7/10/03
4							
5							
6							
7							
8							

SHEET 2 OF 2 | PERMIT # 63-3118 | FILE # 3118

1. 7 AM TO 8 AM
2. 8 AM TO 9 AM
3. 9 AM TO 10 AM
4. 10 AM TO 11 AM
5. 11 AM TO 12 N
6. 12 N TO 1 PM
7. 1 PM TO 2 PM
8. 2 PM TO 3 PM
9. 3 PM TO 4 PM
10. 4 PM TO 5 PM
11. 5 PM TO 6 PM
12. 6 PM TO 7 PM



7-9 A.M. (11-12-97)
11 A.M. - 1 P.M. (11-10-98)
4-6 P.M. (11-12-97)
TRAFFIC VOLUMES



PHASE	2				6				4				8				
SIGNAL / INTERVAL	9	10	11		12	13	14		15	16	17		18	19	20		
1,2,3	R	R	R		G	YO	RO		R	R	R		R	R	R		
4,5,6	G	YO	RO		R	R	R		R	R	R		R	R	R		
7,8,9	R	R	R		R	R	R		R	R	R		G	Y	R		
10,11	R	R	R		R	R	R		G	Y	R		R	R	R		
FIXED		▲	5	2		▲	5	2		▲	4	4		▲	4	4	

▲ FOR DURATION OF PRE-EMPTION

PRE-EMPTION OPERATION NOTES

① SIGNAL TO INDICATE G WHEN RETURNING TO NORMAL OPERATION

MOVEMENT, SEQUENCE, AND TIMING DIAGRAM

PHASE	2+6				4+8				EMERGENCY FLASHING
SIGNAL / INTERVAL	1	2	3	4	5	6	7	8	
1,2,3,4,5,6	G	G	Y	R	R	R	R	R	Y
7,8,9,10,11	R	R	R	R	G	G	Y	R	R

FIXED		5	2			4	4
MINIMUM	15			3			
SEC / ACT	1.5						
MAXIMUM INITIAL	45						
PASSAGE	6			3			
TIME BEFORE REDUCTION	48						
TIME TO REDUCTION	24						
MINIMUM GAP	3						
MAXIMUM 1	64			31			
MAXIMUM 2	63			22			
MAXIMUM 3	57			29			
MEMORY	MR			NL			

OPERATION NOTES

① UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND SYMBOL AT ALL TIMES

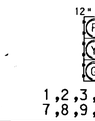
• CONTROLLER TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4+8

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NORTHBOUND AND SOUTHBOUND APPROACHES OF WILMINGTON PIKE (S.R. 0202), WESTBOUND APPROACH OF SKILES BOULEVARD, AND THE EASTBOUND APPROACH OF STETSON MIDDLE SCHOOL DR, WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION. THIS FAIL SAFE DEVICE SHALL CONSIST OF A FLASHING WHITE FLOOD LIGHT, AND SHALL FLASH WHEN THE EMERGENCY VEHICLE HAS CONTROL OF THE INTERSECTION FOR THE APPROPRIATE APPROACH.
- THE SIGNALS, WHEN ACTIVATED BY EMERGENCY VEHICLES, SHALL TERMINATE ALL INDICATIONS, EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.
- THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, SHALL TIME OUT ALL YELLOW AND RED INDICATIONS, FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNALS, WHEN ACTIVATED BY AN EMERGENCY VEHICLE, ARE FLASHING ALL SIGNALS SHALL REMAIN FLASHING.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.
- UPON COMPLETION OF PRE-EMPTION PHASE 2,4,6 OR 8 IN RETURNING TO NORMAL OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.
- IN EMERGENCY PRE-EMPTION, NO PRIORITY SHALL BE ESTABLISHED, PRE-EMPTION SHALL BE A "FIRST COME, FIRST SERVE" OPERATION.

NOTE:
MAXIMUM 3 TO OPERATE FROM 2:00 PM-4:00PM MONDAY-FRIDAY
MAXIMUM 1 TO OPERATE FROM 6:00AM TO 9:00 AM MONDAY-FRIDAY
MAXIMUM 2 TO OPERATE AT ALL OTHER TIMES

SIGNAL INDICATIONS



1,2,3,4,5,6, 7,8,9,10,11

LEGEND

25' M.A.	MAST ARM/ IDENTIFYING LENGTH
④	SIGNAL HEAD/ IDENTIFYING NUMBER
Ⓐ	PEDESTRIAN PUSHBUTTON/ SIGN WITH IDENTIFYING LETTER
AA	SIGN/ IDENTIFYING LETTER
6'X20'	LOOP SENSOR/SIZE
④	PHASE NUMBER
	HANDICAP RAMP
	EMERGENCY PRE-EMPTION FLASHING BEACON
	EMERGENCY PRE-EMPTION DETECTOR

25' 0' 25' 50'
SCALE IN FEET

SIGN TABULATION

PLAN SYMBOL	SERIES	SIZE	MESSAGE
A	D3-4	96"x16"	STREET SIGN "Wilmington Pk"
B	D3-4	96"x32"	STREET SIGN "Skiles Blvd ➔ ⬅ Stetson Sch"
C	D3-4	96"x32"	STREET SIGN "Stetson Sch ➔ ⬅ Skiles Blvd"
D	R10-11	24"x30"	NO TURN ON RED
E	R3-2	24"x24"	NO LEFT TURN SIGN
F	W16-1D	18"x18"	HAZARD MARKER
G	R4-7	24"x30"	KEEP RIGHT SIGN
J	R3-6SR	30"x36"	OPTIONAL RIGHT TURN SIGN
K	R3-4	24"x24"	NO U-TURN SIGN
L	R3-5S	30"x36"	STRAIGHT-THROUGH SIGN
M	R4-16	72"x48"	ALL TURNS
N	R3-2	30"x30"	NO LEFT TURN SIGN
P	R4-15	60"x48"	ALL TURNS FROM RIGHT LANE
Q	R3-5L	30"x36"	LEFT TURN SIGN
R	R10-6-1	24"x18"	LEFT LANE
S	R10-6L	24"x30"	STOP HERE ON RED
U	SPECIAL	30"x36"	RIGHT TURN SIGN
V	R10-11	30"x36"	NO TURN ON RED
W	R9-3	18"x18"	NO PEDESTRIAN CROSSING SIGN
Z	R3-4	30"x30"	NO U-TURN SIGN
AA	R3-7L	30"x30"	LEFT LANE MUST TURN LEFT

HELVETICA BOLD
10.6" UPPER CASE
8" LOWER CASE LETTERS

SIGN A (24% REDUCTION)
96"
Wilmington Pk
16"
10.67"
2"
6"
3.33"

SIGN B
96"
Skiles Blvd ➔
⬅ Stetson Sch
32"
3.5"
8"
4"
6"
4.5"

SIGN C
96"
Stetson Sch ➔
⬅ Skiles Blvd
32"
3.5"
8"
4"
6"
4.5"

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ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

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PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER
MUNICIPALITY: WESTTOWN TOWNSHIP
INTERSECTION: WILMINGTON PIKE (S.R. 0202) & SKILES BLVD. / STETSON MIDDLE SCHOOL DRIVE

REVIEWED:
DATE
MUNICIPAL OFFICIAL DATE

RECOMMENDED:
MARK L. KRAY 10-10-96
DOUGLAS MAY 10-10-96
DISTRICT TRAFFIC ENGINEER DATE

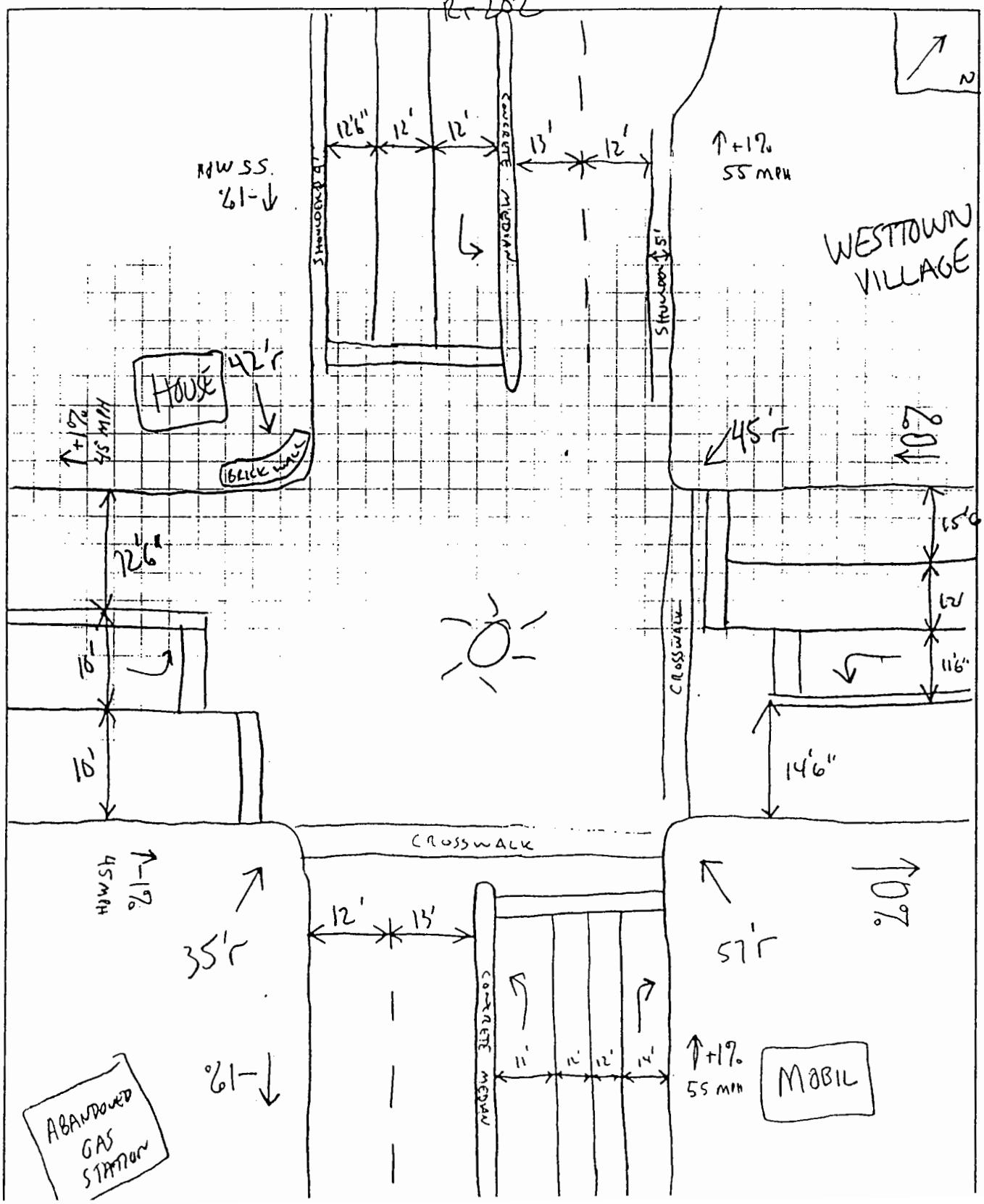
NO.	REVISION	DES./ REVW.	DATE	REVW.	DATE	RECOM.	DATE
1	ADDING SIG. HANDLES 20 & 21	NV	5/17/99	MLK	5/19/99		5/19/99
2	CHANGED MAX I & II TIMES ADDED SIGN "AA"	BRB	7-28-00	MLK	7/31/00		8/1/00
3	TIMING CHANGE	SWG	2/17/04	MLK	2/20/04		2/23/04
4							
5							
6							
7							
8							

SHEET 2 OF 2 | PERMIT # 62-1728 | FILE # 1728

McMAHON ASSOCIATES, INC.
TRANSPORTATION ENGINEERS & PLANNERS

RESPONSIVE TRANSPORTATION SOLUTIONS

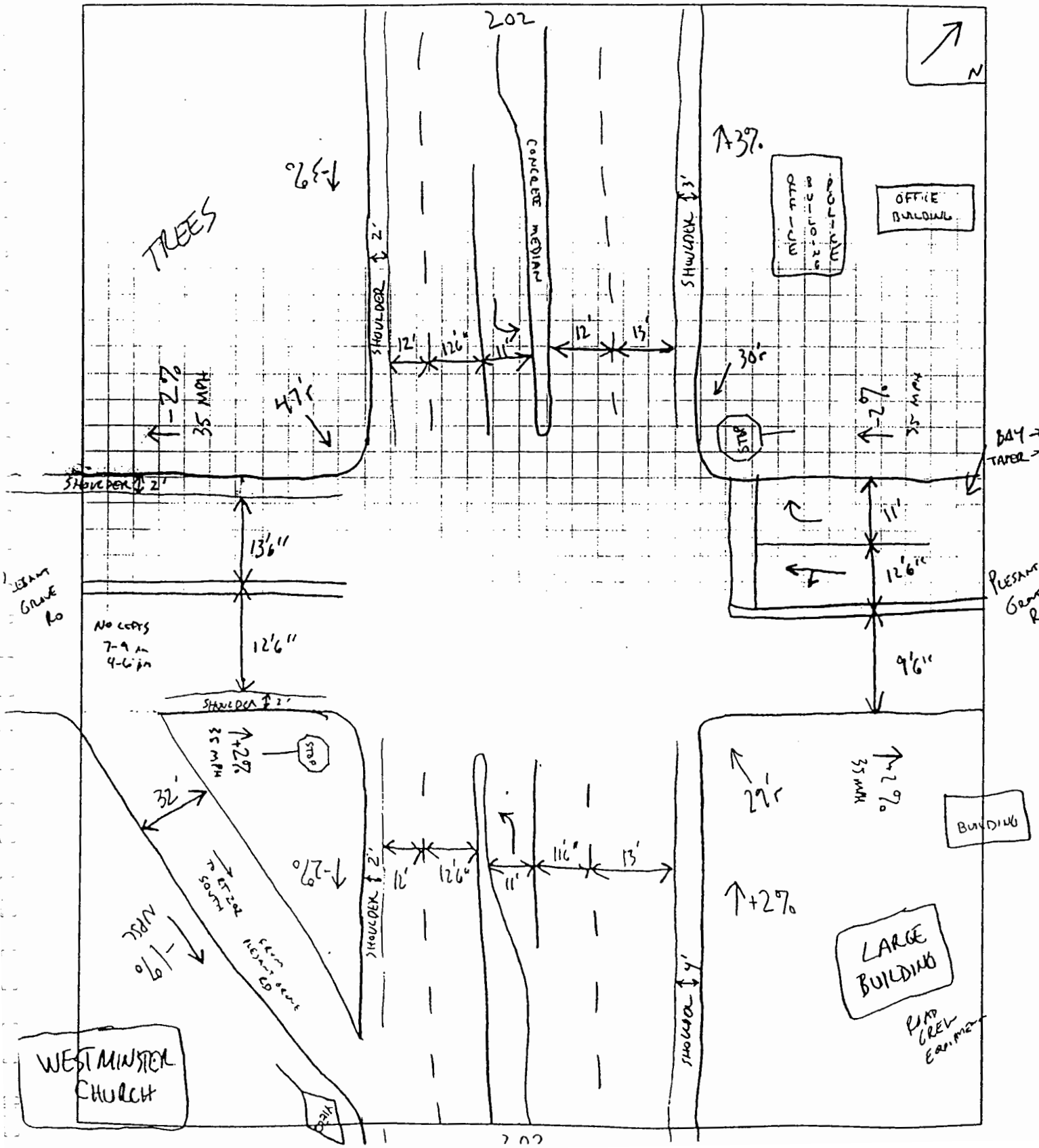
Job WESTTOWN TWP	McM Project No. 803002.00	Sheet 01 of 05	
Description RT 202 + RT ~~322~~ 926	Designed By NDS	Date 1/10/03	
	Checked By CSM	Date	



McMAHON ASSOCIATES, INC.
TRANSPORTATION ENGINEERS & PLANNERS

RESPONSIVE TRANSPORTATION SOLUTIONS

Job	WESTTOWN TWP	McM Project No.	803002.00	Sheet	02 of 05
Description	PLEASANT GROVE RD + ~~NEW STREET~~ 202	Designed By	NDB	Date	1/10/03
		Checked By	CSM	Date	

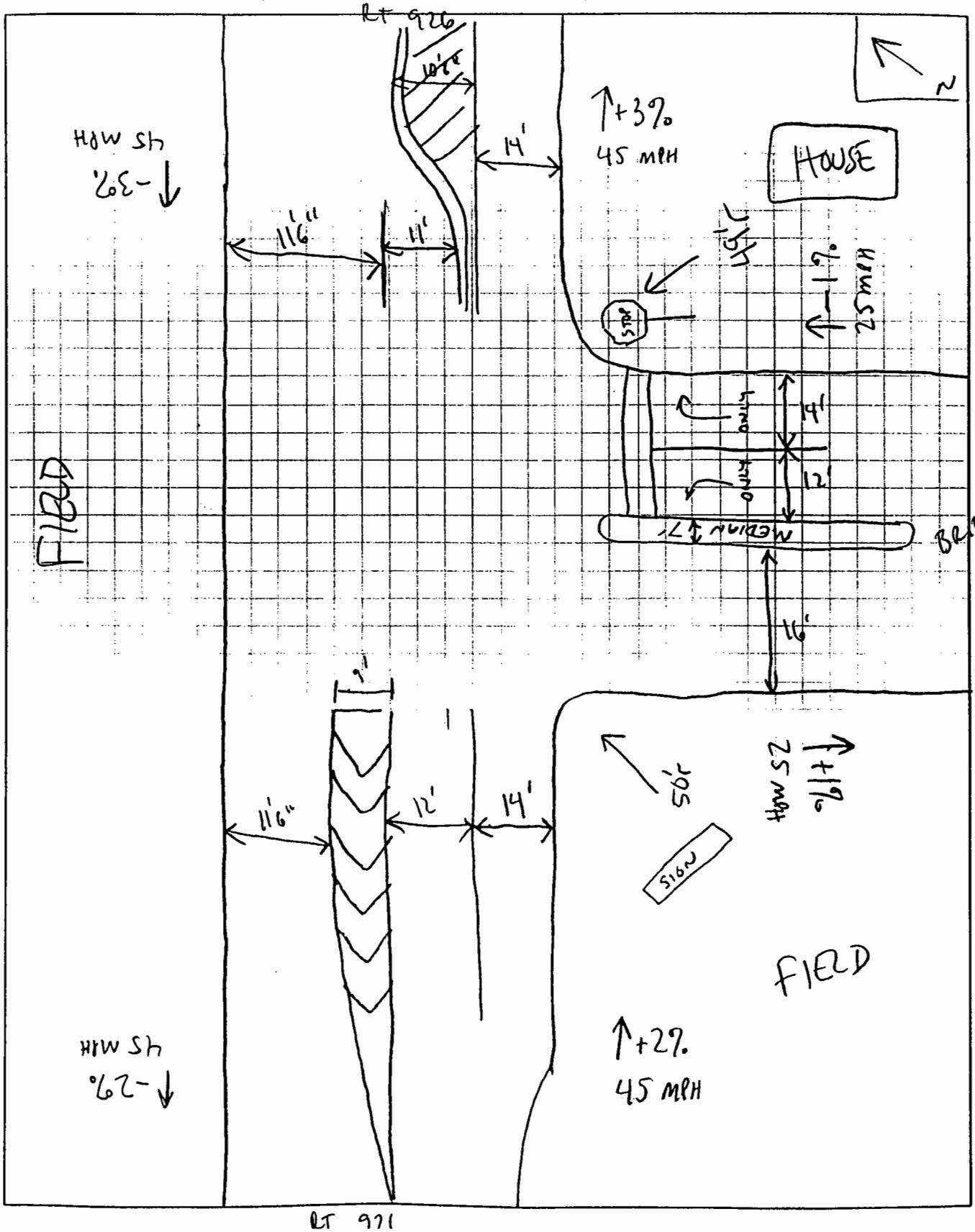


McMAHON ASSOCIATES, INC.
TRANSPORTATION ENGINEERS & PLANNERS

RESPONSIVE TRANSPORTATION SOLUTIONS

Job	WESTTOWN TWP	McM Project No.	803002.00
Description	RT 926 + BRIDLEWOOD BLVD	Designed By	NDB
		Checked By	CSM

Sheet 04 of 05
Date 1/10/07
Date



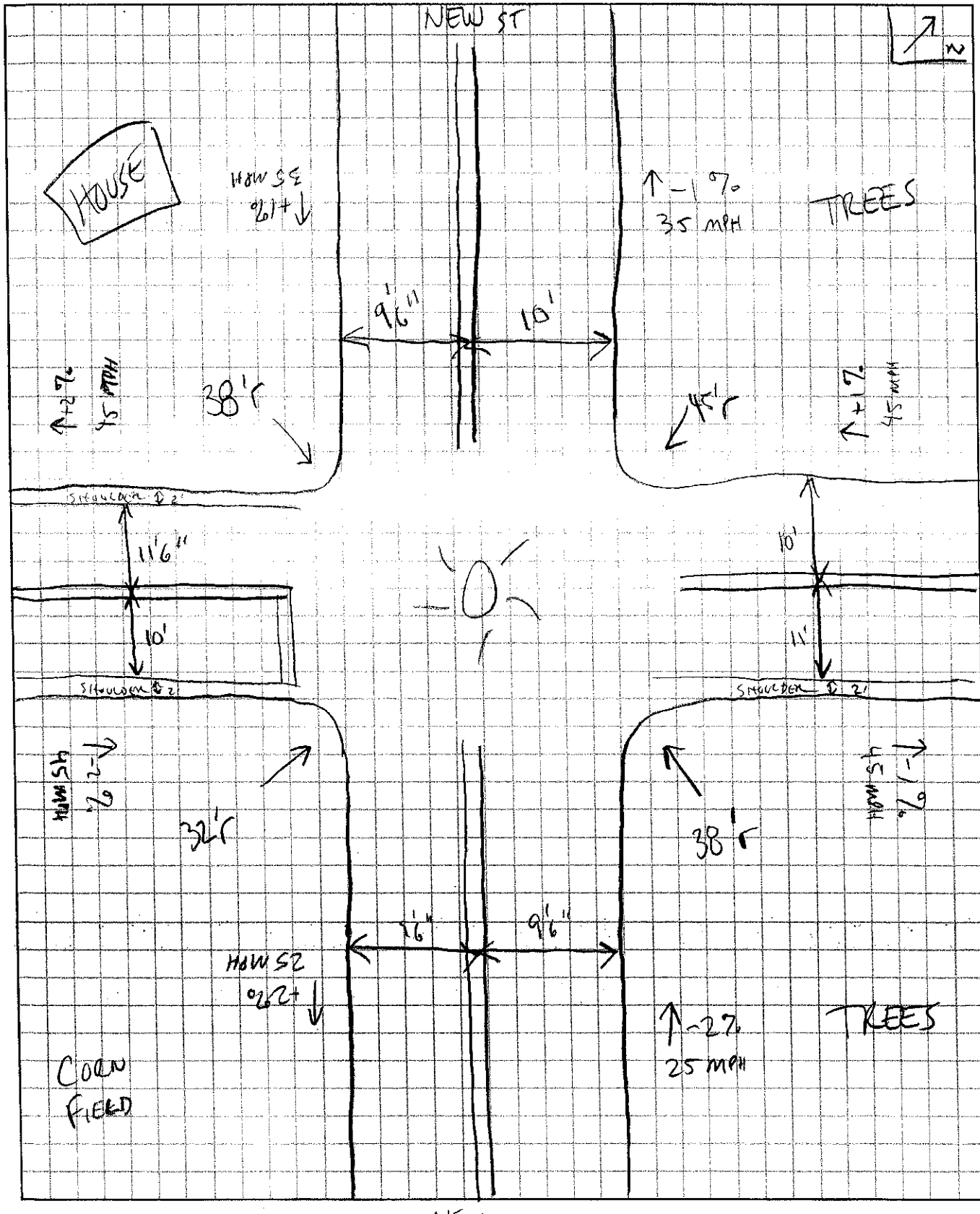
McMAHON ASSOCIATES, INC.
TRANSPORTATION ENGINEERS & PLANNERS

RESPONSIVE TRANSPORTATION SOLUTIONS

Job WESTTOWN TWP | McM Project No. 803002.00 | Sheet 03 of 05

Description RT 926 + NEW ST | Designed By NDB | Date 1/10/08

Checked By CSM | Date



New Street and West Pleasant Grove Road

Northbound New Street Approach – 50 feet

Northbound New Street Approach – 200 feet

New Street and West Pleasant Grove Road

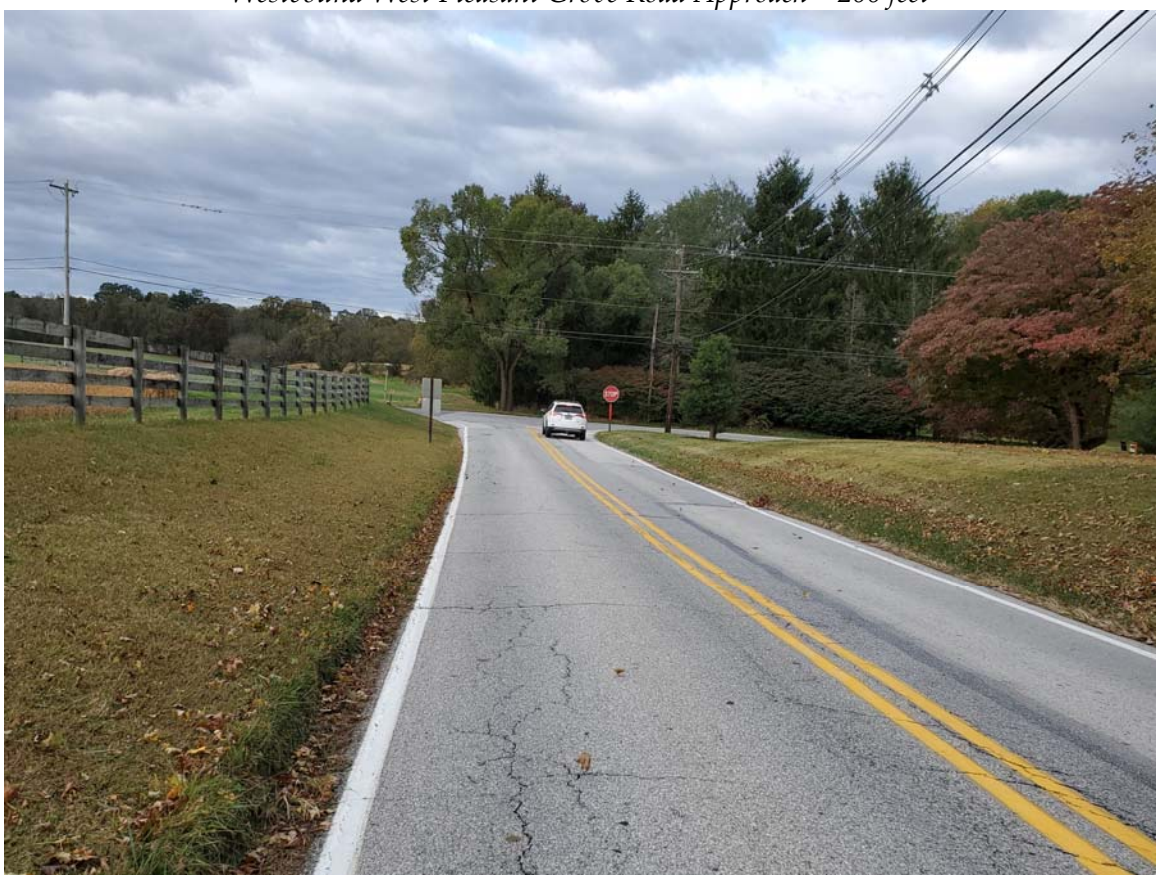
Southbound New Street Approach – 50 feet

Southbound New Street Approach – 200 feet

New Street and West Pleasant Grove Road

Westbound West Pleasant Grove Road Approach – 50 feet

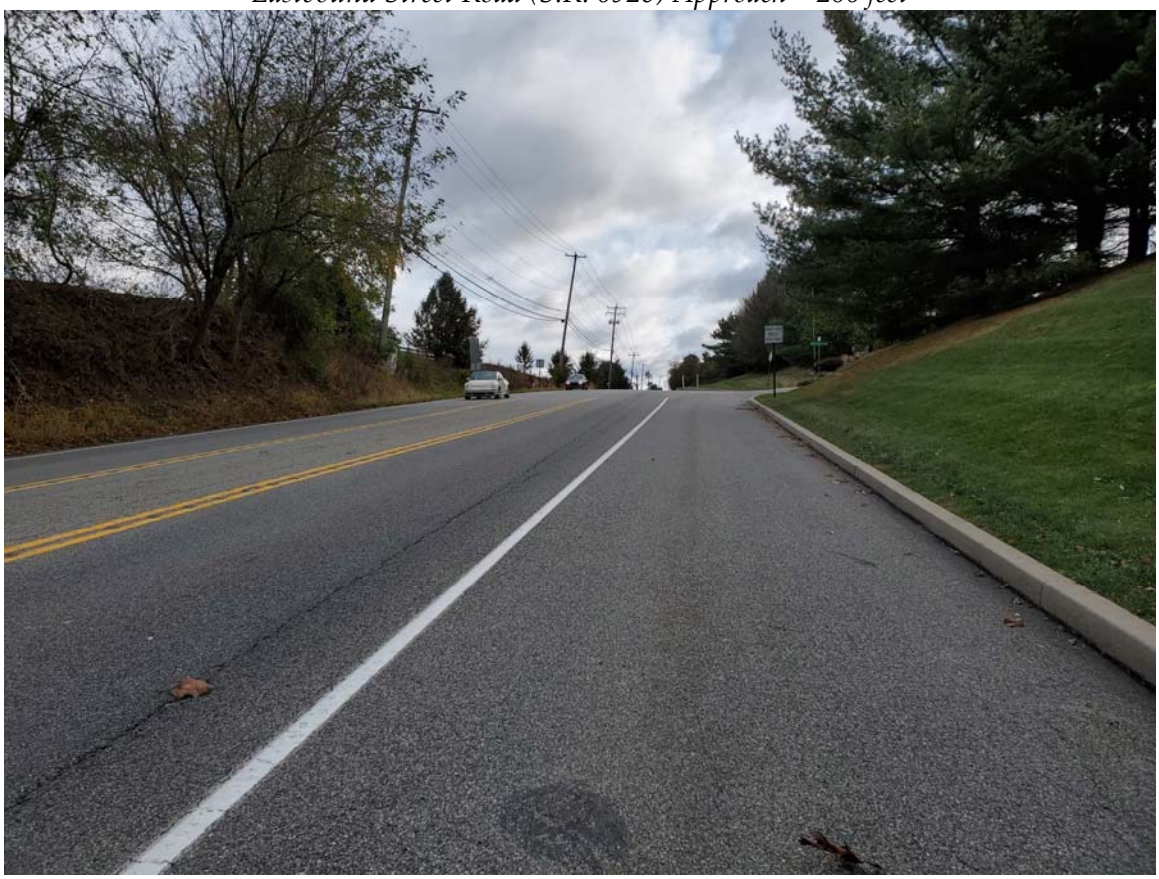
Westbound West Pleasant Grove Road Approach – 200 feet



Street Road (S.R. 0926) and Bridlewood Boulevard

Eastbound Street Road (S.R. 0926) Approach – 50 feet

Eastbound Street Road (S.R. 0926) Approach – 200 feet



Street Road (S.R. 0926) and Bridlewood Boulevard

Westbound Street Road (S.R. 0926) Approach – 50 feet

Westbound Street Road (S.R. 0926) Approach – 200 feet

Street Road (S.R. 0926) and Bridlewood Boulevard

Northbound Bridlewood Boulevard Approach – 50 feet

Northbound Bridlewood Boulevard Approach – 200 feet

Street Road (S.R. 0926) and New Street

Northbound New Street Approach - 50 feet

Northbound New Street Approach - 200 feet

Street Road (S.R. 0926) and New Street

Southbound New Street Approach - 50 feet

Southbound New Street Approach - 200 feet

Street Road (S.R. 0926) and New Street

Eastbound Street Road (S.R. 0926) Approach – 50 feet

Eastbound Street Road (S.R. 0926) Approach – 200 feet

Street Road (S.R. 0926) and New Street

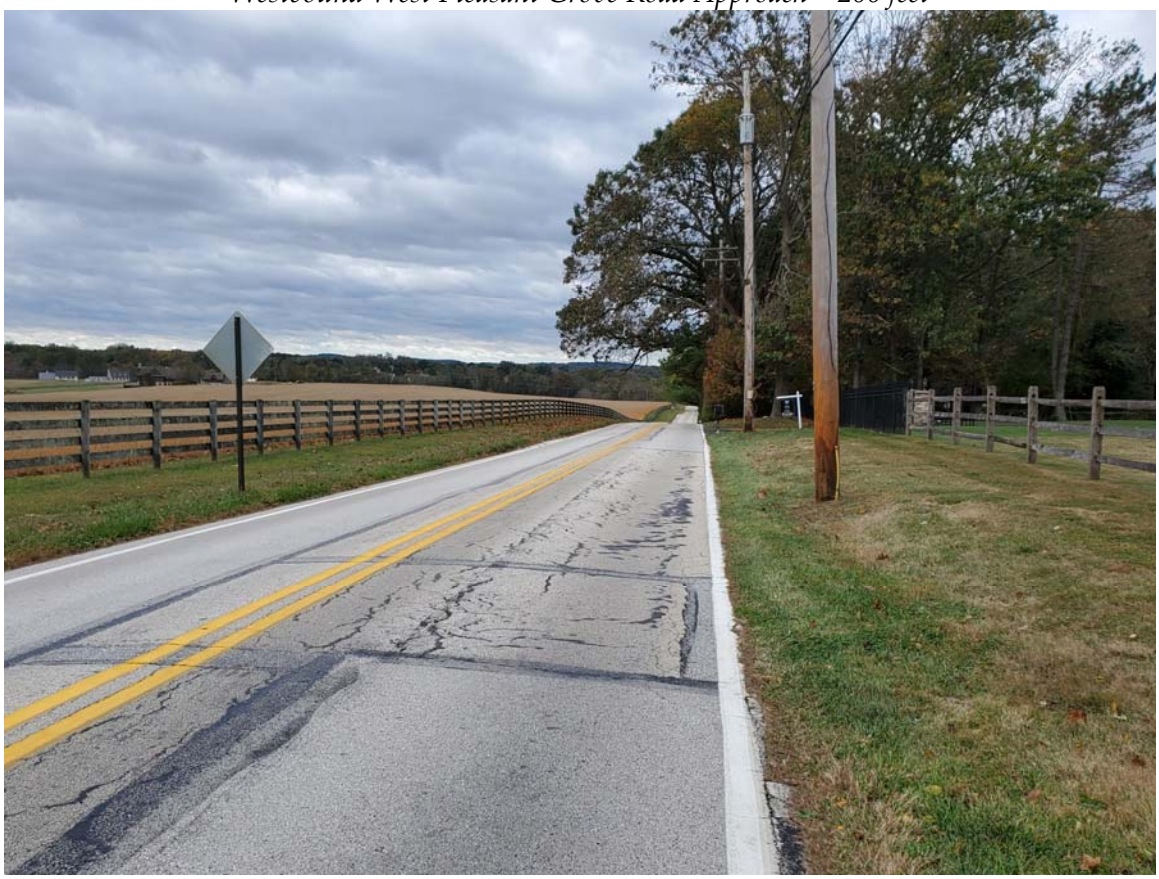
Westbound Street Road (S.R. 0926) Approach – 50 feet

Westbound Street Road (S.R. 0926) Approach – 200 feet

West Pleasant Grove Road and Road M (Site Access)

Westbound West Pleasant Grove Road Approach – 50 feet

Westbound West Pleasant Grove Road Approach – 200 feet



West Pleasant Grove Road and Road M (Site Access)

Eastbound West Pleasant Grove Road Approach – 50 feet

Eastbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Church Access

Westbound West Pleasant Grove Road Approach – 50 feet

Westbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Church Access

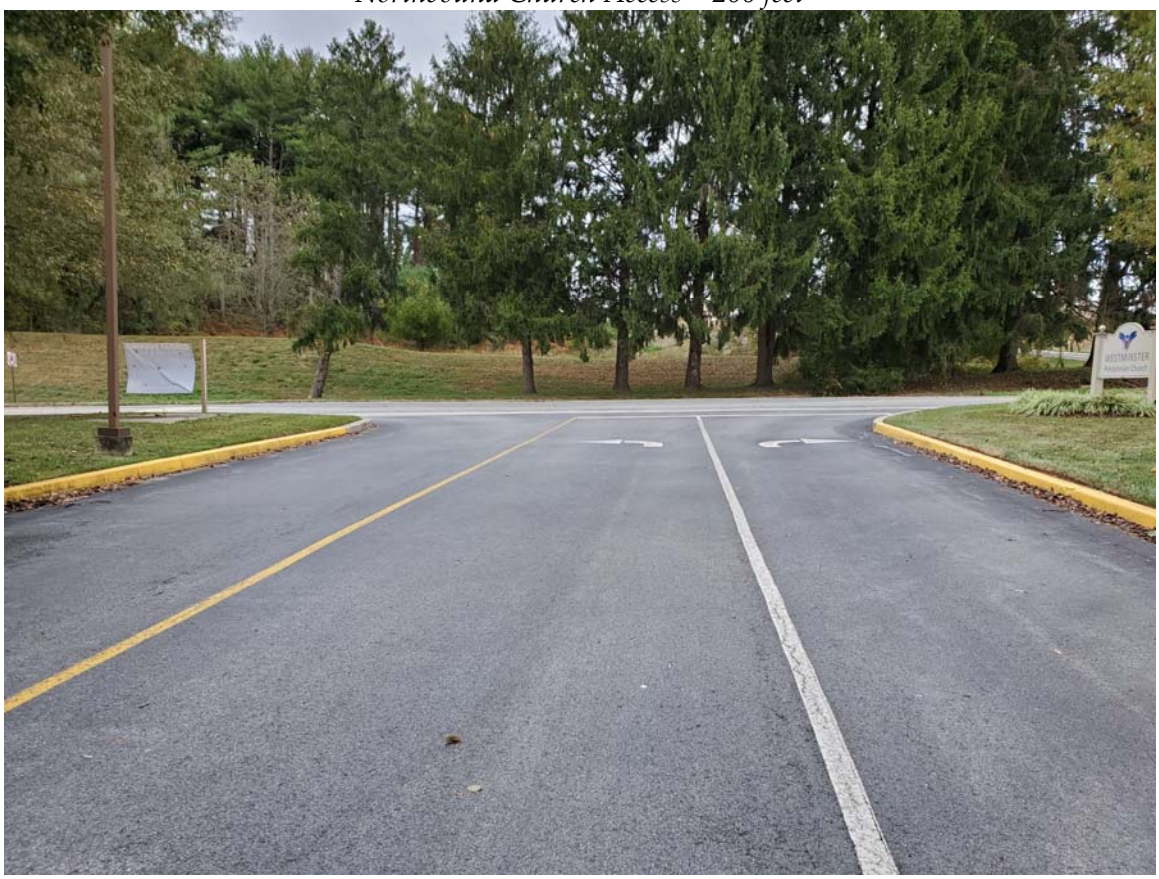
Eastbound West Pleasant Grove Road Approach – 50 feet

Eastbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Church Access

Northbound Church Access – 50 feet

Northbound Church Access – 200 feet



West Pleasant Grove Road and Church Egress Access

Westbound West Pleasant Grove Road Approach – 50 feet

Westbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Church Egress Access

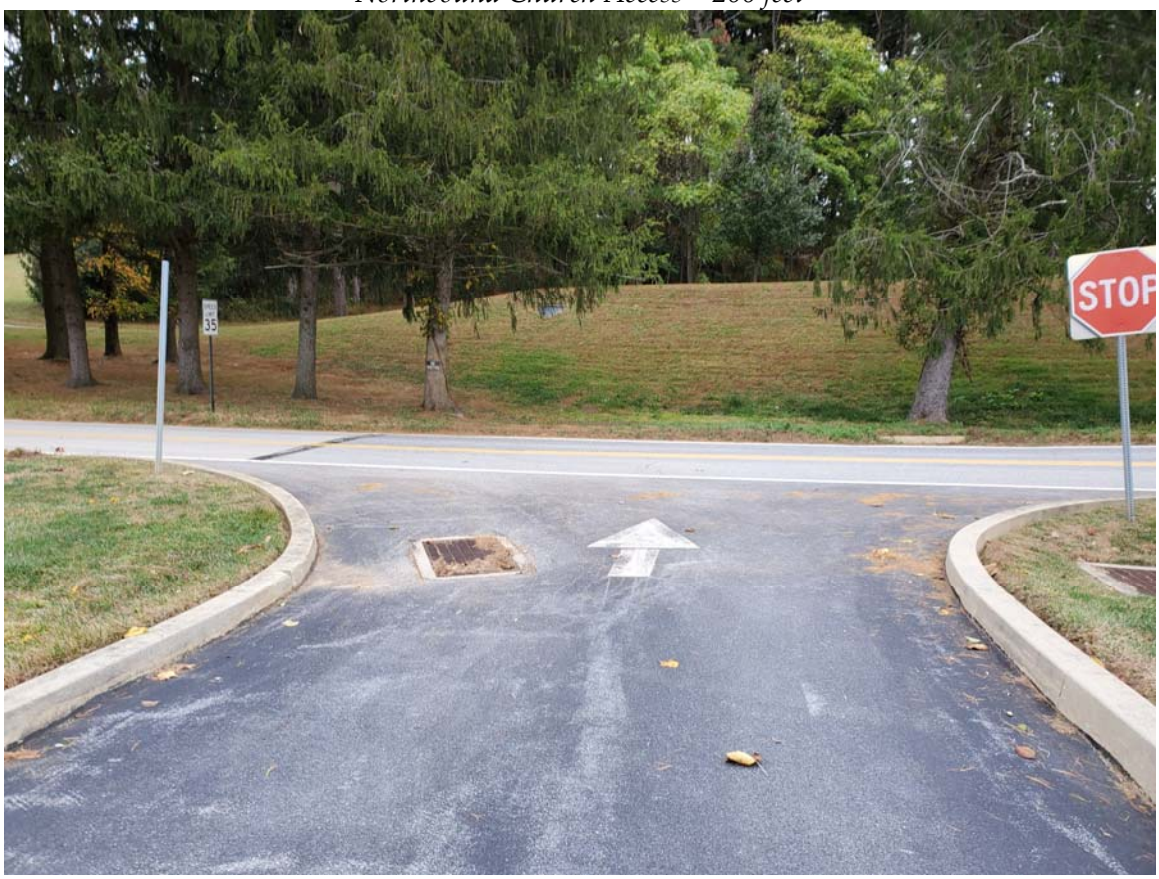
Eastbound West Pleasant Grove Road Approach – 50 feet

Eastbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Church Egress Access

Northbound Church Access – 50 feet

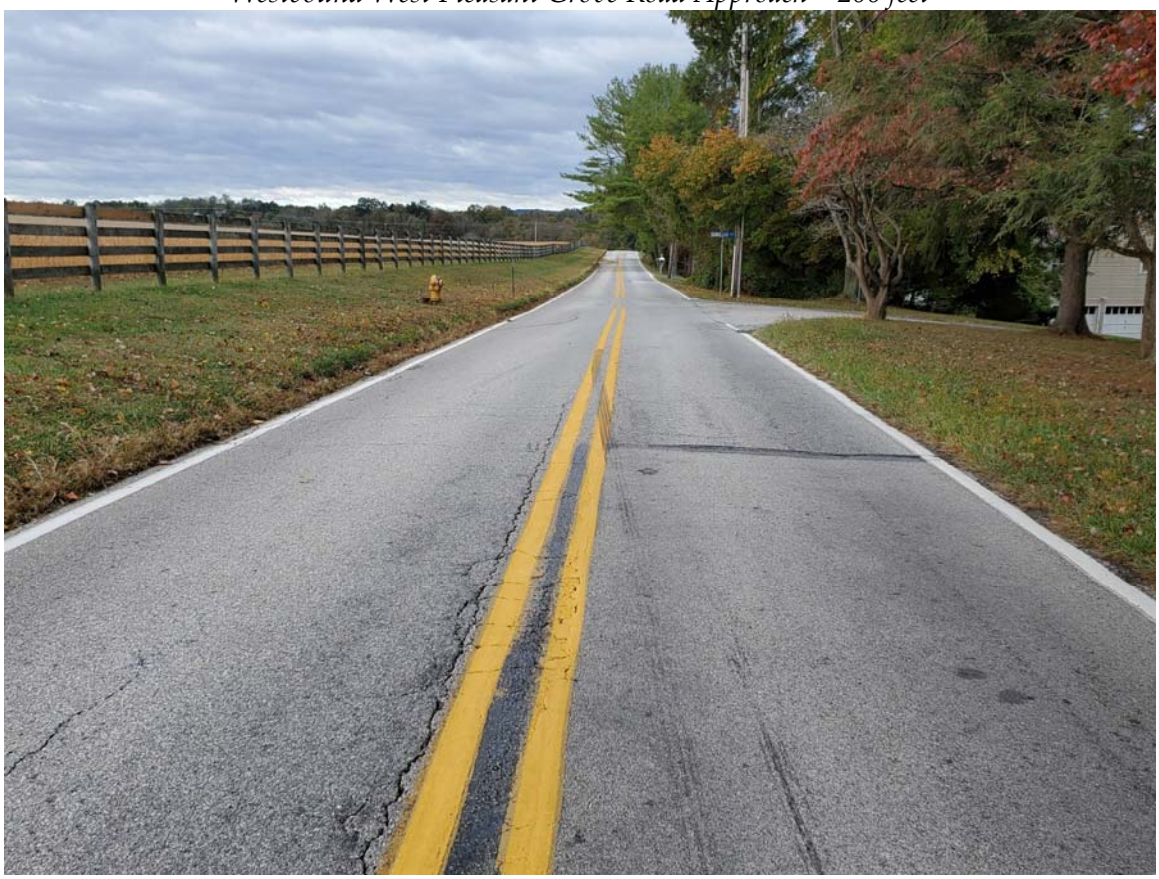
Northbound Church Access – 200 feet



West Pleasant Grove Road and Dunvegan Road

Westbound West Pleasant Grove Road Approach – 50 feet

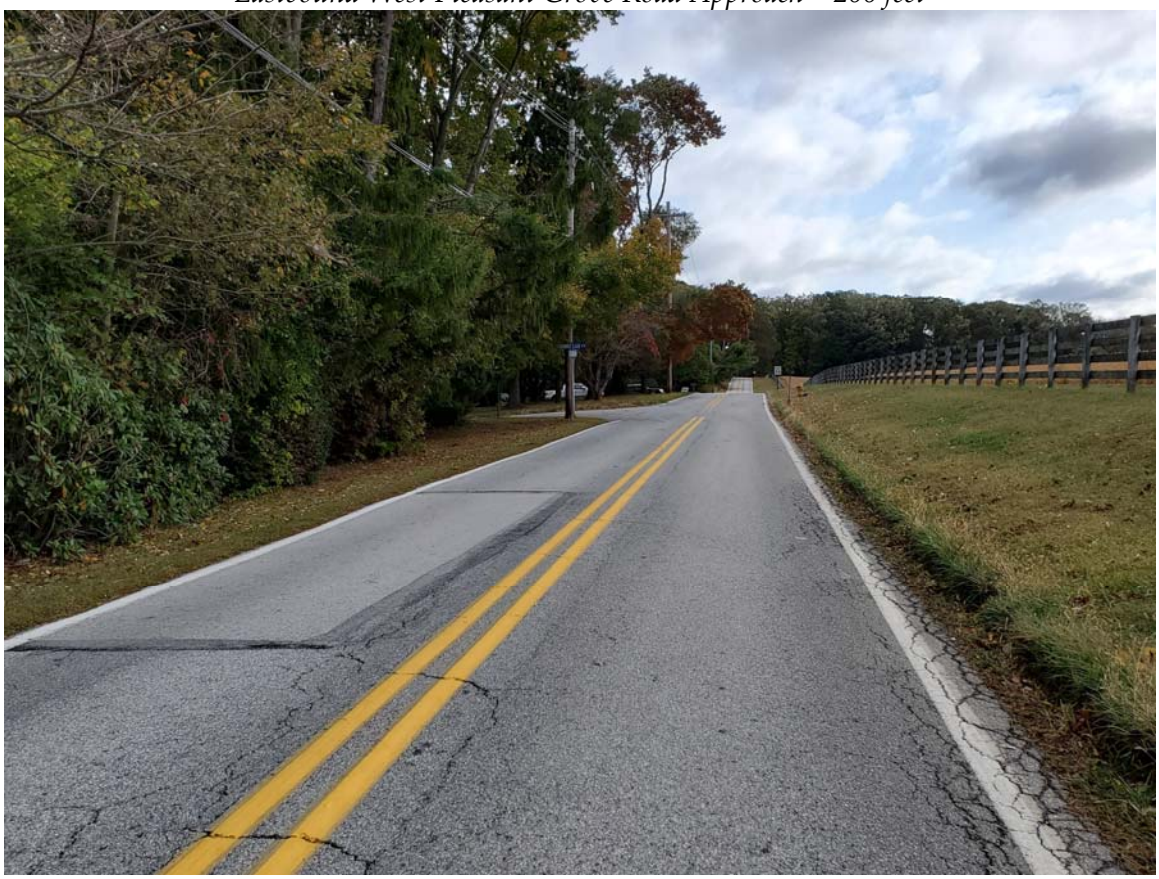
Westbound West Pleasant Grove Road Approach – 200 feet



West Pleasant Grove Road and Dunvegan Road

Eastbound West Pleasant Grove Road Approach – 50 feet

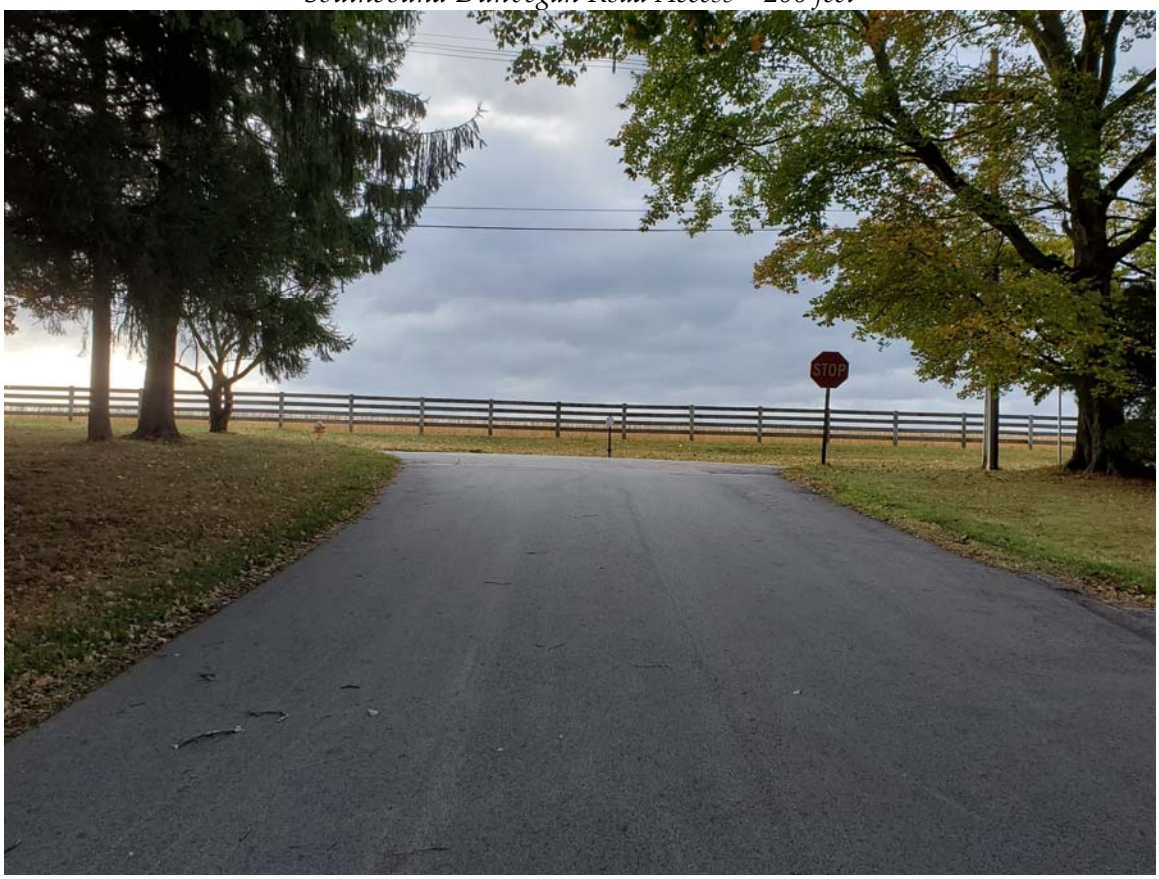
Eastbound West Pleasant Grove Road Approach – 200 feet



West Pleasant Grove Road and Dunvegan Road

Southbound Dunvegan Road Access – 50 feet

Southbound Dunvegan Road Access – 200 feet



West Pleasant Grove Road and Orvis Way

Westbound West Pleasant Grove Road Approach – 50 feet

Westbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Orvis Way

Eastbound West Pleasant Grove Road Approach – 50 feet

Eastbound West Pleasant Grove Road Approach – 200 feet

West Pleasant Grove Road and Orvis Way

Southbound Orvis Way – 50 feet

Southbound Orvis Way – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Northbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Eastbound Street Road (S.R. 0926) Approach – 50 feet

Eastbound Street Road (S.R. 0926) Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Westbound Street Road (S.R. 0926) Approach – 50 feet

Westbound Street Road (S.R. 0926) Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Northbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Eastbound West Pleasant Grove Road Approach – 50 feet

Eastbound West Pleasant Grove Road Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)

Westbound East Pleasant Grove Road Approach – 50 feet

Westbound East Pleasant Grove Road Approach –200 feet

Wilmington Pike (U.S. Route 202) and Skiles Boulevard

Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Northbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Skiles Boulevard

Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet

Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet

Wilmington Pike (U.S. Route 202) and Skiles Boulevard

Eastbound Skiles Boulevard Approach – 50 feet

Eastbound Skiles Boulevard Approach –200 feet

Wilmington Pike (U.S. Route 202) and Skiles Boulevard

Westbound Skiles Boulevard Approach – 50 feet

Westbound Skiles Boulevard Approach – 200 feet

Crash Summary Tables

Table 1. Reportable Crash Frequency
Study Area Intersections

Location	Traffic Control	Frequency of Crashes (Number per Year)						Average Per Year
		2013	2014	2015	2016	2017	Total	
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	6	4	8	6	2	26	5.2
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	2	3	4	4	2	15	3.0
Street Road (S.R. 0926) and New Street	Signal	0	1	3	0	1	5	1.0
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	3	3	4	4	2	16	3.2
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	0	0	1	0	0	1	0.2
New Street and West Pleasant Grove Road	TWSC	0	0	1	0	1	2	0.4
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0	0.0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0	0.0
Total		**11**	**11**	**21**	**14**	**8**	**65**	**13.0**

Table 2. Reportable Crash Types
Study Area Intersections

Intersection/ Type of Crash	Traffic Control	Rear-End	Head-On	Angle	Same Direction Sideswipe	Hit Fixed Object	Total
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	18	1	3	1	3	26
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	14	0	1	0	0	15
Street Road (S.R. 0926) and New Street	Signal	2	0	3	0	0	5
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	10	0	4	1	1	16
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	1	0	0	0	0	1
New Street and West Pleasant Grove Road	TWSC	0	0	1	0	1	2
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0
Total		**45**	**1**	**12**	**2**	**5**	**65**

Table 3. Reportable Crash Severities
Study Area Intersections

Intersection/ Type of Crash	Traffic Control	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown Severity	Unknown if Injured	Total
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	2	1	3	14	5	1	26
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	0	2	2	10	1	0	15
Street Road (S.R. 0926) and New Street	Signal	0	0	1	3	1	0	5
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	0	1	3	10	2	0	16
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	0	0	0	1	0	0	1
New Street and West Pleasant Grove Road	TWSC	0	0	1	1	0	0	2
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0	0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0	0
Total		**2**	**4**	**10**	**39**	**9**	**1**	**65**

Table 4. Reportable Crash Frequency
Midblock Locations

Midblock Location	Frequency of Crashes (Number per Year)						Average Per Year
	2013	2014	2015	2016	2017	Total	
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	6	5	3	10	5	29	5.8
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	2	2	1	3	6	14	2.8
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	0	1	2	1	4	0.8
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	0	2	1	1	0	4	0.8
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	1	1	2	4	0.8
West Pleasant Grove Road between New Street and Dunvegan Road	0	1	0	0	0	1	0.2
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0	0.0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0	0.0
Total	**8**	**10**	**7**	**17**	**14**	**56**	**11.2**

Table 5. Reportable Crash Types
Midblock Locations

Midblock Location/ Type of Crash	Head On	Angle	Rear End	Same Direction Sideswipe	Opposite Direction Sideswipe	Hit Fixed Object	Hit Deer	Non-Collision	Total
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	14	2	1	7	4	1	29
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	0	1	9	0	0	2	2	0	14
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	2	2	0	0	0	0	0	4
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	1	0	1	0	0	1	1	0	4
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	1	0	0	0	1	2	0	0	4
West Pleasant Grove Road between New Street and Dunvegan Road	0	0	0	0	0	1	0	0	1
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0	0	0	0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0	0	0	0
Total	**1**	**3**	**26**	**2**	**2**	**13**	**7**	**2**	**56**

Table 6. Reportable Crash Severities
Midblock Locations

Midblock Location/ Type of Crash	Fatal	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown Severity	Total
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	1	0	4	21	3	29
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	0	0	0	9	5	14
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	1	1	2	0	4
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	0	1	1	1	1	4
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	1	2	1	4
West Pleasant Grove Road between New Street and Dunvegan Road	0	0	0	1	0	1
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0
Total	**1**	**2**	**7**	**36**	**10**	**56**

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix C

PennDOT TIRe Data

US Route 202 Northbound
Avg. Daily Truck Traffic: 1905
County: 15 - CHESTER
Avg. Daily Traffic: 23814
Direction: N - NORTH
District: 06
Daily Truck Vehicle Miles Traveled: 1600
Daily Vehicle Miles Traveled: 20004
Count Duration: 24
D Factor: 55
Jurisdiction: 1 - STATE
K Factor: 9
Offset Begin: 0
Offset End: 1279
Segment Begin: 0050
Segment End: 0060
Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE
Route: 0202
Traffic Pattern Group: 03 - URBAN - OTHER PRINCIPAL ARTERIALS
Truck Percent: 8
Type of Count: 3 - VOLUME TRAFFIC COUNT
T Factor: 3
Count Date: 20120829
Traffic Count Key: 15020200600958

US Route 202 Southbound
Avg. Daily Truck Traffic: 940
County: 15 - CHESTER
Avg. Daily Traffic: 23487
Direction: S - SOUTH
District: 06
Daily Truck Vehicle Miles Traveled: 790
Daily Vehicle Miles Traveled: 19729
Count Duration: 24
D Factor: 55
Jurisdiction: 1 - STATE
K Factor: 9
Offset Begin: 0
Offset End: 1260
Segment Begin: 0051
Segment End: 0061
Side Ind: 2 - LEFT / SECONDARY / ODD SIDE
Route: 0202
Traffic Pattern Group: 03 - URBAN - OTHER PRINCIPAL ARTERIALS
Truck Percent: 4
Type of Count: 3 - VOLUME TRAFFIC COUNT
T Factor: 3
Count Date: 20120829
Traffic Count Key: 15020200610608

Street Road SR 0926
Avg. Daily Truck Traffic: 648
County: 15 - CHESTER
Avg. Daily Traffic: 12952
Direction: B - BOTH
District: 06
Daily Truck Vehicle Miles Traveled: 865
Daily Vehicle Miles Traveled: 17291
Count Duration: 24
D Factor: 55
Jurisdiction: 1 - STATE
K Factor: 11
Offset Begin: 0
Offset End: 0
Segment Begin: 0370
Segment End: 0400
Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE
Route: 0926
Traffic Pattern Group: 05 - URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS
Truck Percent: 5
Type of Count: 3 - VOLUME TRAFFIC COUNT
T Factor: 3
Count Date: 20140716
Traffic Count Key: 15092603900000

New Street

Avg. Daily Truck Traffic: 48

County: 15 - CHESTER

Avg. Daily Traffic: 5056

Direction: B - BOTH

District: 06

Daily Truck Vehicle Miles Traveled: 185

Daily Vehicle Miles Traveled: 19511

Count Duration: 24

D Factor: 53

Jurisdiction: 5 - NON-STATE FEDERAL AID ROADS

K Factor: 10

Offset Begin: 0

Offset End: 686

Segment Begin: 0020

Segment End: 0080

Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE

Route: G391

Traffic Pattern Group: 05 - URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS

Truck Percent: 1

Type of Count: 2 - MACHINE TRAFFIC CLASSIFICATION COUNT

T Factor: 1

Count Date: 20170920

Traffic Count Key: 15G39100500001

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix D

Manual Turning Movement Counts

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: West Pleasant Grove Road & Dunvegan Road
Counter RR

File Name : dunvegan01w
Site Code : 81645101
Start Date : 8/6/2019

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Dunvegan Rd Southbound		West Pleasant Grove Rd Westbound		West Pleasant Grove Rd Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00	2	0	0	0	0	0	2
07:15	1	0	0	1	0	0	2
07:30	1	1	0	1	0	0	3
07:45	1	1	0	1	0	0	3
Total	5	2	0	3	0	0	10
08:00	2	2	0	0	0	0	4
08:15	2	0	0	0	1	0	3
08:30	0	4	0	2	0	0	6
08:45	0	1	0	0	0	0	1
Total	4	7	0	2	1	0	14
*** BREAK ***							
16:00	0	1	0	4	0	0	5
16:15	0	1	0	2	2	0	5
16:30	1	0	0	2	0	0	3
16:45	0	0	0	3	1	0	4
Total	1	2	0	11	3	0	17
17:00	2	0	0	4	2	0	8
17:15	1	0	0	1	2	0	4
17:30	1	0	0	3	0	0	4
17:45	0	2	0	0	0	0	2
Total	4	2	0	8	4	0	18
Grand Total	14	13	0	24	8	0	59
Apprch %	51.9	48.1	0	100	100	0	
Total %	23.7	22	0	40.7	13.6	0	
Passenger Vehicles	12	13	0	18	8	0	51
% Passenger Vehicles	85.7	100	0	75	100	0	86.4
Heavy Vehicles	2	0	0	6	0	0	8
% Heavy Vehicles	14.3	0	0	25	0	0	13.6

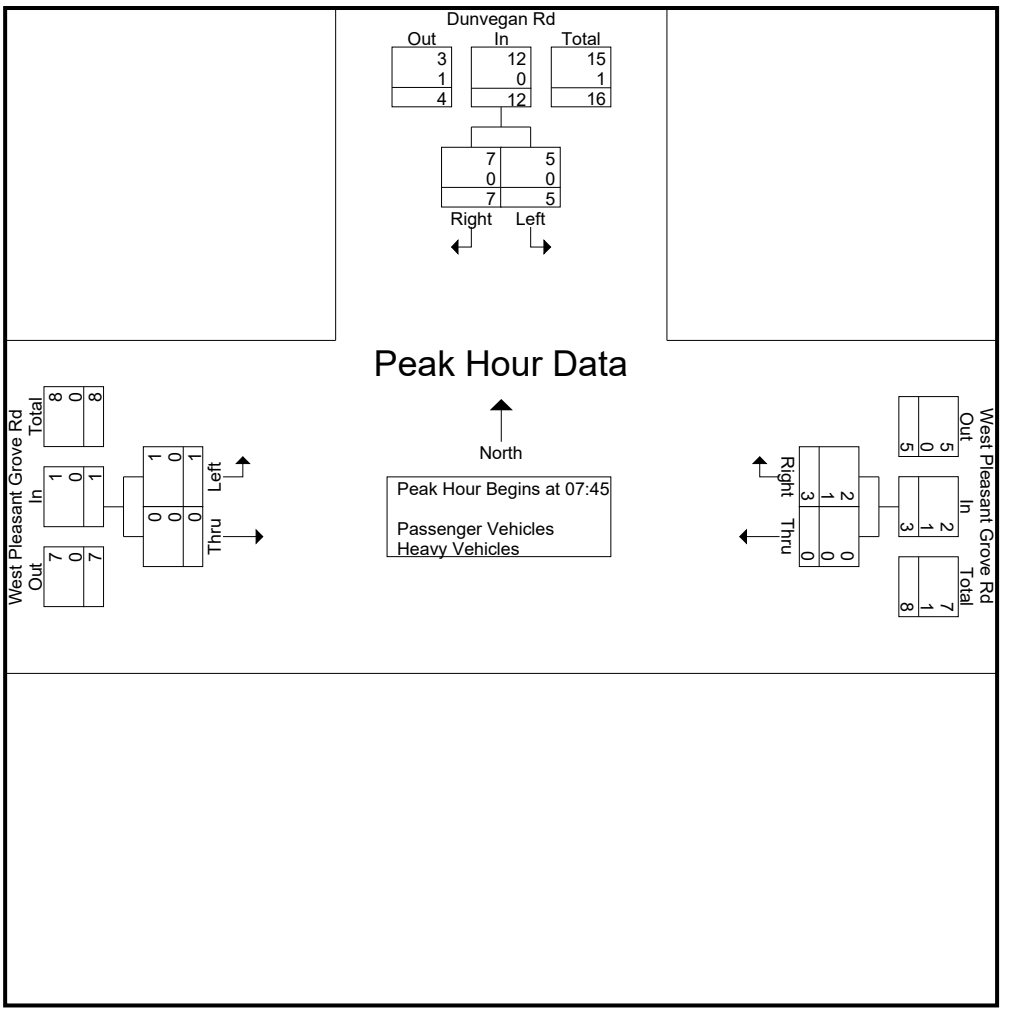
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: West Pleasant Grove Road & Dunvegan Road
Counter RR

File Name : dunvegan01w
Site Code : 81645101
Start Date : 8/6/2019

	Dunvegan Rd Southbound			West Pleasant Grove Rd Westbound			West Pleasant Grove Rd Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	1	1	2	0	1	1	0	0	0	3
08:00	**2**	2	**4**	0	0	0	0	0	0	4
08:15	2	0	2	0	0	0	**1**	0	**1**	3
08:30	0	**4**	4	0	**2**	**2**	0	0	0	**6**
Total Volume	5	7	12	0	3	3	1	0	1	16
% App. Total	41.7	58.3		0	100		100	0		
PHF	.625	.438	.750	.000	.375	.375	.250	.000	.250	.667
Passenger Vehicles	5	7	12	0	2	2	1	0	1	15
% Passenger Vehicles	100	100	100	0	66.7	66.7	100	0	100	93.8
Heavy Vehicles	0	0	0	0	1	1	0	0	0	1
% Heavy Vehicles	0	0	0	0	33.3	33.3	0	0	0	6.3



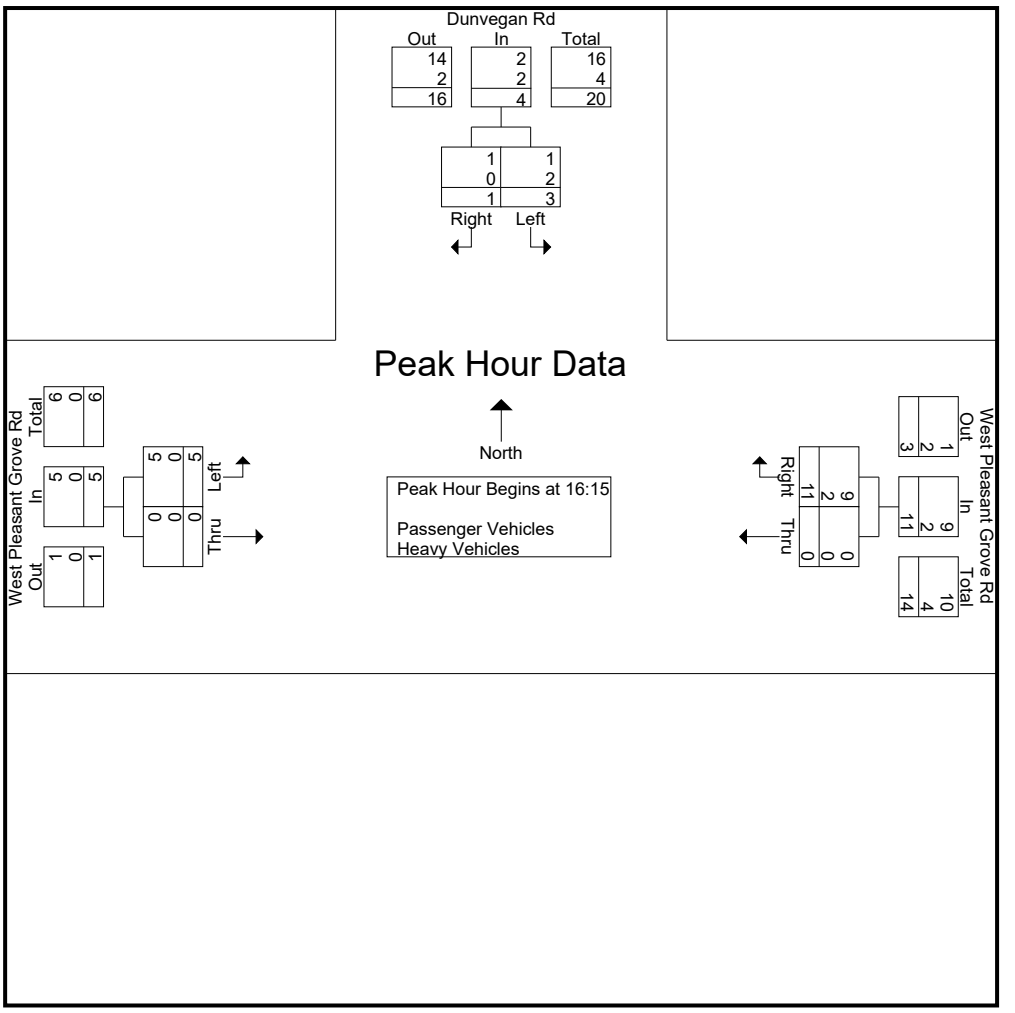
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: West Pleasant Grove Road & Dunvegan Road
Counter RR

File Name : dunvegan01w
Site Code : 81645101
Start Date : 8/6/2019
Page No : 3

	Dunvegan Rd Southbound			West Pleasant Grove Rd Westbound			West Pleasant Grove Rd Eastbound			
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:15										
16:15	0	**1**	1	0	2	2	**2**	0	**2**	5
16:30	1	0	1	0	2	2	0	0	0	3
16:45	0	0	0	0	3	3	1	0	1	4
17:00	**2**	0	**2**	0	**4**	**4**	2	0	2	**8**
Total Volume	3	1	4	0	11	11	5	0	5	20
% App. Total	75	25		0	100		100	0		
PHF	.375	.250	.500	.000	.688	.688	.625	.000	.625	.625
Passenger Vehicles	1	1	2	0	9	9	5	0	5	16
% Passenger Vehicles	33.3	100	50.0	0	81.8	81.8	100	0	100	80.0
Heavy Vehicles	2	0	2	0	2	2	0	0	0	4
% Heavy Vehicles	66.7	0	50.0	0	18.2	18.2	0	0	0	20.0



West Plesant Grove Road & Westminster Presbyterian Church Accesses

Tuesday, August 6, 2019 7-9am and 4-6pm

Counter: LB

	Eastern Driveway					Western Driveway			
	Left In	Left Out	Right In	Right Out		Left In	Left Out	Right In	Right Out
7:00	1	0	0	0	7:00	0	0	0	0
7:15	1	0	0	0	7:15	0	0	0	0
7:30	2	0	1	0	7:30	1	0	0	0
7:45	3	1	0	0	7:45	0	0	0	0
8:00	1	0	1	1	8:00	0	0	0	0
8:15	1	0	2	2	8:15	0	0	0	0
8:30	1	0	2	1	8:30	0	0	0	0
8:45	2	2	2	1	8:45	0	0	1	0
4:00	1	0	0	0	4:00	0	0	0	0
4:15	0	1	0	0	4:15	0	0	0	0
4:30	2	0	0	1	4:30	0	0	0	0
4:45	2	0	0	3	4:45	0	0	0	0
5:00	2	0	1	2	5:00	0	0	0	0
5:15	0	2	0	0	5:15	0	0	0	0
5:30	1	2	0	2	5:30	0	0	0	0
5:45	0	0	0	0	5:45	0	0	0	0

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
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Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound			Skiles Boulevard Westbound			Route 202 Northbound			Skiles Boulevard Eastbound			
Start Time	To Jughandle	Thru	Right	Left	Thru	Right	To Jughandle	Thru	Right	Left	Thru	Right	Int. Total
07:00	17	495	25	9	14	13	7	542	1	9	12	3	1147
07:15	15	493	44	11	13	11	3	557	0	10	16	2	1175
07:30	42	441	35	12	41	15	4	471	1	29	33	7	1131
07:45	28	445	50	18	66	15	9	466	4	33	80	19	1233
Total	102	1874	154	50	134	54	23	2036	6	81	141	31	4686
08:00	0	493	23	15	34	17	0	460	4	34	42	16	1138
08:15	0	480	28	13	9	16	0	465	3	18	12	3	1047
08:30	0	452	22	8	21	17	0	486	6	29	27	10	1078
08:45	0	460	31	13	24	14	0	481	8	45	21	18	1115
Total	0	1885	104	49	88	64	0	1892	21	126	102	47	4378
16:00	0	400	16	11	16	11	0	464	11	20	23	7	979
16:15	0	494	18	8	20	9	0	484	9	17	34	13	1106
16:30	0	431	23	5	30	5	0	492	3	34	38	9	1070
16:45	0	461	18	10	29	7	0	465	3	42	45	14	1094
Total	0	1786	75	34	95	32	0	1905	26	113	140	43	4249
17:00	17	521	12	4	11	16	6	502	3	18	47	17	1174
17:15	13	490	21	9	4	12	3	497	9	21	21	4	1104
17:30	17	479	20	7	20	14	5	500	6	26	32	20	1146
17:45	15	435	16	7	8	17	7	494	7	55	29	20	1110
Total	62	1925	69	27	43	59	21	1993	25	120	129	61	4534
Grand Total	164	7470	402	160	360	209	44	7826	78	440	512	182	17847
Apprch %	2	93	5	21.9	49.4	28.7	0.6	98.5	1	38.8	45.1	16	
Total %	0.9	41.9	2.3	0.9	2	1.2	0.2	43.9	0.4	2.5	2.9	1	
Passenger Vehicles	164	7003	387	153	344	204	44	7391	75	421	494	174	16854
% Passenger Vehicles	100	93.7	96.3	95.6	95.6	97.6	100	94.4	96.2	95.7	96.5	95.6	94.4
Heavy Vehicles	0	467	15	7	16	5	0	435	3	19	18	8	993
% Heavy Vehicles	0	6.3	3.7	4.4	4.4	2.4	0	5.6	3.8	4.3	3.5	4.4	5.6

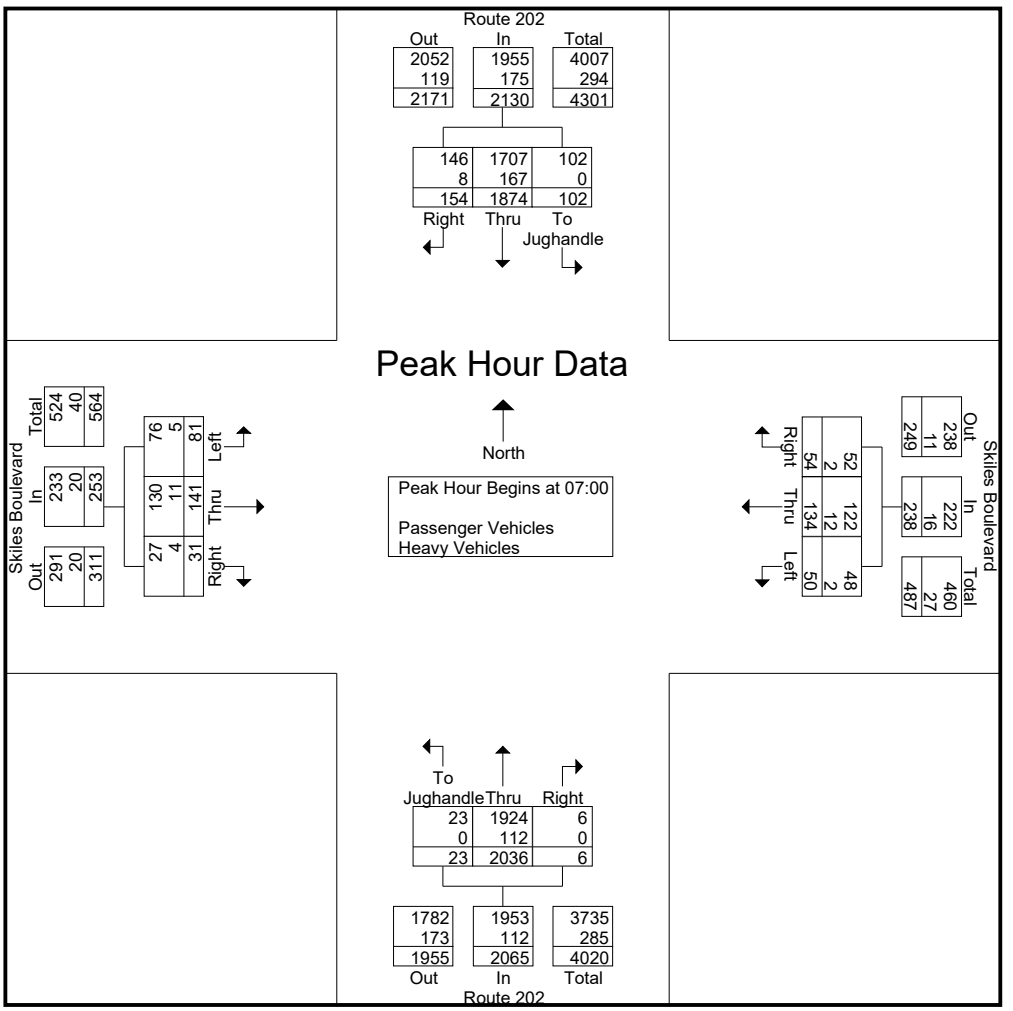
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 2

	Route 202 Southbound				Skiles Boulevard Westbound				Route 202 Northbound				Skiles Boulevard Eastbound				
Start Time	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	17	**495**	25	537	9	14	13	36	7	542	1	550	9	12	3	24	1147
07:15	15	493	44	**552**	11	13	11	35	3	**557**	0	**560**	10	16	2	28	1175
07:30	**42**	441	35	518	12	41	**15**	68	4	471	1	476	29	33	7	69	1131
07:45	28	445	**50**	523	**18**	**66**	15	**99**	**9**	466	**4**	479	**33**	**80**	**19**	**132**	**1233**
Total Volume	102	1874	154	2130	50	134	54	238	23	2036	6	2065	81	141	31	253	4686
% App. Total	4.8	88	7.2		21	56.3	22.7		1.1	98.6	0.3		32	55.7	12.3		
PHF	.607	.946	.770	.965	.694	.508	.900	.601	.639	.914	.375	.922	.614	.441	.408	.479	.950
Passenger Vehicles	102	1707	146	1955	48	122	52	222	23	1924	6	1953	76	130	27	233	4363
% Passenger Vehicles	100	91.1	94.8	91.8	96.0	91.0	96.3	93.3	100	94.5	100	94.6	93.8	92.2	87.1	92.1	93.1
Heavy Vehicles	0	167	8	175	2	12	2	16	0	112	0	112	5	11	4	20	323
% Heavy Vehicles	0	8.9	5.2	8.2	4.0	9.0	3.7	6.7	0	5.5	0	5.4	6.2	7.8	12.9	7.9	6.9



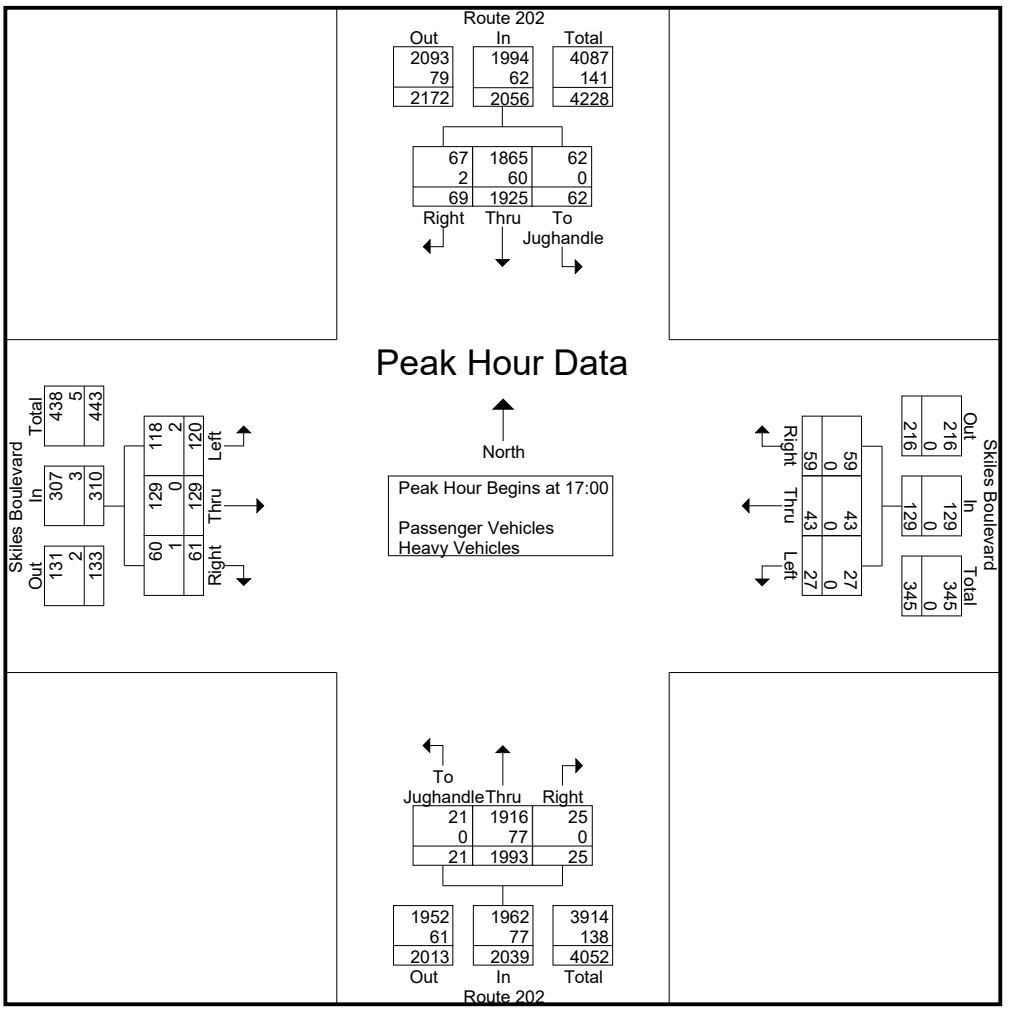
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Skiles Boulevard
Counter: M

File Name : westtown01w
Site Code :
Start Date : 10/10/2019
Page No : 3

	Route 202 Southbound				Skiles Boulevard Westbound				Route 202 Northbound				Skiles Boulevard Eastbound				
Start Time	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	To Jughandle	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	**17**	**521**	12	**550**	4	11	16	31	6	**502**	3	**511**	18	**47**	17	82	**1174**
17:15	13	490	**21**	524	**9**	4	12	25	3	497	**9**	509	21	21	4	46	1104
17:30	17	479	20	516	7	**20**	14	**41**	5	500	6	511	26	32	**20**	78	1146
17:45	15	435	16	466	7	8	**17**	32	**7**	494	7	508	**55**	29	20	**104**	1110
Total Volume	62	1925	69	2056	27	43	59	129	21	1993	25	2039	120	129	61	310	4534
% App. Total	3	93.6	3.4		20.9	33.3	45.7		1	97.7	1.2		38.7	41.6	19.7		
PHF	.912	.924	.821	.935	.750	.538	.868	.787	.750	.993	.694	.998	.545	.686	.763	.745	.966
Passenger Vehicles	62	1865	67	1994	27	43	59	129	21	1916	25	1962	118	129	60	307	4392
% Passenger Vehicles	100	96.9	97.1	97.0	100	100	100	100	100	96.1	100	96.2	98.3	100	98.4	99.0	96.9
Heavy Vehicles	0	60	2	62	0	0	0	0	0	77	0	77	2	0	1	3	142
% Heavy Vehicles	0	3.1	2.9	3.0	0	0	0	0	0	3.9	0	3.8	1.7	0	1.6	1.0	3.1



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Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Pleasant Grove Road
Counter: M

File Name : westtown02w
Site Code :
Start Date : 10/10/2019
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound			Pleasant Grove Rd Westbound			Route 202 Northbound			Pleasant Grove Rd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	8	470	14	0	0	2	1	560	6	0	0	3	1064
07:15	6	463	37	0	0	3	5	546	11	0	0	3	1074
07:30	8	419	56	0	0	0	1	502	12	0	0	4	1002
07:45	15	401	43	0	0	2	3	474	23	0	0	2	963
Total	37	1753	150	0	0	7	10	2082	52	0	0	12	4103
08:00	13	438	61	0	0	5	1	454	11	0	0	4	987
08:15	9	414	66	0	0	2	2	480	8	0	0	2	983
08:30	6	412	40	0	0	1	6	474	8	0	0	1	948
08:45	4	415	46	0	0	2	15	479	6	0	0	5	972
Total	32	1679	213	0	0	10	24	1887	33	0	0	12	3890
16:00	12	352	36	0	0	2	4	507	8	0	0	3	924
16:15	19	412	56	0	0	2	8	469	7	0	0	5	978
16:30	22	383	46	0	0	3	4	529	9	0	0	3	999
16:45	20	410	39	0	0	5	10	489	5	0	0	2	980
Total	73	1557	177	0	0	12	26	1994	29	0	0	13	3881
17:00	25	453	43	0	0	1	9	471	7	0	0	6	1015
17:15	18	444	43	0	0	3	7	514	13	0	0	6	1048
17:30	26	419	59	0	0	1	9	499	13	0	0	7	1033
17:45	20	385	57	0	0	6	7	520	13	0	0	5	1013
Total	89	1701	202	0	0	11	32	2004	46	0	0	24	4109
Grand Total	231	6690	742	0	0	40	92	7967	160	0	0	61	15983
Apprch %	3	87.3	9.7	0	0	100	1.1	96.9	1.9	0	0	100	
Total %	1.4	41.9	4.6	0	0	0.3	0.6	49.8	1	0	0	0.4	
Passenger Vehicles	229	6234	726	0	0	38	89	7527	152	0	0	61	15056
% Passenger Vehicles	99.1	93.2	97.8	0	0	95	96.7	94.5	95	0	0	100	94.2
Heavy Vehicles	2	456	16	0	0	2	3	440	8	0	0	0	927
% Heavy Vehicles	0.9	6.8	2.2	0	0	5	3.3	5.5	5	0	0	0	5.8

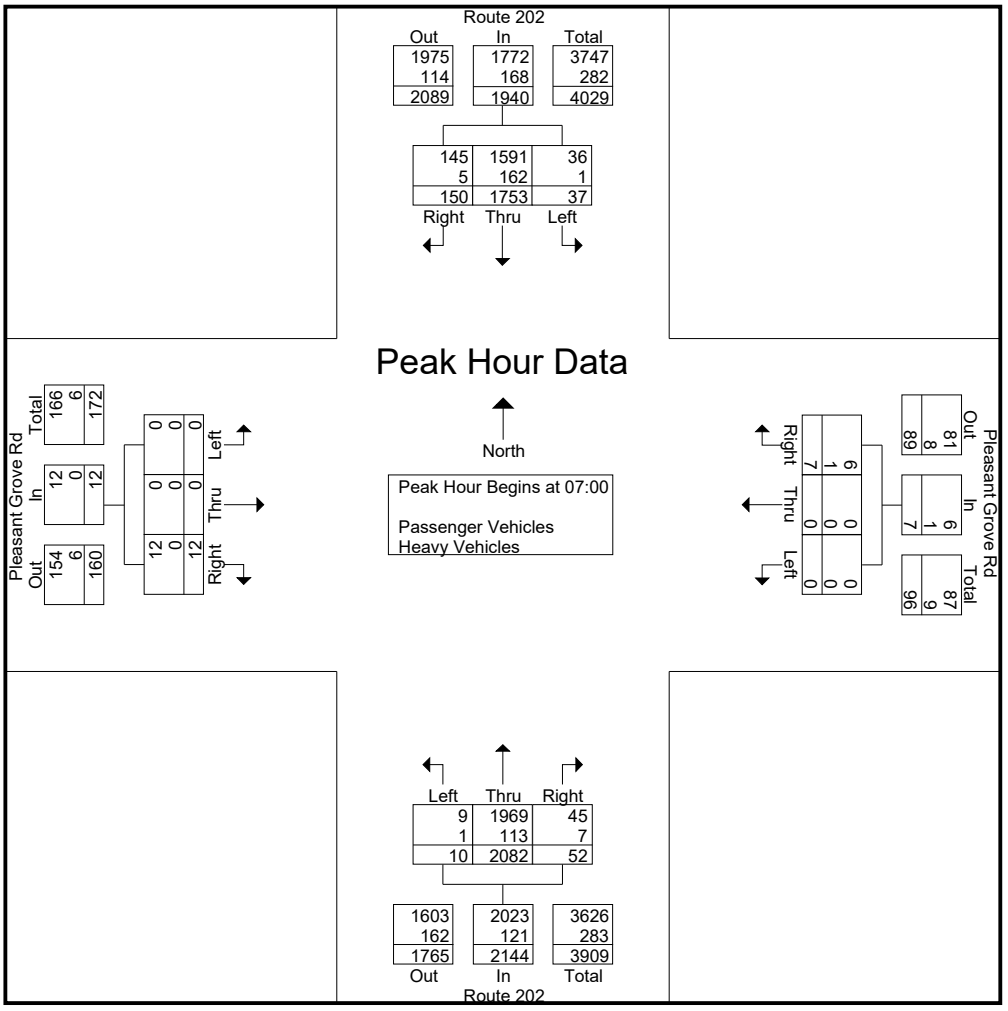
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Pleasant Grove Road
Counter: M

File Name : westtown02w
Site Code :
Start Date : 10/10/2019
Page No : 2

	Route 202 Southbound				Pleasant Grove Rd Westbound				Route 202 Northbound				Pleasant Grove Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	8	**470**	14	492	0	0	2	2	1	**560**	6	**567**	0	0	3	3	1064
07:15	6	463	37	**506**	0	0	**3**	**3**	**5**	546	11	562	0	0	3	3	**1074**
07:30	8	419	**56**	483	0	0	0	0	1	502	12	515	0	0	**4**	**4**	1002
07:45	**15**	401	43	459	0	0	2	2	3	474	**23**	500	0	0	2	2	963
Total Volume	37	1753	150	1940	0	0	7	7	10	2082	52	2144	0	0	12	12	4103
% App. Total	1.9	90.4	7.7		0	0	100		0.5	97.1	2.4		0	0	100		
PHF	.617	.932	.670	.958	.000	.000	.583	.583	.500	.929	.565	.945	.000	.000	.750	.750	.955
Passenger Vehicles	36	1591	145	1772	0	0	6	6	9	1969	45	2023	0	0	12	12	3813
% Passenger Vehicles	97.3	90.8	96.7	91.3	0	0	85.7	85.7	90.0	94.6	86.5	94.4	0	0	100	100	92.9
Heavy Vehicles	1	162	5	168	0	0	1	1	1	113	7	121	0	0	0	0	290
% Heavy Vehicles	2.7	9.2	3.3	8.7	0	0	14.3	14.3	10.0	5.4	13.5	5.6	0	0	0	0	7.1



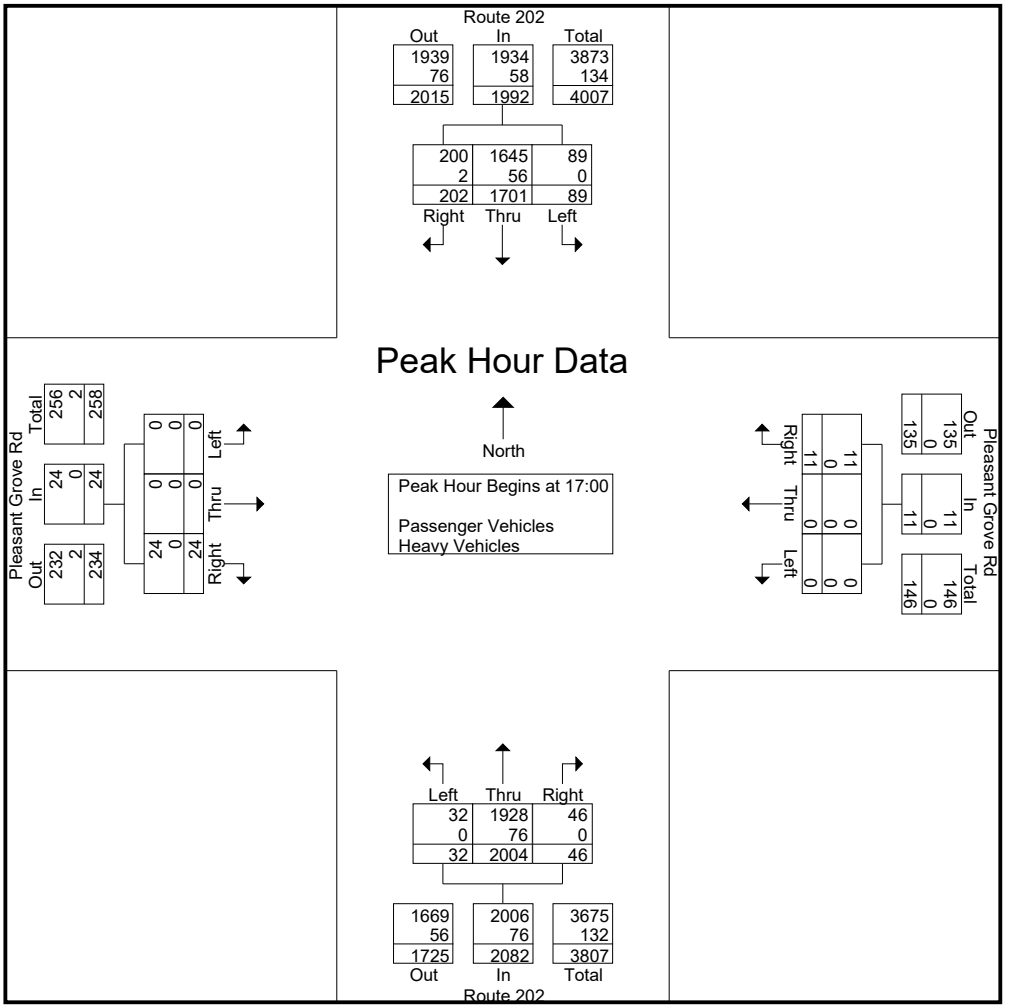
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 202 &
Pleasant Grove Road
Counter: M

File Name : westtown02w
Site Code :
Start Date : 10/10/2019
Page No : 3

	Route 202 Southbound				Pleasant Grove Rd Westbound				Route 202 Northbound				Pleasant Grove Rd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 17:00																	
17:00	25	**453**	43	**521**	0	0	1	1	**9**	471	7	487	0	0	6	6	1015
17:15	18	444	43	505	0	0	3	3	7	514	**13**	534	0	0	6	6	**1048**
17:30	**26**	419	**59**	504	0	0	1	1	9	499	13	521	0	0	**7**	**7**	1033
17:45	20	385	57	462	0	0	**6**	**6**	7	**520**	13	**540**	0	0	5	5	1013
Total Volume	89	1701	202	1992	0	0	11	11	32	2004	46	2082	0	0	24	24	4109
% App. Total	4.5	85.4	10.1		0	0	100		1.5	96.3	2.2		0	0	100		
PHF	.856	.939	.856	.956	.000	.000	.458	.458	.889	.963	.885	.964	.000	.000	.857	.857	.980
Passenger Vehicles	89	1645	200	1934	0	0	11	11	32	1928	46	2006	0	0	24	24	3975
% Passenger Vehicles	100	96.7	99.0	97.1	0	0	100	100	100	96.2	100	96.3	0	0	100	100	96.7
Heavy Vehicles	0	56	2	58	0	0	0	0	0	76	0	76	0	0	0	0	134
% Heavy Vehicles	0	3.3	1.0	2.9	0	0	0	0	0	3.8	0	3.7	0	0	0	0	3.3



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: New Street &
Pleasant Grove Road
Counter: M

File Name : westtown03w
Site Code :
Start Date : 10/17/2019
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	New St Southbound		Plesant Grove Rd Westbound		New St Northbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	3	18	15	2	17	0	55
07:15	1	25	38	6	27	0	97
07:30	3	28	44	5	55	2	137
07:45	3	21	52	6	61	0	143
Total	10	92	149	19	160	2	432
08:00	4	49	58	7	34	1	153
08:15	3	29	49	3	23	3	110
08:30	1	28	44	8	34	0	115
08:45	9	19	41	10	34	19	132
Total	17	125	192	28	125	23	510
16:00	7	49	37	9	23	4	129
16:15	3	38	48	13	25	1	128
16:30	10	46	66	9	27	3	161
16:45	2	28	48	8	23	2	111
Total	22	161	199	39	98	10	529
17:00	3	37	44	14	35	2	135
17:15	6	68	40	11	37	4	166
17:30	3	27	57	10	35	5	137
17:45	6	36	57	12	36	6	153
Total	18	168	198	47	143	17	591
Grand Total	67	546	738	133	526	52	2062
Apprch %	10.9	89.1	84.7	15.3	91	9	
Total %	3.2	26.5	35.8	6.5	25.5	2.5	
Passenger Vehicles	65	533	731	126	510	51	2016
% Passenger Vehicles	97	97.6	99.1	94.7	97	98.1	97.8
Heavy Vehicles	2	13	7	7	16	1	46
% Heavy Vehicles	3	2.4	0.9	5.3	3	1.9	2.2

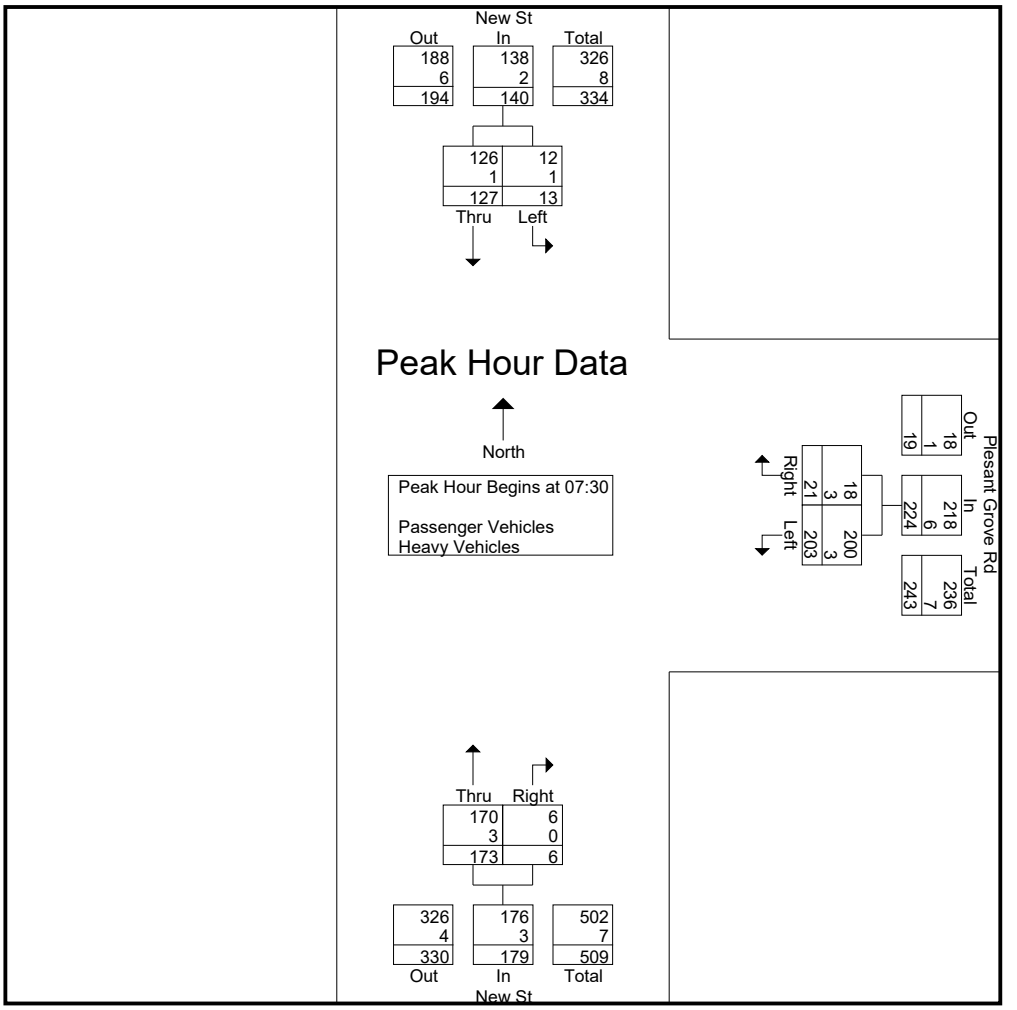
Zero Pedestrians were observed during this study.

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

File Name : westtown03w
Site Code :
Start Date : 10/17/2019
Page No : 2

	New St Southbound			Plesant Grove Rd Westbound			New St Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30										
07:30	3	28	31	44	5	49	55	2	57	137
07:45	3	21	24	52	6	58	**61**	0	**61**	143
08:00	**4**	**49**	**53**	**58**	**7**	**65**	34	1	35	**153**
08:15	3	29	32	49	3	52	23	**3**	26	110
Total Volume	13	127	140	203	21	224	173	6	179	543
% App. Total	9.3	90.7		90.6	9.4		96.6	3.4		
PHF	.813	.648	.660	.875	.750	.862	.709	.500	.734	.887
Passenger Vehicles	12	126	138	200	18	218	170	6	176	532
% Passenger Vehicles	92.3	99.2	98.6	98.5	85.7	97.3	98.3	100	98.3	98.0
Heavy Vehicles	1	1	2	3	3	6	3	0	3	11
% Heavy Vehicles	7.7	0.8	1.4	1.5	14.3	2.7	1.7	0	1.7	2.0



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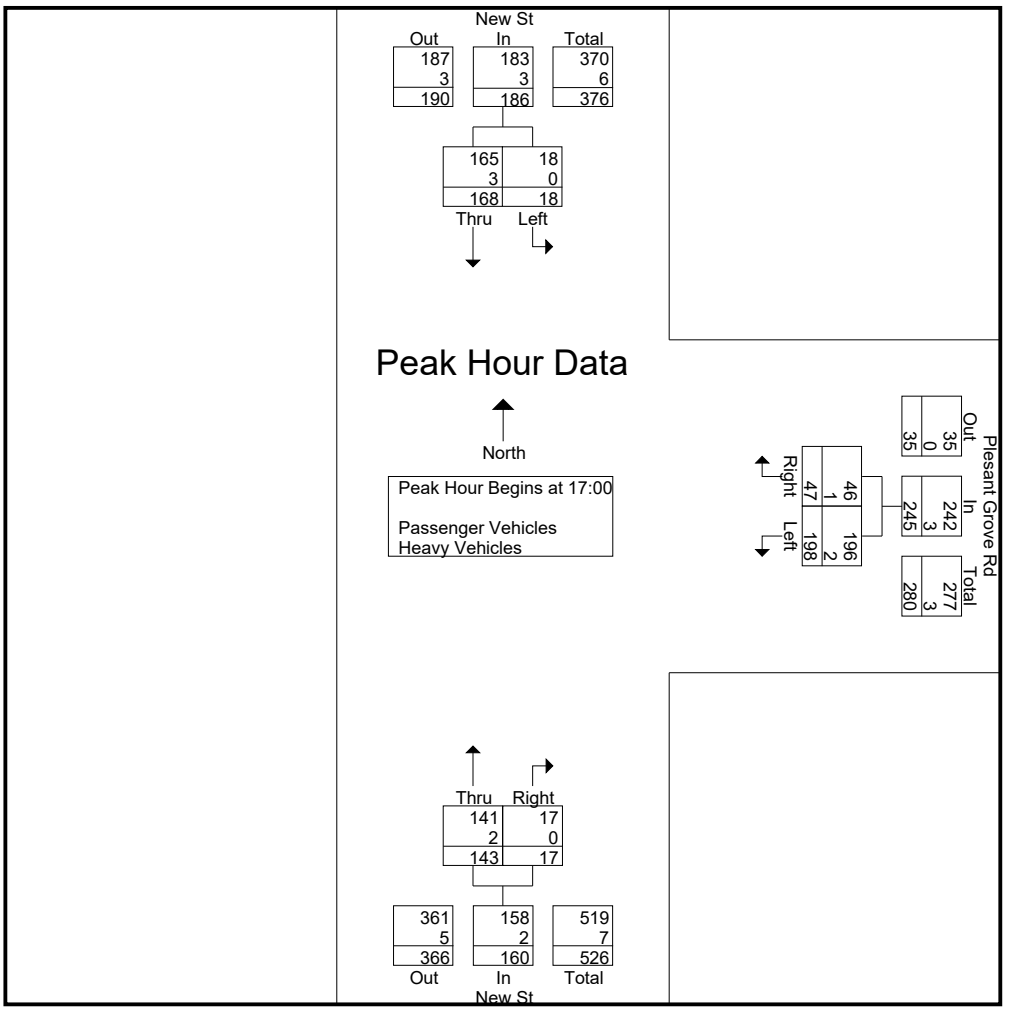
Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

File Name : westtown03w
Site Code :
Start Date : 10/17/2019
Page No : 3

	New St Southbound			Plesant Grove Rd Westbound			New St Northbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 17:00										
17:00	3	37	40	44	**14**	58	35	2	37	135
17:15	**6**	**68**	**74**	40	11	51	**37**	4	41	**166**
17:30	3	27	30	**57**	10	67	35	5	40	137
17:45	6	36	42	57	12	**69**	36	**6**	**42**	153
Total Volume	18	168	186	198	47	245	143	17	160	591
% App. Total	9.7	90.3		80.8	19.2		89.4	10.6		
PHF	.750	.618	.628	.868	.839	.888	.966	.708	.952	.890
Passenger Vehicles	18	165	183	196	46	242	141	17	158	583
% Passenger Vehicles	100	98.2	98.4	99.0	97.9	98.8	98.6	100	98.8	98.6
Heavy Vehicles	0	3	3	2	1	3	2	0	2	8
% Heavy Vehicles	0	1.8	1.6	1.0	2.1	1.2	1.4	0	1.3	1.4



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: Route 926 &
Bridlewood Boulevard
Counter: M

File Name : westtown04w
Site Code :
Start Date : 10/17/2019
Page No : 1

Groups Printed- Passenger Vehicles - Other Vehicles

	Route 926 Westbound		Bridlewood Blvd Northbound		Route 926 Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	76	5	14	186	1	282
07:15	2	98	6	13	160	4	283
07:30	7	79	1	11	163	2	263
07:45	3	88	6	11	157	5	270
Total	12	341	18	49	666	12	1098
08:00	4	85	8	12	172	7	288
08:15	3	74	7	9	181	6	280
08:30	3	78	4	7	172	13	277
08:45	2	56	7	8	154	10	237
Total	12	293	26	36	679	36	1082
16:00	8	105	0	8	154	11	286
16:15	5	104	8	6	163	9	295
16:30	4	103	5	10	152	7	281
16:45	6	88	0	9	180	9	292
Total	23	400	13	33	649	36	1154
17:00	6	81	5	9	170	12	283
17:15	4	85	6	6	190	9	300
17:30	7	75	7	10	162	13	274
17:45	8	106	5	12	145	3	279
Total	25	347	23	37	667	37	1136
Grand Total	72	1381	80	155	2661	121	4470
Apprch %	5	95	34	66	95.7	4.3	
Total %	1.6	30.9	1.8	3.5	59.5	2.7	
Passenger Vehicles	69	1305	79	150	2564	117	4284
% Passenger Vehicles	95.8	94.5	98.8	96.8	96.4	96.7	95.8
Other Vehicles	3	76	1	5	97	4	186
% Other Vehicles	4.2	5.5	1.2	3.2	3.6	3.3	4.2

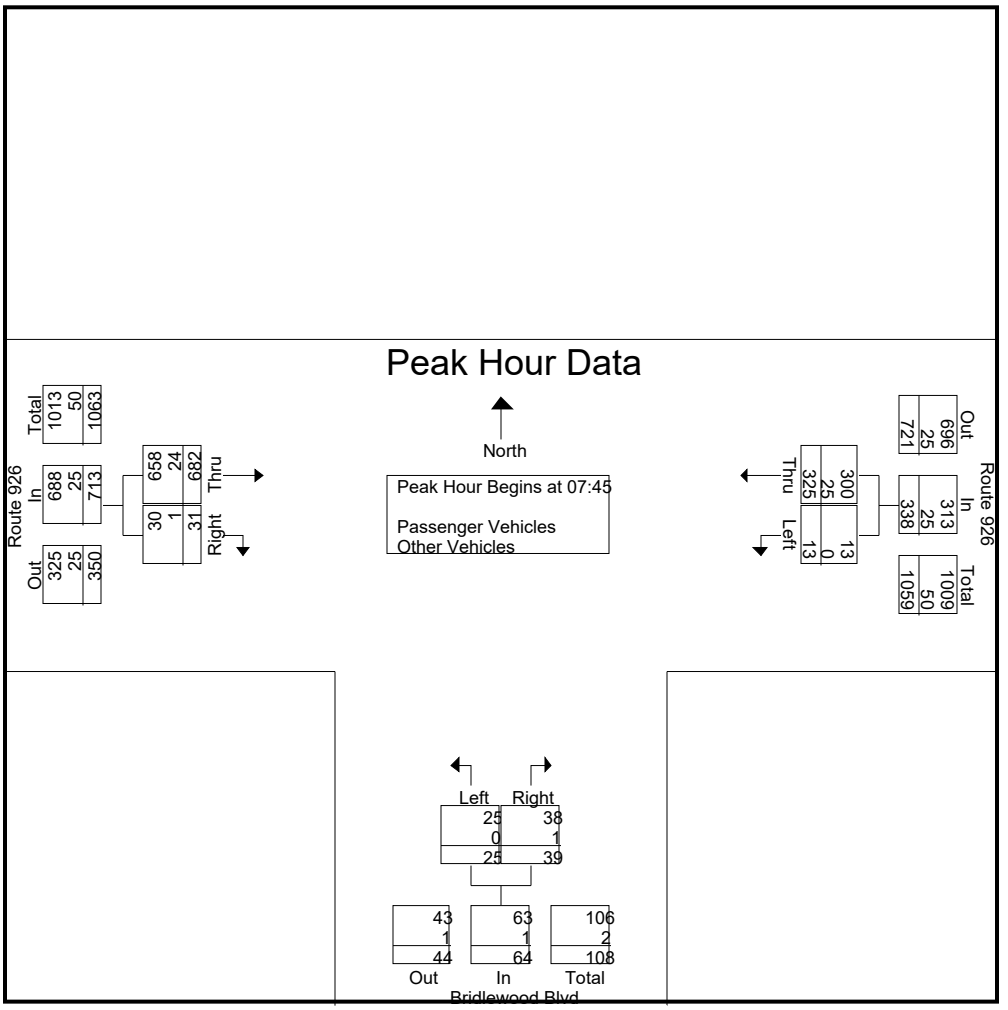
Zero Pedestrians were observed during this study.

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

File Name : westtown04w
Site Code :
Start Date : 10/17/2019
Page No : 2

	Route 926 Westbound			Bridlewood Blvd Northbound			Route 926 Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45										
07:45	3	**88**	**91**	6	11	17	157	5	162	270
08:00	**4**	85	89	**8**	**12**	**20**	172	7	179	**288**
08:15	3	74	77	7	9	16	**181**	6	**187**	280
08:30	3	78	81	4	7	11	172	**13**	185	277
Total Volume	13	325	338	25	39	64	682	31	713	1115
% App. Total	3.8	96.2		39.1	60.9		95.7	4.3		
PHF	.813	.923	.929	.781	.813	.800	.942	.596	.953	.968
Passenger Vehicles	13	300	313	25	38	63	658	30	688	1064
% Passenger Vehicles	100	92.3	92.6	100	97.4	98.4	96.5	96.8	96.5	95.4
Other Vehicles	0	25	25	0	1	1	24	1	25	51
% Other Vehicles	0	7.7	7.4	0	2.6	1.6	3.5	3.2	3.5	4.6

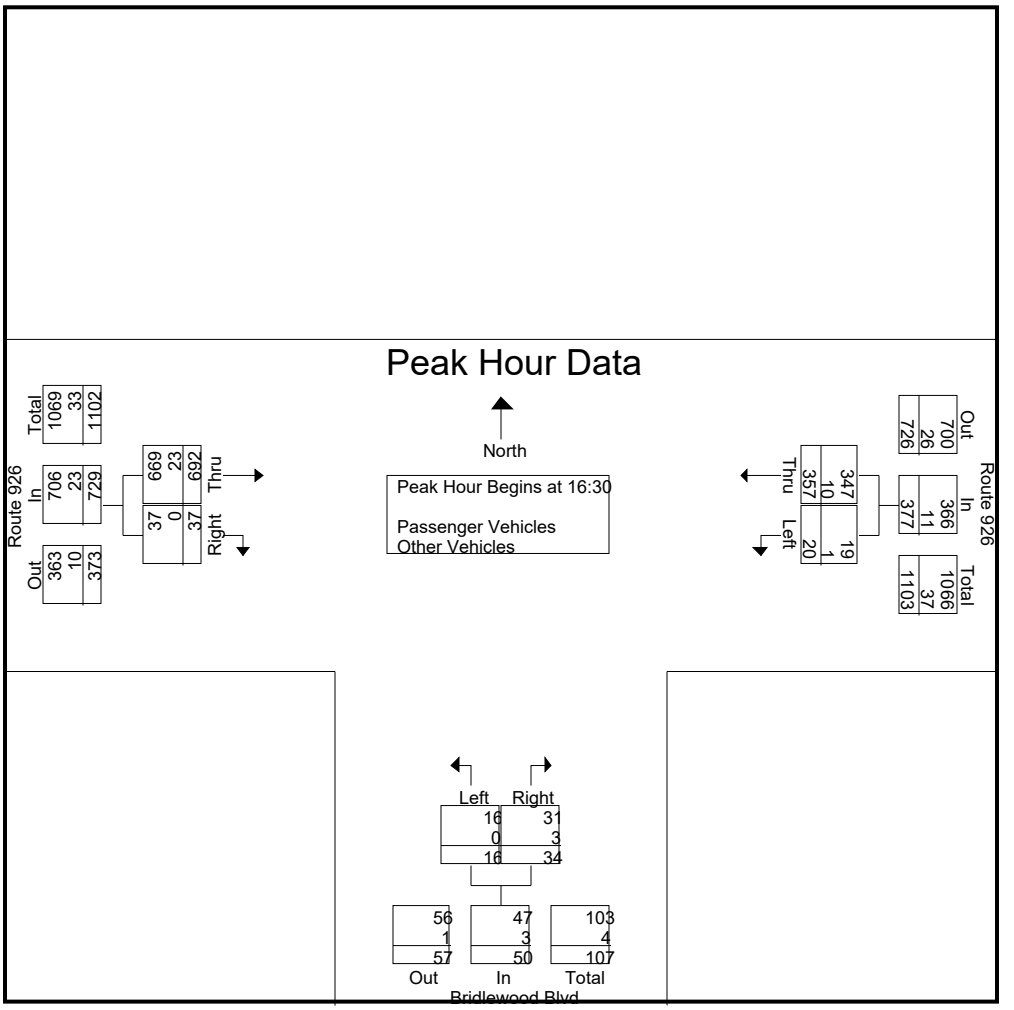


McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

File Name : westtown04w
Site Code :
Start Date : 10/17/2019
Page No : 3

	Route 926 Westbound			Bridlewood Blvd Northbound			Route 926 Eastbound			
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 16:30										
16:30	4	**103**	**107**	5	**10**	**15**	152	7	159	281
16:45	**6**	88	94	0	9	9	180	9	189	292
17:00	6	81	87	5	9	14	170	**12**	182	283
17:15	4	85	89	**6**	6	12	**190**	9	**199**	**300**
Total Volume	20	357	377	16	34	50	692	37	729	1156
% App. Total	5.3	94.7		32	68		94.9	5.1		
PHF	.833	.867	.881	.667	.850	.833	.911	.771	.916	.963
Passenger Vehicles	19	347	366	16	31	47	669	37	706	1119
% Passenger Vehicles	95.0	97.2	97.1	100	91.2	94.0	96.7	100	96.8	96.8
Other Vehicles	1	10	11	0	3	3	23	0	23	37
% Other Vehicles	5.0	2.8	2.9	0	8.8	6.0	3.3	0	3.2	3.2



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township

Location: Route 926 & Route 202

Counter: M

File Name : westtown05w
Site Code :
Start Date : 10/17/2019
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Route 202 Southbound			Route 926 Westbound			Route 202 Northbound			Route 926 Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	21	365	48	26	26	7	1	381	45	148	67	1	1136
07:15	9	372	53	33	50	15	4	406	34	124	54	1	1155
07:30	6	397	40	36	37	11	3	414	39	123	49	3	1158
07:45	12	331	40	47	45	12	4	350	33	136	51	3	1064
Total	48	1465	181	142	158	45	12	1551	151	531	221	8	4513
08:00	12	375	61	42	34	11	1	391	41	117	37	2	1124
08:15	10	374	35	42	35	7	1	378	31	104	71	5	1093
08:30	12	335	36	37	39	12	3	354	30	130	65	6	1059
08:45	22	380	33	34	26	15	5	386	31	118	42	3	1095
Total	56	1464	165	155	134	45	10	1509	133	469	215	16	4371
16:00	37	320	39	53	58	6	7	339	22	123	46	8	1058
16:15	13	363	50	34	57	14	6	419	40	107	35	4	1142
16:30	14	315	33	55	70	17	8	321	38	119	60	3	1053
16:45	16	379	37	44	55	15	8	412	37	103	54	6	1166
Total	80	1377	159	186	240	52	29	1491	137	452	195	21	4419
17:00	22	338	30	57	59	11	9	354	22	117	54	8	1081
17:15	30	365	24	47	49	18	5	394	25	131	51	8	1147
17:30	11	369	37	51	58	13	7	391	37	100	45	5	1124
17:45	21	361	38	52	60	10	3	371	26	127	46	13	1128
Total	84	1433	129	207	226	52	24	1510	110	475	196	34	4480
Grand Total	268	5739	634	690	758	194	75	6061	531	1927	827	79	17783
Apprch %	4	86.4	9.5	42	46.2	11.8	1.1	90.9	8	68	29.2	2.8	
Total %	1.5	32.3	3.6	3.9	4.3	1.1	0.4	34.1	3	10.8	4.7	0.4	
Passenger Vehicles	257	5349	572	672	742	184	71	5727	511	1852	801	73	16811
% Passenger Vehicles	95.9	93.2	90.2	97.4	97.9	94.8	94.7	94.5	96.2	96.1	96.9	92.4	94.5
Heavy Vehicles	11	390	62	18	16	10	4	334	20	75	26	6	972
% Heavy Vehicles	4.1	6.8	9.8	2.6	2.1	5.2	5.3	5.5	3.8	3.9	3.1	7.6	5.5

Zero Pedestrians were observed during this study.

McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

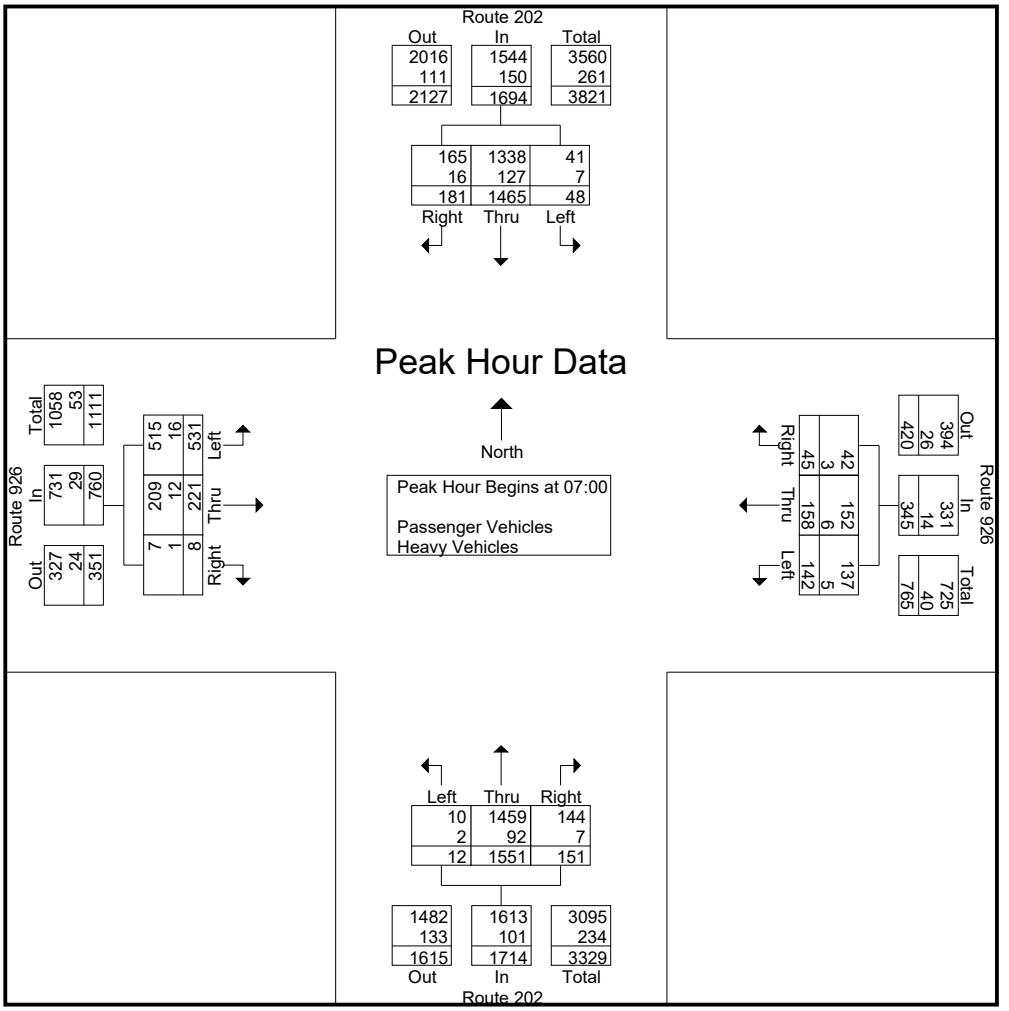
Municipality: Westtown Township

Location: Route 926 & Route 202

Counter: M

File Name : westtown05w
Site Code :
Start Date : 10/17/2019
Page No : 2

	Route 202 Southbound				Route 926 Westbound				Route 202 Northbound				Route 926 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00																	
07:00	**21**	365	48	434	26	26	7	59	1	381	**45**	427	**148**	**67**	1	**216**	1136
07:15	9	372	**53**	434	33	**50**	**15**	98	**4**	406	34	444	124	54	1	179	1155
07:30	6	**397**	40	**443**	36	37	11	84	3	**414**	39	**456**	123	49	**3**	175	**1158**
07:45	12	331	40	383	**47**	45	12	**104**	4	350	33	387	136	51	3	190	1064
Total Volume	48	1465	181	1694	142	158	45	345	12	1551	151	1714	531	221	8	760	4513
% App. Total	2.8	86.5	10.7		41.2	45.8	13		0.7	90.5	8.8		69.9	29.1	1.1		
PHF	.571	.923	.854	.956	.755	.790	.750	.829	.750	.937	.839	.940	.897	.825	.667	.880	.974
Passenger Vehicles	41	1338	165	1544	137	152	42	331	10	1459	144	1613	515	209	7	731	4219
% Passenger Vehicles	85.4	91.3	91.2	91.1	96.5	96.2	93.3	95.9	83.3	94.1	95.4	94.1	97.0	94.6	87.5	96.2	93.5
Heavy Vehicles	7	127	16	150	5	6	3	14	2	92	7	101	16	12	1	29	294
% Heavy Vehicles	14.6	8.7	8.8	8.9	3.5	3.8	6.7	4.1	16.7	5.9	4.6	5.9	3.0	5.4	12.5	3.8	6.5



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

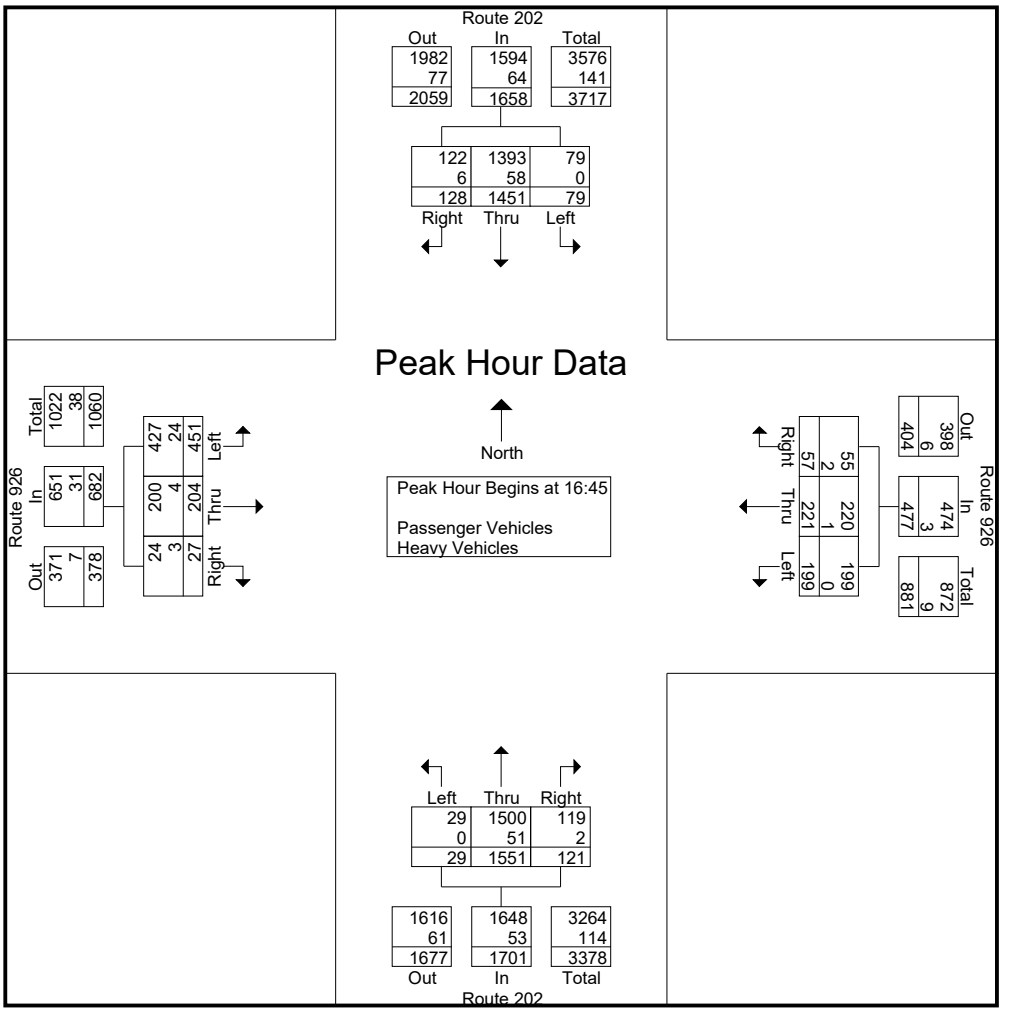
Municipality: Westtown Township

Location: Route 926 & Route 202

Counter: M

File Name : westtown05w
Site Code :
Start Date : 10/17/2019
Page No : 3

	Route 202 Southbound				Route 926 Westbound				Route 202 Northbound				Route 926 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	16	**379**	**37**	**432**	44	55	15	114	8	**412**	**37**	**457**	103	**54**	6	163	**1166**
17:00	22	338	30	390	**57**	**59**	11	**127**	**9**	354	22	385	117	54	**8**	179	1081
17:15	**30**	365	24	419	47	49	**18**	114	5	394	25	424	**131**	51	8	**190**	1147
17:30	11	369	37	417	51	58	13	122	7	391	37	435	100	45	5	150	1124
Total Volume	79	1451	128	1658	199	221	57	477	29	1551	121	1701	451	204	27	682	4518
% App. Total	4.8	87.5	7.7		41.7	46.3	11.9		1.7	91.2	7.1		66.1	29.9	4		
PHF	.658	.957	.865	.959	.873	.936	.792	.939	.806	.941	.818	.931	.861	.944	.844	.897	.969
Passenger Vehicles	79	1393	122	1594	199	220	55	474	29	1500	119	1648	427	200	24	651	4367
% Passenger Vehicles	100	96.0	95.3	96.1	100	99.5	96.5	99.4	100	96.7	98.3	96.9	94.7	98.0	88.9	95.5	96.7
Heavy Vehicles	0	58	6	64	0	1	2	3	0	51	2	53	24	4	3	31	151
% Heavy Vehicles	0	4.0	4.7	3.9	0	0.5	3.5	0.6	0	3.3	1.7	3.1	5.3	2.0	11.1	4.5	3.3



McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: New Street &
Route 926
Counter: M

File Name : westtown06w
Site Code :
Start Date : 10/17/2019
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	New St Southbound			Route 926 Westbound			New St Northbound			Route 926 Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	1	13	16	0	78	4	1	10	9	4	178	5	319
07:15	0	21	39	4	84	7	2	9	9	11	151	1	338
07:30	2	23	44	3	73	13	6	34	12	14	165	4	393
07:45	1	29	39	0	79	12	1	37	7	14	150	0	369
Total	4	86	138	7	314	36	10	90	37	43	644	10	1419
08:00	4	33	49	3	81	5	2	17	12	10	157	0	373
08:15	1	37	58	2	77	6	0	9	10	10	176	1	387
08:30	6	26	43	1	60	9	2	16	6	11	171	2	353
08:45	1	34	31	1	59	11	0	24	8	19	157	3	348
Total	12	130	181	7	277	31	4	66	36	50	661	6	1461
16:00	15	33	47	6	81	4	2	15	3	10	135	3	354
16:15	11	33	46	5	108	9	1	12	4	4	160	2	395
16:30	19	32	50	5	90	4	0	13	7	10	131	0	361
16:45	14	47	36	6	78	10	1	11	13	4	168	3	391
Total	59	145	179	22	357	27	4	51	27	28	594	8	1501
17:00	16	31	40	8	71	3	4	25	9	8	155	5	375
17:15	10	47	29	1	79	10	0	23	11	12	172	4	398
17:30	9	39	38	4	77	7	4	24	4	6	164	1	377
17:45	7	43	51	4	89	8	1	22	6	13	134	1	379
Total	42	160	158	17	316	28	9	94	30	39	625	11	1529
Grand Total	117	521	656	53	1264	122	27	301	130	160	2524	35	5910
Apprch %	9	40.3	50.7	3.7	87.8	8.5	5.9	65.7	28.4	5.9	92.8	1.3	
Total %	2	8.8	11.1	0.9	21.4	2.1	0.5	5.1	2.2	2.7	42.7	0.6	
Passenger Vehicles	112	519	645	50	1193	119	23	295	125	153	2432	30	5696
% Passenger Vehicles	95.7	99.6	98.3	94.3	94.4	97.5	85.2	98	96.2	95.6	96.4	85.7	96.4
Heavy Vehicles	5	2	11	3	71	3	4	6	5	7	92	5	214
% Heavy Vehicles	4.3	0.4	1.7	5.7	5.6	2.5	14.8	2	3.8	4.4	3.6	14.3	3.6

Zero Pedestrians were observed during this study.

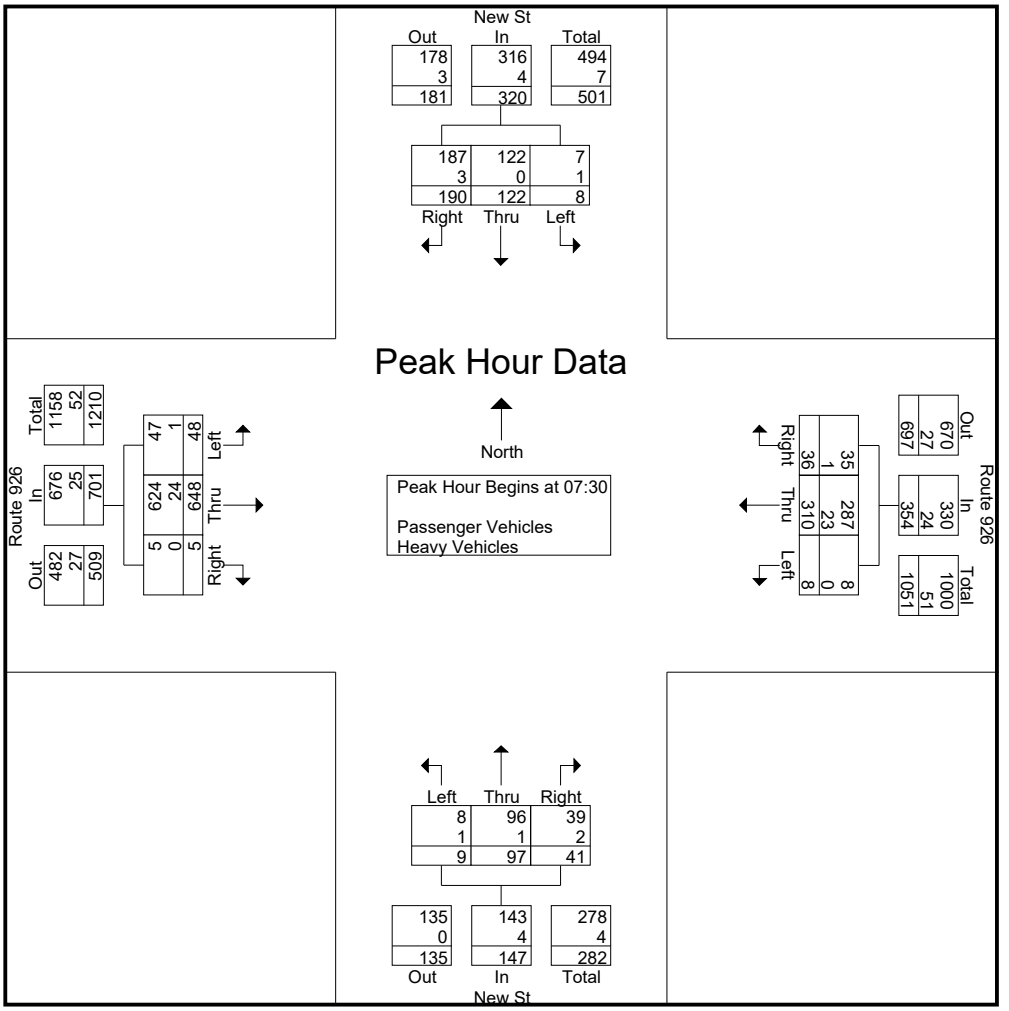
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: New Street &
Route 926
Counter: M

File Name : westtown06w
Site Code :
Start Date : 10/17/2019
Page No : 2

	New St Southbound				Route 926 Westbound				New St Northbound				Route 926 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 11:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30																	
07:30	2	23	44	69	**3**	73	**13**	89	**6**	34	**12**	**52**	**14**	165	**4**	183	**393**
07:45	1	29	39	69	0	79	12	**91**	1	**37**	7	45	14	150	0	164	369
08:00	**4**	33	49	86	3	**81**	5	89	2	17	12	31	10	157	0	167	373
08:15	1	**37**	**58**	**96**	2	77	6	85	0	9	10	19	10	**176**	1	**187**	387
Total Volume	8	122	190	320	8	310	36	354	9	97	41	147	48	648	5	701	1522
% App. Total	2.5	38.1	59.4		2.3	87.6	10.2		6.1	66	27.9		6.8	92.4	0.7		
PHF	.500	.824	.819	.833	.667	.957	.692	.973	.375	.655	.854	.707	.857	.920	.313	.937	.968
Passenger Vehicles	7	122	187	316	8	287	35	330	8	96	39	143	47	624	5	676	1465
% Passenger Vehicles	87.5	100	98.4	98.8	100	92.6	97.2	93.2	88.9	99.0	95.1	97.3	97.9	96.3	100	96.4	96.3
Heavy Vehicles	1	0	3	4	0	23	1	24	1	1	2	4	1	24	0	25	57
% Heavy Vehicles	12.5	0	1.6	1.3	0	7.4	2.8	6.8	11.1	1.0	4.9	2.7	2.1	3.7	0	3.6	3.7



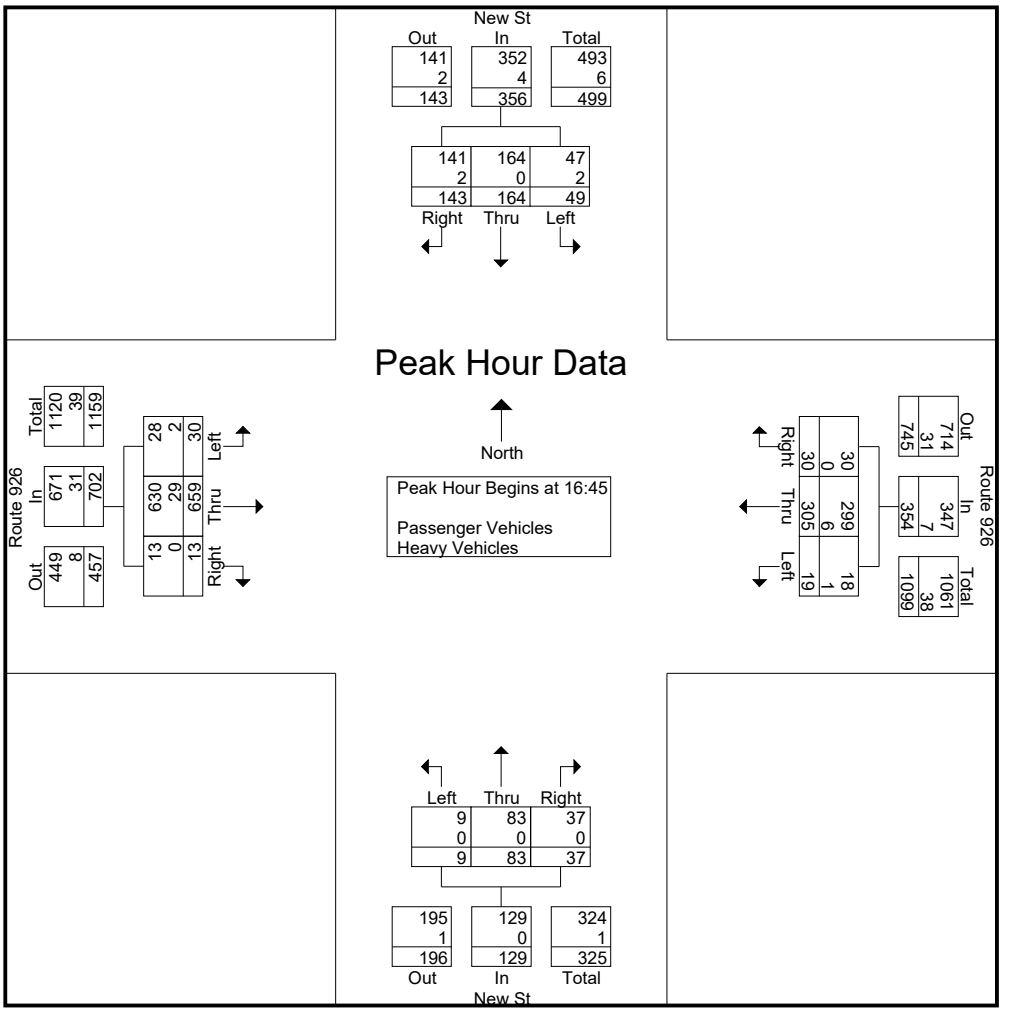
McMahon Associates, Inc.

Transportation Engineers and Planners
425 Commerce Drive, Suite 200
Fort Washington, PA 19034

Municipality: Westtown Township
Location: New Street &
Route 926
Counter: M

File Name : westtown06w
Site Code :
Start Date : 10/17/2019
Page No : 3

	New St Southbound				Route 926 Westbound				New St Northbound				Route 926 Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	14	**47**	36	**97**	6	78	**10**	**94**	1	11	**13**	25	4	168	3	175	391
17:00	**16**	31	**40**	87	**8**	71	3	82	**4**	**25**	9	**38**	8	155	**5**	168	375
17:15	10	47	29	86	1	**79**	10	90	0	23	11	34	**12**	**172**	4	**188**	**398**
17:30	9	39	38	86	4	77	7	88	4	24	4	32	6	164	1	171	377
Total Volume	49	164	143	356	19	305	30	354	9	83	37	129	30	659	13	702	1541
% App. Total	13.8	46.1	40.2		5.4	86.2	8.5		7	64.3	28.7		4.3	93.9	1.9		
PHF	.766	.872	.894	.918	.594	.965	.750	.941	.563	.830	.712	.849	.625	.958	.650	.934	.968
Passenger Vehicles	47	164	141	352	18	299	30	347	9	83	37	129	28	630	13	671	1499
% Passenger Vehicles	95.9	100	98.6	98.9	94.7	98.0	100	98.0	100	100	100	100	93.3	95.6	100	95.6	97.3
Heavy Vehicles	2	0	2	4	1	6	0	7	0	0	0	0	2	29	0	31	42
% Heavy Vehicles	4.1	0	1.4	1.1	5.3	2.0	0	2.0	0	0	0	0	6.7	4.4	0	4.4	2.7



McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix E

Initial Queue Observations

US 202 and PA 926
INITIAL QUEUE OBSERVATIONS

WEEKDAY PM
THURSDAY, OCTOBER 17, 2019

	SR 926 EASTBOUND			SR 926 WESTBOUND			US 202 NORTHBOUND			US 202 SOUTHBOUND		
	↰	↰↑		↰	↑	↱	↰	↰↑	↱	↰	↑↱	
3:55	5.0.0	7.0.3					0.0	0.0	0.0			
4:14	0.	0		2.1.3	5.7.6	0.0.2						
4:25				1.0	1.3	2.0	0.0.0	0.0.4	0.0.0	SEE		
4:35	0.	0.	0.	0.	2.	0.	0.0.0	0.2.0	0.0.0			
4:40	2.1.6	3.3.9		0.	2.	0.	0	0	0	SEPERATE		
4:57				0.0.0	1.0.0	0.0.0	0.0	0.0	0.0			
5:07	7.5.7	7.6.10								SHEET		
5:18				0.0.0	0.0.0	0.0.0	0.0.0	0.0.0	0.0.0			
5:30	6.9.	8.10.										
5:43				0.0.0	0.0.0	0.00	0.00	00.0	00.0			
5:50	3.4	5.7										

10/17/2019

US 202 and PA 926
INITIAL QUEUE OBSERVATIONS

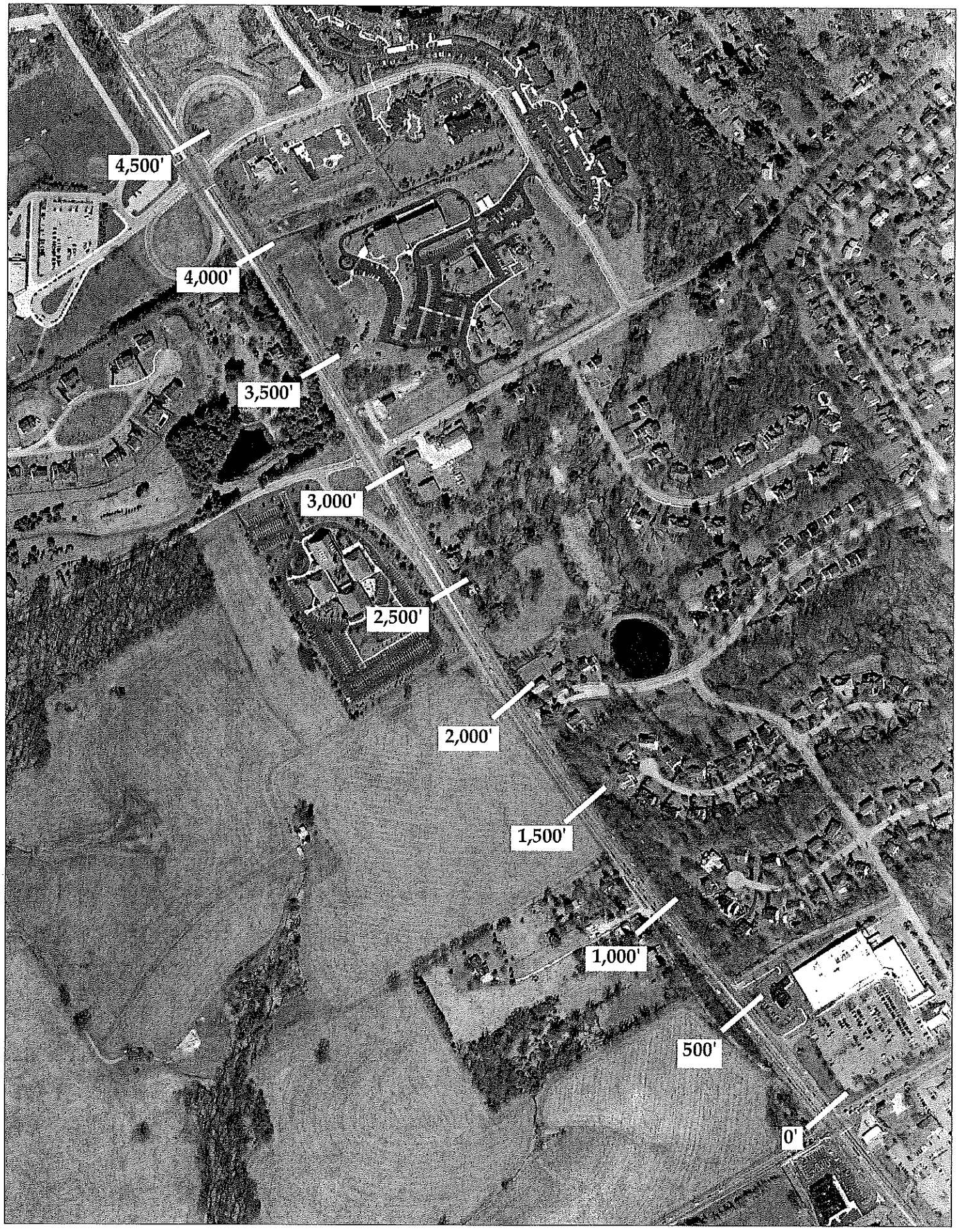
WEEKDAY AM
THURSDAY, OCTOBER 17, 2019

	SR 926 EASTBOUND AM			SR 926 WESTBOUND			US 202 NORTHBOUND AM			US 202 SOUTHBOUND		
6:55	↰	↰↑		↰	↑	↱	↰	↰↱	↱	↰	↑ ↑	
6:55	4			0.0	0.0.	0.0	0.0	0.0	0.⌣	0.0	0.0	F
7:02-7:12	11.4.9.	9.3.10										
								each lane				
7:14				0.0	0.0	0.0	0.0	0.0.4	0.0	0.0	0.0.0	
7:25	0.3.6	7.6.0						each lane				
7:35				0.0.0	0.0.0	0.0.0	0.0.0	2. 1.4	0.0	0.0.0	0.0.0	
~~7:45~~ 7:49	7.3.0	6.5.2						each lane				
7:58				0.0.0.	0.0.0	0.0.0	0.0.	0.7.5	0.0.0	0.0.0	0.0..0	
8:13	~~8~~ 4.6.8	8. 11. 14										
8:24				0 .0.0	0.0.0	0 .0.0	0.0.0	0.0.0	0.0.0	0.0.0	0. 0.0	
8:35	9.8.12	9.7.7										
8:47				0.0.0	0.0.0	0.0.0	0.0.0.	0.0.6	0.0.0	0.0 0	0.0.0.	

1 Light Timming on 926 30 sec
2 " " " 202 130 sec.
3 Vehicle heading south on 202 per light 75
4 My location Pleasant Grove & 202
5 Only could see as fan as 926 amount of vehicle is 197 can in 3000 feet
6 Traffic back up passed my location
Vehicle wait 3 To 4 light for green
7 When Traffic move 67 cars go thru my intersection

4:00	3,000	Spot check & count done even 15 min no change
4:05	3000	
4:10	3000	8 A Full cycle of south bound light Take 3 1/2 min.
4:15	3,000	
4:20	"	
4:25	"	
4:30	"	
4:35	"	
4:40	"	
4:45	"	
4:50	"	
4:55	"	
5:00	"	No change in Traffic
5:05	"	
5:10	"	
5:15	"	
5:20	"	
5:25	"	
5:30	"	
5:35	"	
5:40	"	
5:45	"	After 5:45 only back up To my location
5:50	"	
5:55	"	
6:00	"	

A consistent queue of 3,000 to 3,500 feet was observed throughout the peak period


4,500'
4,000'
3,500'
3,000'
2,500'
2,000'
1,500'
1,000'
500'
0'

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix F

Site Trip Generation

Project Information	
Project Name:	Robinson Tract
McMahon Project No:	816451
Date:	8/5/2019
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 10th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
220 - Multifamily Housing (Low-Rise)	135 dwelling units	980	14	49	63	48	29	77
210 - Single Family Detached Housing	184 dwelling units	1,822	33	102	135	115	67	182
Total Trips		***2,802***	***47***	***151***	***198***	***163***	***96***	***259***

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix G

Collector Road and Site Access Traffic Signal and Turning Lane Warrant Analysis Worksheets

Signal Warrant Analysis
Collector Road Diversions Only

2025 BUILD-OUT YEAR SIGNAL WARRANT VOLUME DEVELOPMENT (COLLECTOR ROAD DIVERSIONS ONLY)

		STREET ROAD (S.R. 0926)						COLLECTOR ROAD			BRIDLWOOD BOULEVARD		
		Eastbound			Westbound			Southbound			Northbound		
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
8:00 AM - 9:00 AM (see Figure 5B)		*26*	*652*	*32*	*13*	*243*	*0*	*0*	*15*	*147*	*26*	*27*	*13*
7:00 AM - 8:00 AM		No adjustment for base existing counts since traffic volumes are 99% of the peak hour No adjustment to background developments since there are very few trips generated											
		26	*652*	*32*	*13*	*243*	*0*	*0*	*15*	*147*	*26*	*27*	*13*
5:00 PM - 6:00 PM(see Figure 5B)		111	582	38	21	301	0	0	250	121	17	23	12
4:00 PM - 5:00 PM		Adjust without development and diversion volumes to 88 percent of peak hour based on existing counts											
	w/o dev		-70	-5	-3	-36					-2		-1
	diversions	-14	14	0	0	8	0	0	0	-15	0	-3	3
		97	*526*	*33*	*18*	*273*	*0*	*0*	*250*	*106*	*15*	*20*	*14*

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/14/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Agency/Company Name:**	McMahon

Analysis Information

Data Collection Date:	10/10/2019
Day of the Week:	Thursday

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

Major Street Information

Major Street Name and Route Number:	PA Route 926
Major Street Approach #1 Direction:	E-Bound
Major Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	45	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Bridlewood/ Collector Road
Minor Street Approach #1 Direction:	S-Bound
Minor Street Approach #2 Direction:	N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	2	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**Yes**
Warrant 3, Peak Hour	**No**	**N/A**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**No**	**N/A**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

Traffic Signal Warrant Analysis Workbook

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM			0		
12:15 AM	12:29 AM			0		
12:30 AM	12:44 AM			0		
12:45 AM	12:59 AM			0		
1:00 AM	1:14 AM			0		
1:15 AM	1:29 AM			0		
1:30 AM	1:44 AM			0		
1:45 AM	1:59 AM			0		
2:00 AM	2:14 AM			0		
2:15 AM	2:29 AM			0		
2:30 AM	2:44 AM			0		
2:45 AM	2:59 AM			0		
3:00 AM	3:14 AM			0		
3:15 AM	3:29 AM			0		
3:30 AM	3:44 AM			0		
3:45 AM	3:59 AM			0		
4:00 AM	4:14 AM			0		
4:15 AM	4:29 AM			0		
4:30 AM	4:44 AM			0		
4:45 AM	4:59 AM			0		
5:00 AM	5:14 AM			0		
5:15 AM	5:29 AM			0		
5:30 AM	5:44 AM			0		
5:45 AM	5:59 AM			0		
6:00 AM	6:14 AM			0		
6:15 AM	6:29 AM			0		
6:30 AM	6:44 AM			0		
6:45 AM	6:59 AM			0		
7:00 AM	7:14 AM	710	256	966	162	66
7:15 AM	7:29 AM			0		
7:30 AM	7:44 AM			0		
7:45 AM	7:59 AM			0		
8:00 AM	8:14 AM	710	256	966	162	66
8:15 AM	8:29 AM			0		
8:30 AM	8:44 AM			0		
8:45 AM	8:59 AM			0		
9:00 AM	9:14 AM			0		
9:15 AM	9:29 AM			0		
9:30 AM	9:44 AM			0		
9:45 AM	9:59 AM			0		
10:00 AM	10:14 AM			0		
10:15 AM	10:29 AM			0		
10:30 AM	10:44 AM			0		
10:45 AM	10:59 AM			0		
11:00 AM	11:14 AM			0		
11:15 AM	11:29 AM			0		
11:30 AM	11:44 AM			0		
11:45 AM	11:59 AM			0		

Traffic Signal Warrant Analysis Workbook

ENTER VOLUME DATA PER 15 MINUTE INTERVAL, PER APPROACH

Time Interval		Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM			0		
12:15 PM	12:29 PM			0		
12:30 PM	12:44 PM			0		
12:45 PM	12:59 PM			0		
1:00 PM	1:14 PM			0		
1:15 PM	1:29 PM			0		
1:30 PM	1:44 PM			0		
1:45 PM	1:59 PM			0		
2:00 PM	2:14 PM			0		
2:15 PM	2:29 PM			0		
2:30 PM	2:44 PM			0		
2:45 PM	2:59 PM			0		
3:00 PM	3:14 PM			0		
3:15 PM	3:29 PM			0		
3:30 PM	3:44 PM			0		
3:45 PM	3:59 PM			0		
4:00 PM	4:14 PM	656	291	947	356	49
4:15 PM	4:29 PM			0		
4:30 PM	4:44 PM			0		
4:45 PM	4:59 PM			0		
5:00 PM	5:14 PM	731	322	1053	371	52
5:15 PM	5:29 PM			0		
5:30 PM	5:44 PM			0		
5:45 PM	5:59 PM			0		
6:00 PM	6:14 PM			0		
6:15 PM	6:29 PM			0		
6:30 PM	6:44 PM			0		
6:45 PM	6:59 PM			0		
7:00 PM	7:14 PM			0		
7:15 PM	7:29 PM			0		
7:30 PM	7:44 PM			0		
7:45 PM	7:59 PM			0		
8:00 PM	8:14 PM			0		
8:15 PM	8:29 PM			0		
8:30 PM	8:44 PM			0		
8:45 PM	8:59 PM			0		
9:00 PM	9:14 PM			0		
9:15 PM	9:29 PM			0		
9:30 PM	9:44 PM			0		
9:45 PM	9:59 PM			0		
10:00 PM	10:14 PM			0		
10:15 PM	10:29 PM			0		
10:30 PM	10:44 PM			0		
10:45 PM	10:59 PM			0		
11:00 PM	11:14 PM			0		
11:15 PM	11:29 PM			0		
11:30 PM	11:44 PM			0		
11:45 PM	11:59 PM			0		
Approach Totals:		2807	1125	3932	1051	233

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	2 or More Lanes

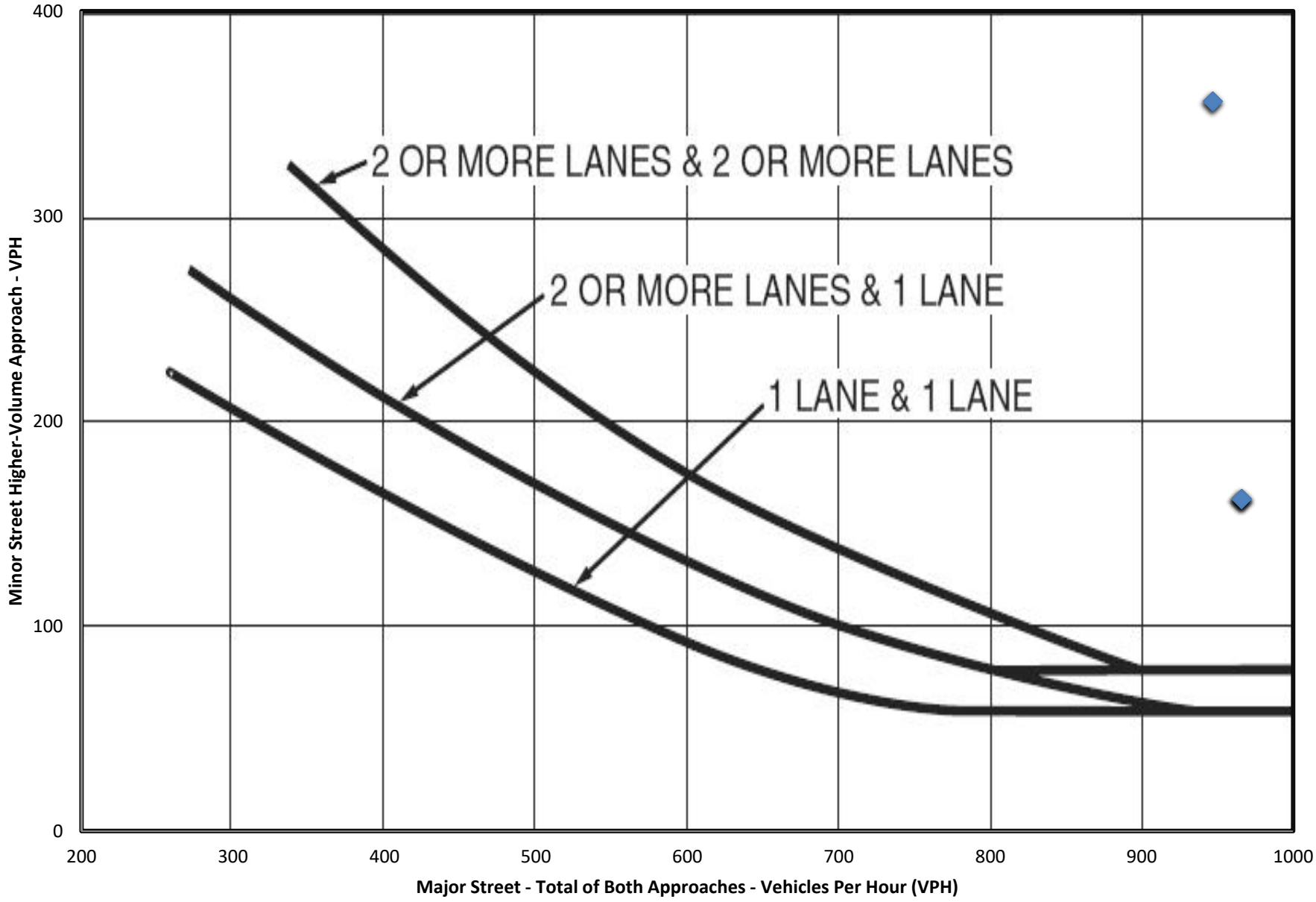
Total Number of Unique Hours Met On Figure 4C-2
4

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

Hourly Vehicular Volume			
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Hour Met?**
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	966	162	Met
6:30 AM	966	162	Met
6:45 AM	966	162	Met
7:00 AM	966	162	Met
7:15 AM	966	162	Met
7:30 AM	966	162	Met
7:45 AM	966	162	Met
8:00 AM	966	162	Met
8:15 AM	0	0	
8:30 AM	0	0	
8:45 AM	0	0	
9:00 AM	0	0	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	947	356	Met
3:30 PM	947	356	Met
3:45 PM	947	356	Met
4:00 PM	947	356	Met
4:15 PM	1053	371	Met
4:30 PM	1053	371	Met
4:45 PM	1053	371	Met
5:00 PM	1053	371	Met
5:15 PM	0	0	
5:30 PM	0	0	
5:45 PM	0	0	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

MUTCD Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)



NOTE: The point (1053,371) is beyond the viewport of the graph.

Signal Warrant Analysis
Collector Road Diversions and Site Traffic

2025 BUILD-OUT YEAR SIGNAL WARRANT VOLUME DEVELOPMENT (COLLECTOR ROAD DIVERSIONS AND SITE TRAFFIC)

		STREET ROAD (S.R. 0926)						COLLECTOR ROAD			BRIDLWOOD BOULEVARD		
		Eastbound			Westbound			Southbound			Northbound		
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
8:00 AM - 9:00 AM (see Figure 5B)		*30*	*652*	*32*	*13*	*243*	*14*	*46*	*15*	*159*	*26*	*31*	*13*
7:00 AM - 8:00 AM		No adjustment for base existing counts since traffic volumes are 99% of the peak hour No adjustment to background developments since there are very few trips generated Adjust site trip gen to 79% of peak hour (Single family trip gen = 79% of peak hour; Multifamily low rise trip gen = 79% of peak hour)											
	Site Trip	-1	0	0	0	0	-3	-10	-3	-3	0	-1	0
		29	*652*	*32*	*13*	*243*	*11*	*36*	*12*	*156*	*26*	*30*	*13*
5:00 PM - 6:00 PM(see Figure 5B)		124	582	38	21	301	49	29	260	128	17	40	12
4:00 PM - 5:00 PM		Adjust without development and diversion volumes to 88 percent of peak hour based on existing counts Adjust site trip gen to 94% of the peak hour (Single family trip gen = 94% of peak hour; Multifamily low rise trip gen = 95% of peak hour)											
	w/o dev		-70	-5	-3	-36					-2		-1
	diversions	-14	14	0	0	8	0	0	0	-15	0	-3	3
	site trips	-1	0	0	0	0	-3	-2	-1	0	0	-1	0
		109	*526*	*33*	*18*	*273*	*46*	*27*	*259*	*113*	*15*	*36*	*14*

Traffic Signal Warrant Analysis Workbook

STUDY AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/6/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Agency/Company Name:**	McMahon

Analysis Information

Data Collection Date:	10/10/2019
Day of the Week:	Thursday

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

Major Street Information

Major Street Name and Route Number:	PA Route 926
Major Street Approach #1 Direction:	E-Bound
Major Street Approach #2 Direction:	W-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach:	1	**LANE(S)**
Speed Limit or 85th Percentile Speed on the Major Street:	45	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Bridlewood/ Collector Road
Minor Street Approach #1 Direction:	S-Bound
Minor Street Approach #2 Direction:	N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach:	2	**LANE(S)**

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	**No**	**N/A**
Warrant 2, Four-Hour Vehicular Volume	**Yes**	**Yes**
Warrant 3, Peak Hour	**No**	**N/A**
Warrant 4, Pedestrian Volume	**No**	**N/A**
Warrant 5, School Crossing	**No**	**N/A**
Warrant 6, Coordinated Signal System	**No**	**N/A**
Warrant 7, Crash Experience	**No**	**N/A**
Warrant 8, Roadway Network	**No**	**N/A**
Warrant 9, Intersection Near a Grade Crossing	**No**	**N/A**
Warrant PA-1, ADT Volume Warrant	**No**	**N/A**
Warrant PA-2, Midblock and Trail Crossings	**No**	**N/A**

MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach	
Major Street:	1 Lane
Minor Street:	2 or More Lanes

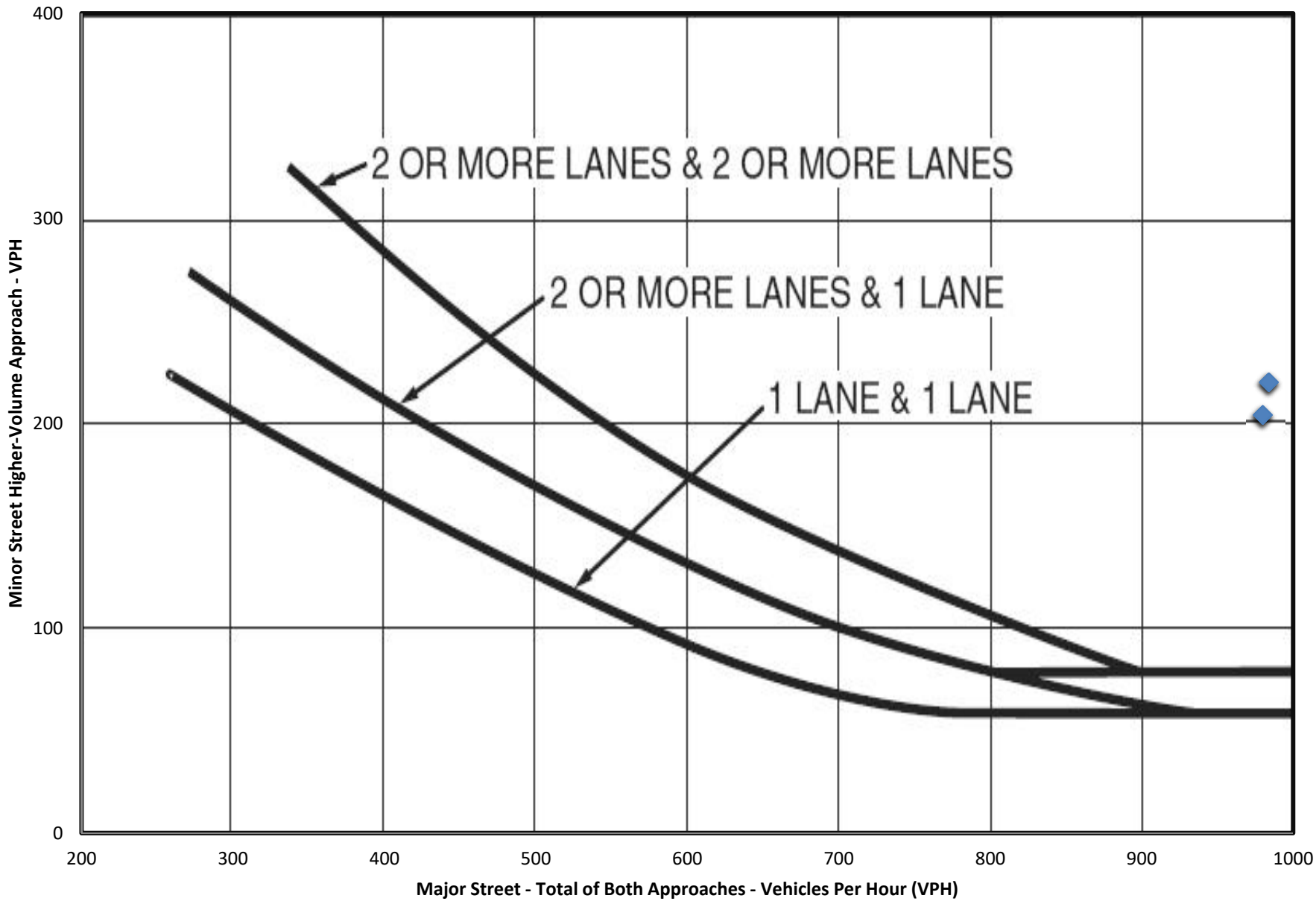
Total Number of Unique Hours Met On Figure 4C-2
4

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH on Major Street?	Yes

Hourly Vehicular Volume			
Hour Interval Beginning At	**Major Street Combined Vehicles Per Hour (VPH)**	**Highest Minor Street Approach Vehicles Per Hour (VPH)**	**Hour Met?**
12:00 AM	0	0	
12:15 AM	0	0	
12:30 AM	0	0	
12:45 AM	0	0	
1:00 AM	0	0	
1:15 AM	0	0	
1:30 AM	0	0	
1:45 AM	0	0	
2:00 AM	0	0	
2:15 AM	0	0	
2:30 AM	0	0	
2:45 AM	0	0	
3:00 AM	0	0	
3:15 AM	0	0	
3:30 AM	0	0	
3:45 AM	0	0	
4:00 AM	0	0	
4:15 AM	0	0	
4:30 AM	0	0	
4:45 AM	0	0	
5:00 AM	0	0	
5:15 AM	0	0	
5:30 AM	0	0	
5:45 AM	0	0	
6:00 AM	0	0	
6:15 AM	980	204	Met
6:30 AM	980	204	Met
6:45 AM	980	204	Met
7:00 AM	980	204	Met
7:15 AM	984	220	Met
7:30 AM	984	220	Met
7:45 AM	984	220	Met
8:00 AM	984	220	Met
8:15 AM	0	0	
8:30 AM	0	0	
8:45 AM	0	0	
9:00 AM	0	0	
9:15 AM	0	0	
9:30 AM	0	0	
9:45 AM	0	0	
10:00 AM	0	0	
10:15 AM	0	0	
10:30 AM	0	0	
10:45 AM	0	0	
11:00 AM	0	0	
11:15 AM	0	0	
11:30 AM	0	0	
11:45 AM	0	0	

Hourly Vehicular Volume			
Hour Interval Beginning At	Major Street Combined Vehicles Per Hour (VPH)	Highest Minor Street Approach Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	1005	399	Met
3:30 PM	1005	399	Met
3:45 PM	1005	399	Met
4:00 PM	1005	399	Met
4:15 PM	1115	417	Met
4:30 PM	1115	417	Met
4:45 PM	1115	417	Met
5:00 PM	1115	417	Met
5:15 PM	0	0	
5:30 PM	0	0	
5:45 PM	0	0	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	

MUTCD Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)



NOTE: The points (1005,399) and (1115, 417) are beyond the viewport of the graph

Left Turn Conflict Worksheet

Intersection: Street Rd (SR 926) and Bridlewood/Connector

County: Chester **Municipality:** Westtown Township

Count Date: 10/17/2019 **File Number:** 816451.11

NB Approach: **Bridlewood Blvd**

Exclusive Left-Turn Lane	Y
Number of Opposing Lanes	1
Include Right Turns	Y
Required C.F. (Protected/Permitted)	50000
Required C.F. (Protected/Prohibited)	67500

Hour	NB Left	SB Through	Cycle Length	Turns Per Cycle	NB Conflict Factor	L.T.P. Justified
AM Peak	26	174	90	0.65	4524	No
PM Peak	17	388	100	0.4722	6596	No

SB Approach: **Collector Road**

Exclusive Lane	Y
Number of Opposing Lanes	1
Include Right Turns	Y
Required C.F. (Protected/Permitted)	50000
Required C.F. (Protected/Prohibited)	67500

Hour	SB Left	NB Through	Cycle Length	Turns Per Cycle	SB Conflict Factor	L.T.P. Justified
AM Peak	46	44	90	1.15	2024	No
PM Peak	29	52	100	0.8056	1508	No

EB Approach: **Street Road (S.R. 0926)**

Exclusive Lane	Y
Number of Opposing Lanes	1
Include Right Turns	Y
Requried C.F. (Protected/Permitted)	50000
Required C.F. (Protected/Prohibited)	67500

Hour	EB Left	WB Through	Cycle Length	Turns Per Cycle	EB Conflict Factor	L.T.P. Justified
AM Peak	30	257	90	0.75	7710	No
PM Peak	124	350	100	3.4444	43400	No

WB Approach: **Street Road (S.R. 0926)**

Exclusive Lane	Y
Number of Opposing Lanes	1
Include Right Turns	Y
Requried C.F. (Protected/Permitted)	50000
Required C.F. (Protected/Prohibited)	67500

Hour	WB Left	EB Through	Cycle Length	Turns Per Cycle	WB Conflict Factor	L.T.P. Justified
AM Peak	13	684	90	0.325	8892	No
PM Peak	21	620	100	0.5833	13020	No

Remarks: 2025 with Development Volumes

Compiled By BGG
Checked By: JDG
Date: November 6, 2019

Traffic Count Insert

Street name	Bridlewood Blvd			Collector Road			Street Road (S.R. 0926)			Street Road (S.R. 0926)			Cycle Length
Hour	North Bound Approach			South Bound Approach			East Bound Approach			West Bound Approach			All Approaches
	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right	
AM Peak	26	31	13	46	15	159	30	652	32	13	243	14	90
PM Peak	17	40	12	29	260	128	124	582	38	21	301	49	100

Street Road (S.R. 0926) and
Collector Road / Bridlewood Boulevard

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road
Eastbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	31	2.0%	32
	Through	-	669	4.0%	710
	Right	Yes	33	3.0%	35
Opposing	Left	Yes	14	0.0%	14
	Through	-	249	8.0%	279
	Right	Yes	14	2.0%	15

Advancing Volume:	777
Opposing Volume:	308
Left Turn Volume:	32
% Left Turns in Advancing Volume:	4.12%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

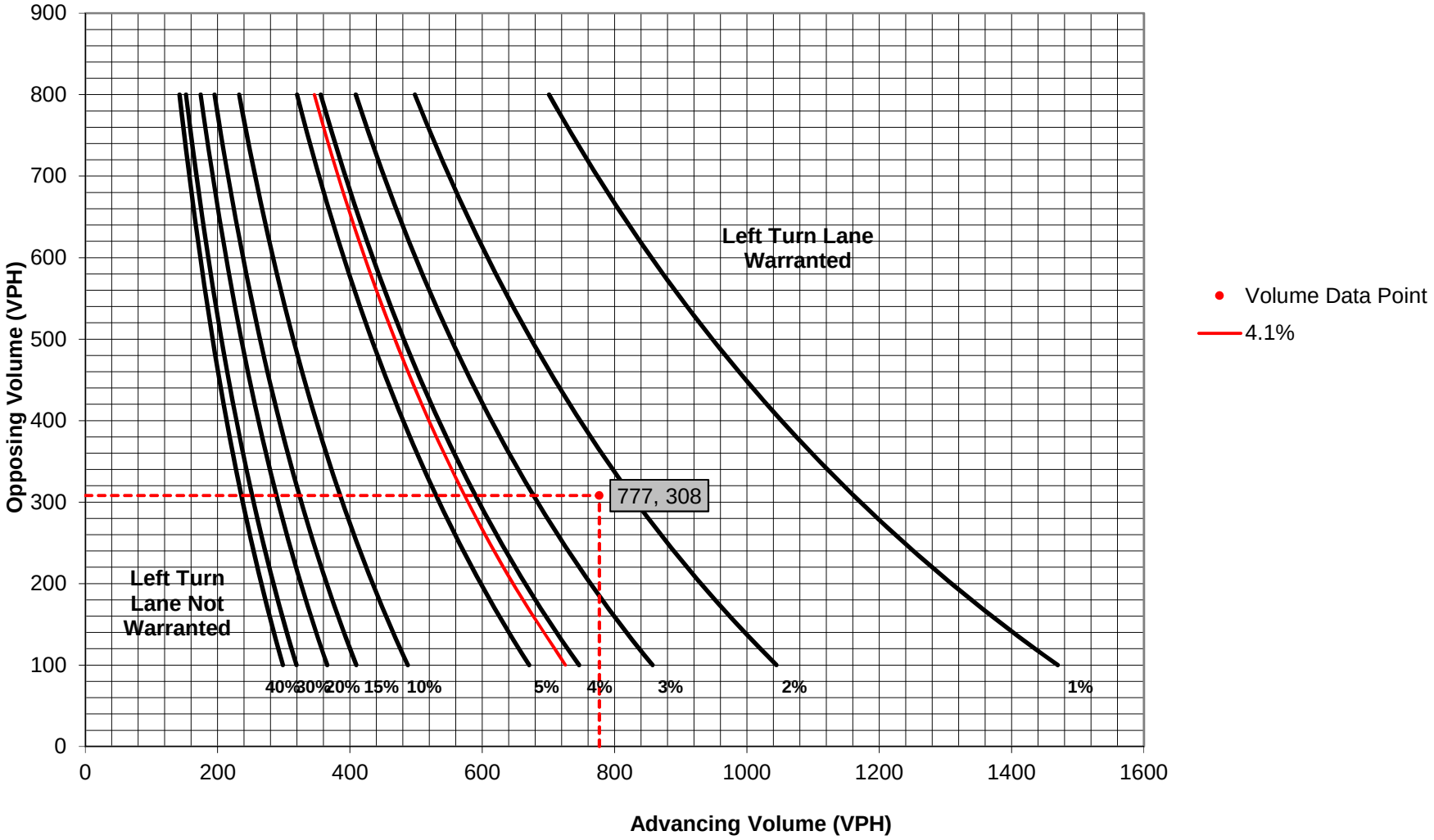
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road
Eastbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	127	2.0%	131
	Through	-	598	3.0%	625
	Right	Yes	39	0.0%	39
Opposing	Left	Yes	21	5.0%	23
	Through	-	311	3.0%	325
	Right	Yes	49	2.0%	51

Advancing Volume:	795
Opposing Volume:	399
Left Turn Volume:	131
% Left Turns in Advancing Volume:	16.48%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	131
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	36

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

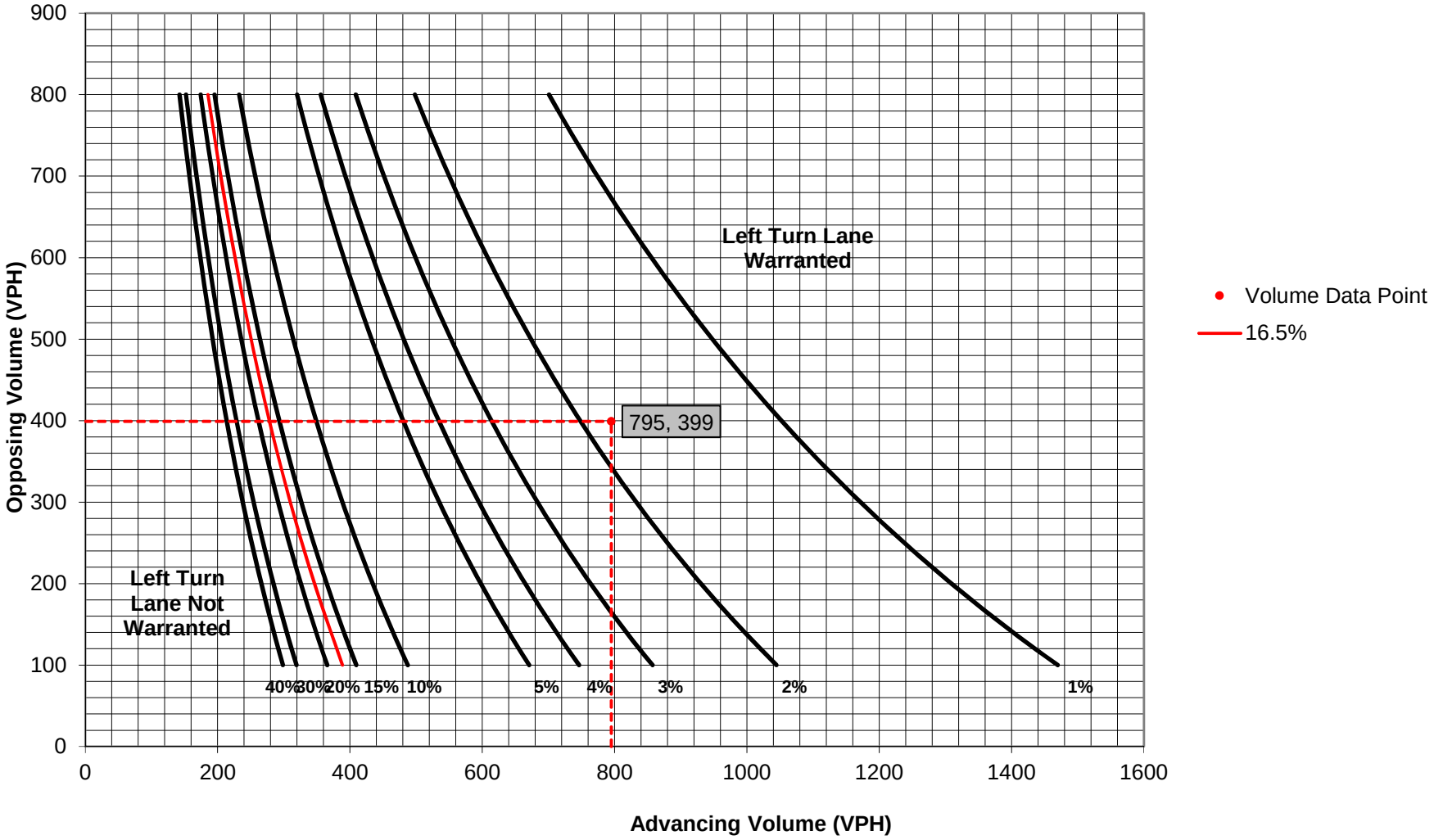
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**250**	**Feet**
Required Left Turn Lane Storage Length:	**250**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	14	0.0%	N/A
	Through	-	249	8.0%	279
	Right	-	14	2.0%	15

Advancing Volume:	294
Right Turn Volume:	15

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

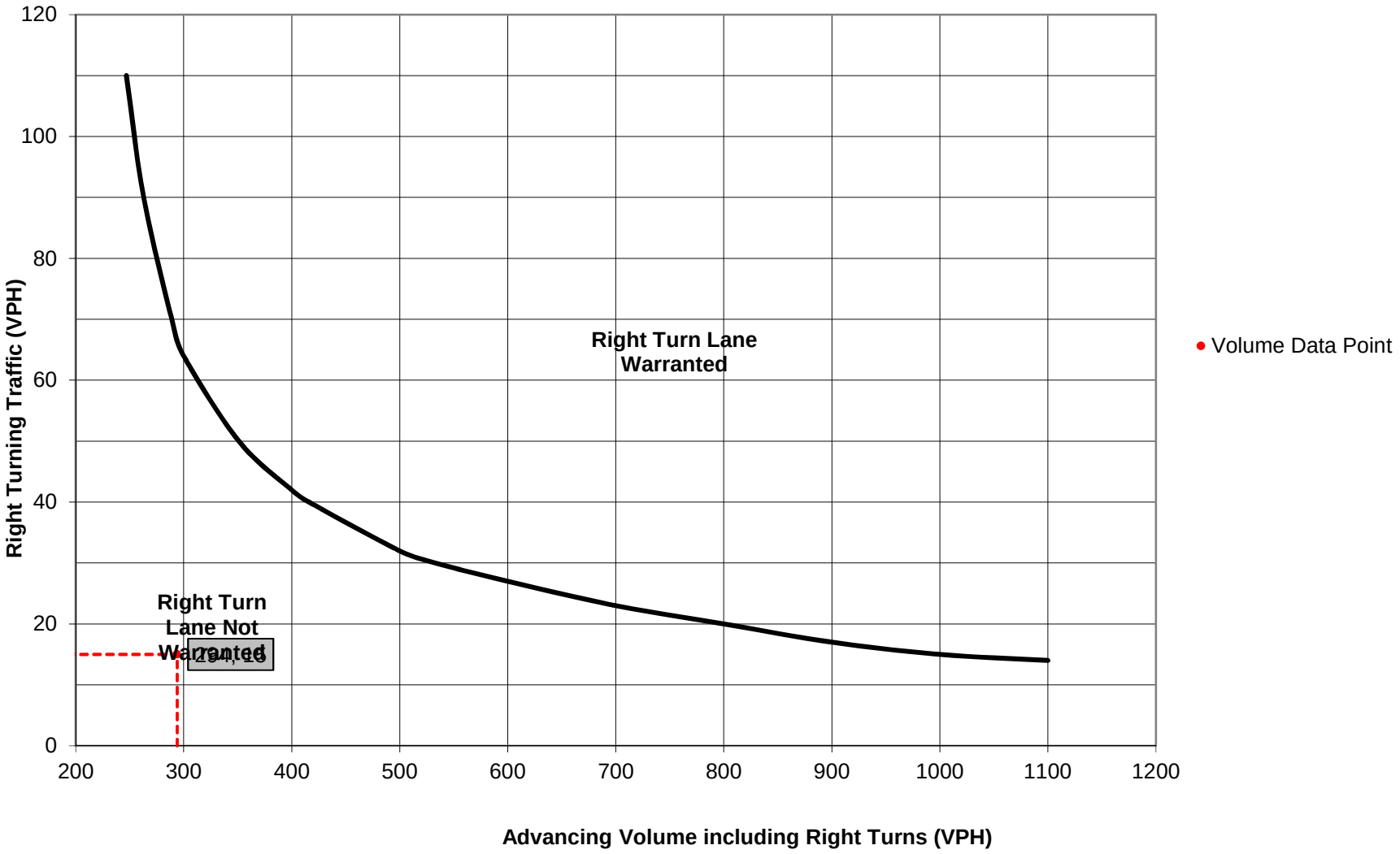
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	21	5.0%	N/A
	Through	-	311	3.0%	325
	Right	-	49	2.0%	51

Advancing Volume:	376
Right Turn Volume:	51

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	51
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

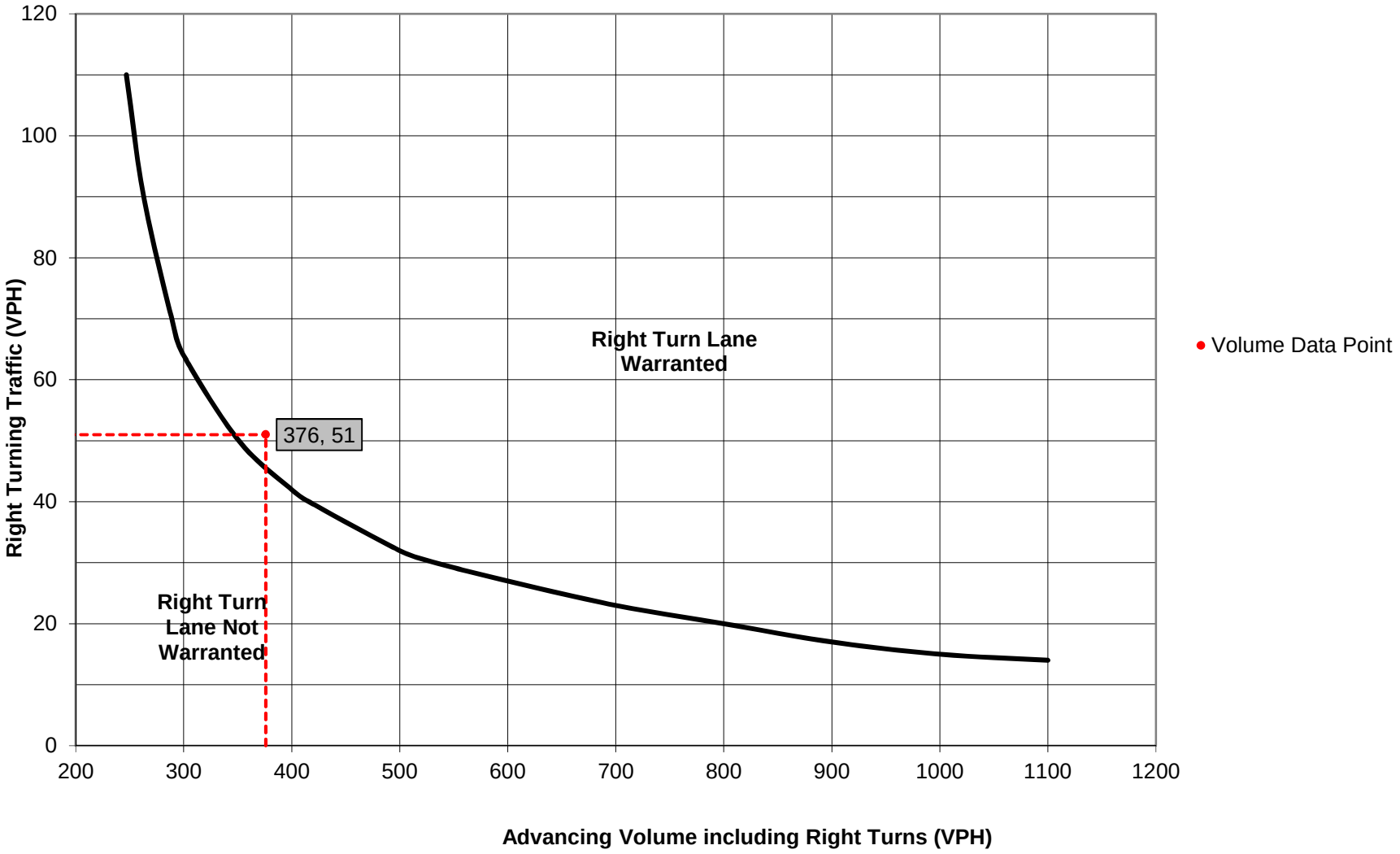
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	125	Feet
Condition C:	150	Feet
Required Right Turn Lane Storage Length:	150	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



W. Pleasant Grove Road
and Collector Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Connector Road
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-	71	0.0%	71
	Right	-	1	2.0%	2

Advancing Volume:	73
Right Turn Volume:	2

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	2
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

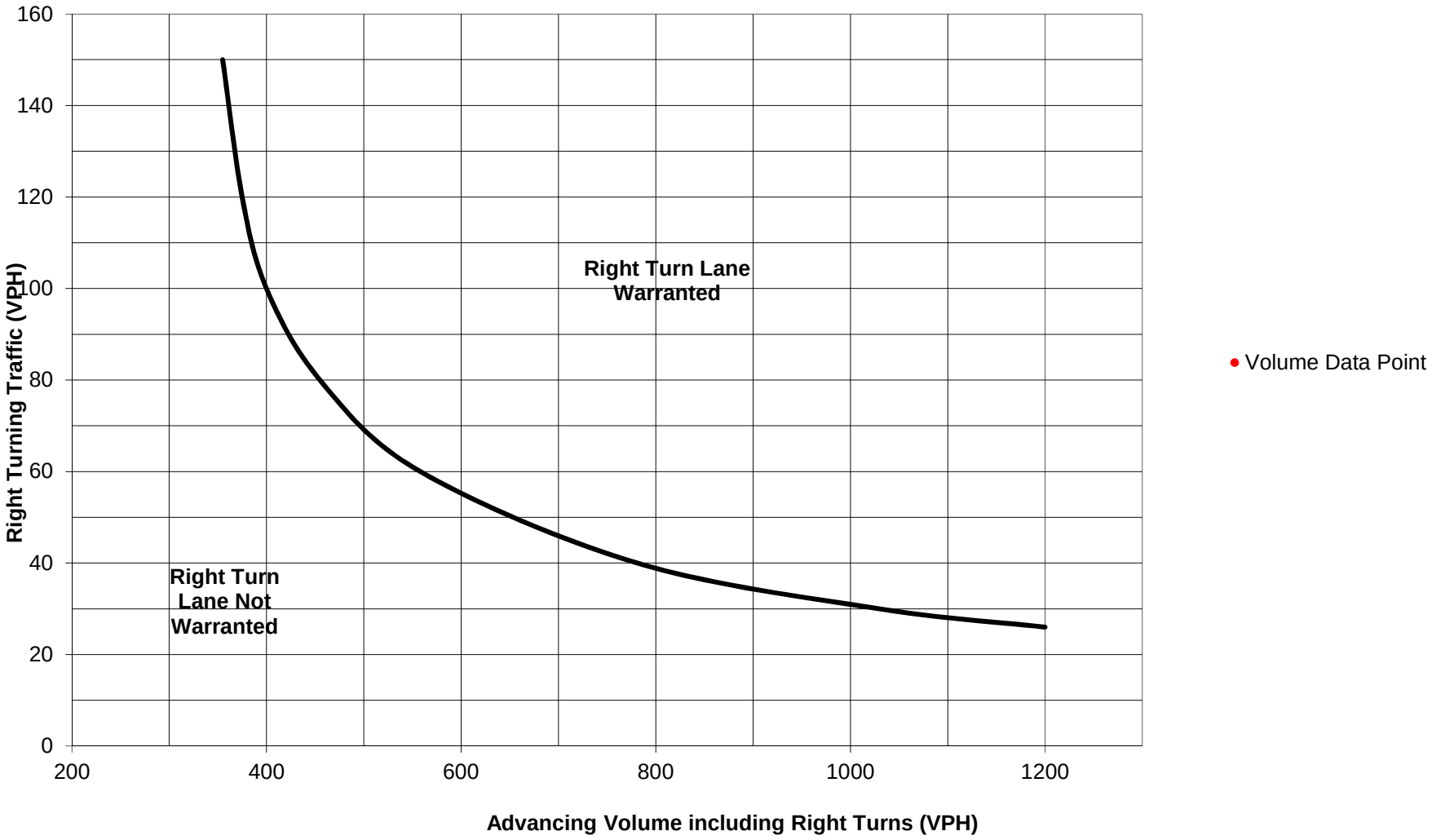
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (73,2) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Connector Road
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-	65	0.0%	65
	Right	-	4	2.0%	5

Advancing Volume:	70
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

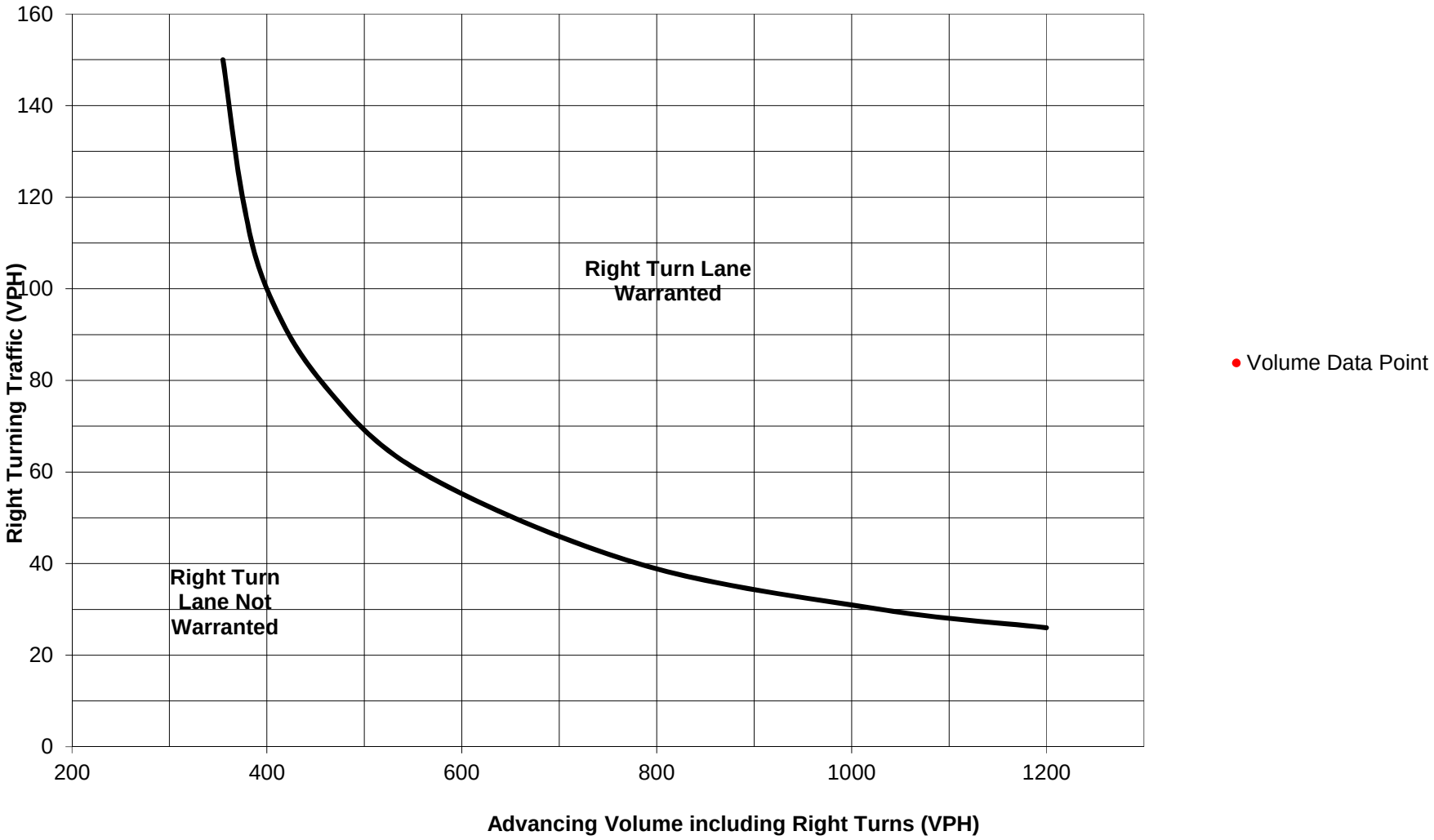
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (70,5) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Connector Road
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	165	2.0%	170
	Through	-	118	3.0%	124
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	71	0.0%	71
	Right	Yes	1	2.0%	2

Advancing Volume:	294
Opposing Volume:	73
Left Turn Volume:	170
% Left Turns in Advancing Volume:	57.82%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	170
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

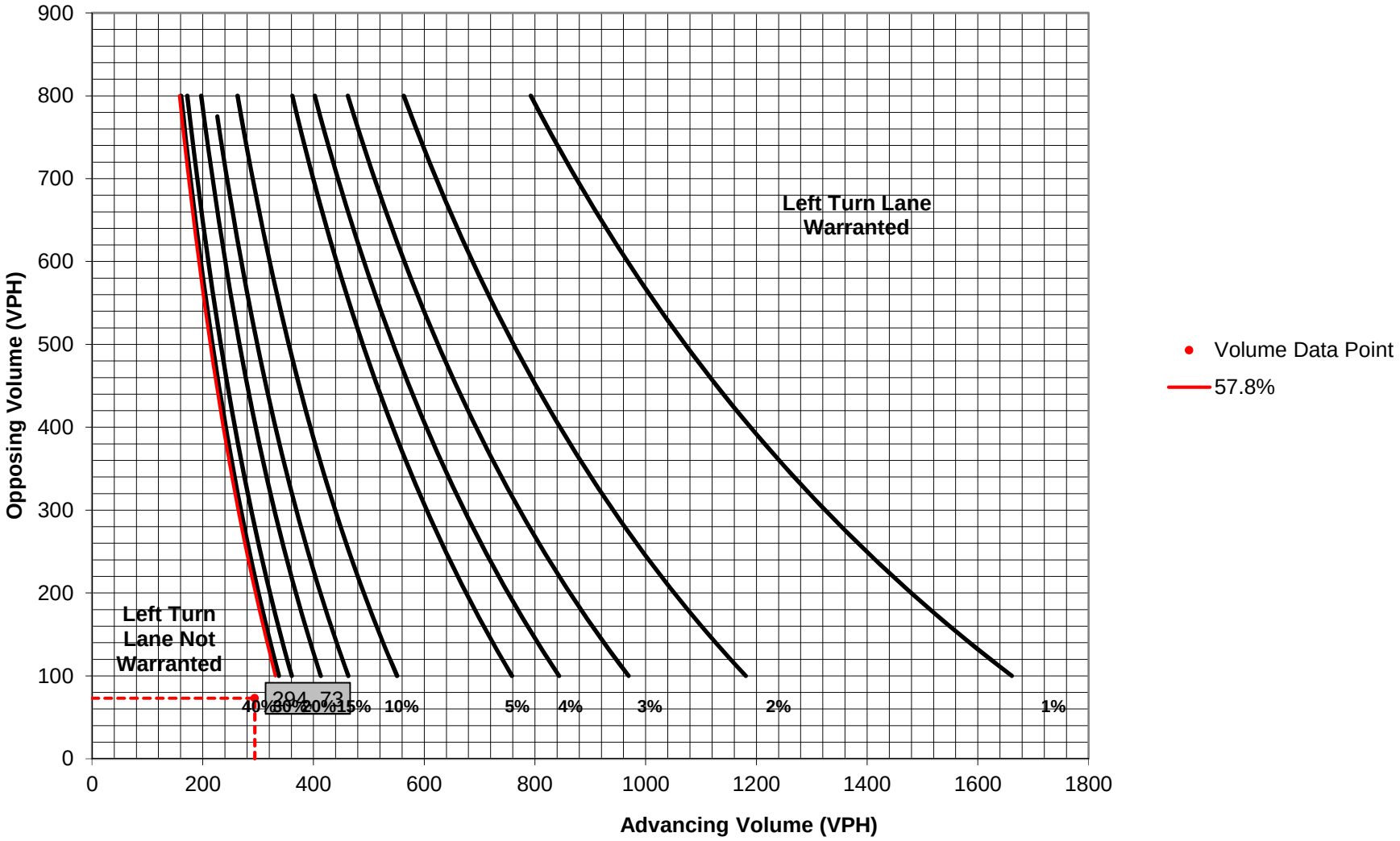
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Connector Road
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	414	2.0%	427
	Through	-	220	1.0%	224
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	65	0.0%	65
	Right	Yes	4	2.0%	5

Advancing Volume:	651
Opposing Volume:	70
Left Turn Volume:	427
% Left Turns in Advancing Volume:	65.59%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	427
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

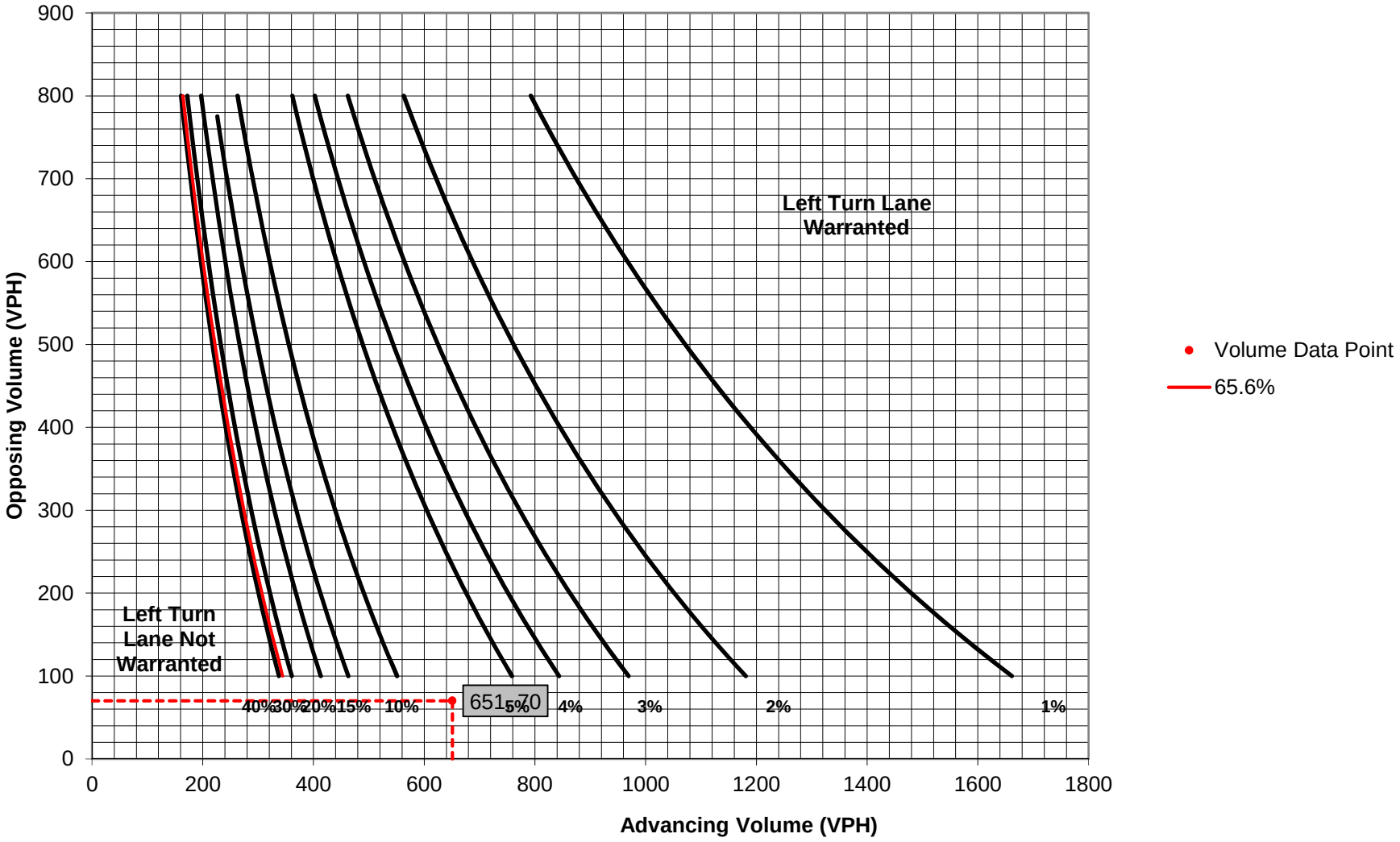
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



W. Pleasant Grove Road and
Road K / Dunvegan Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0		0
	Through	-	56	5.0%	61
	Right	-	4	2.0%	5

Advancing Volume:	66
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

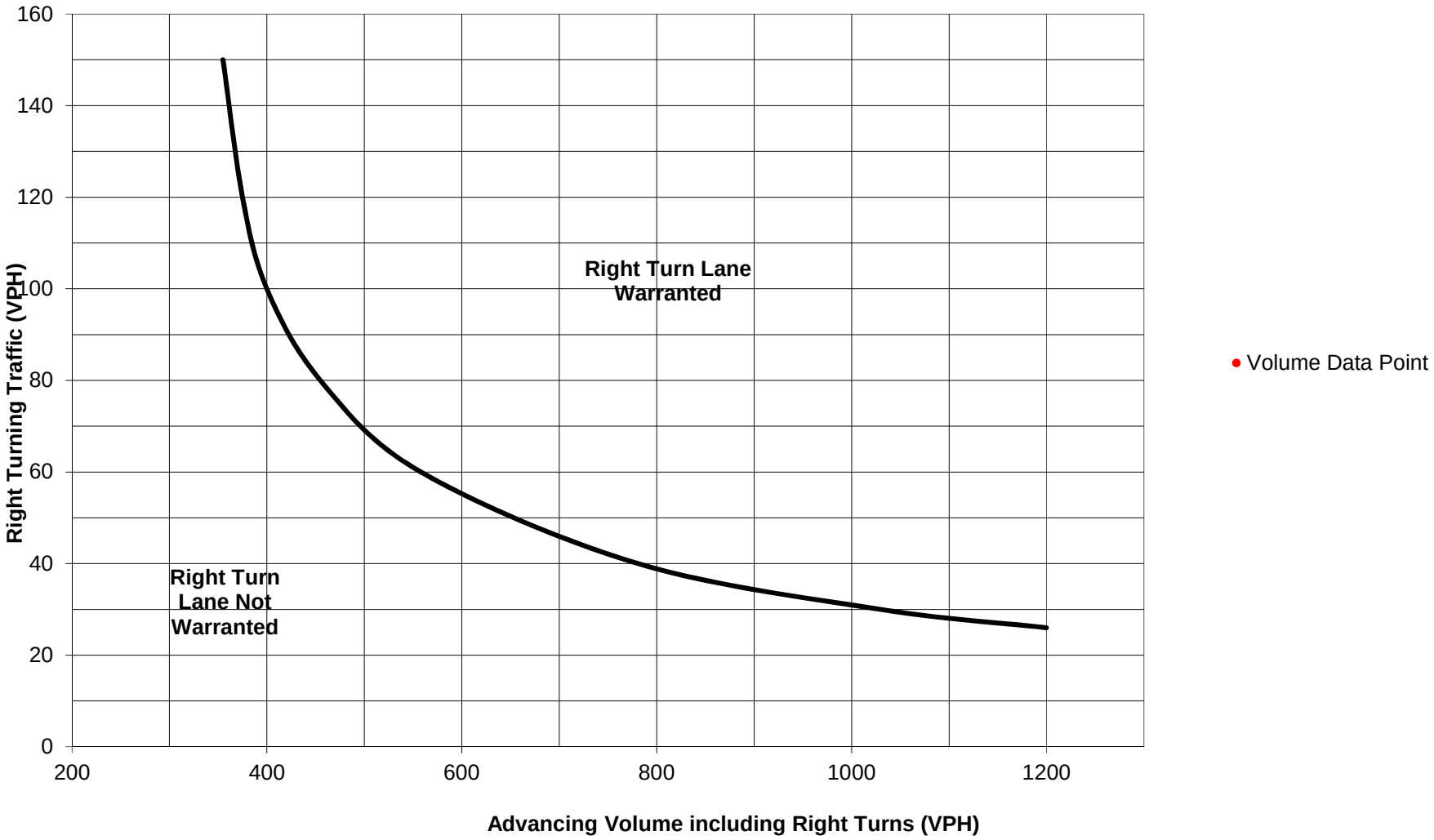
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



The point (66,5) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	0.0%	3
	Through	-	69	0.0%	69
	Right	-	13	2.0%	14

Advancing Volume:	86
Right Turn Volume:	14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

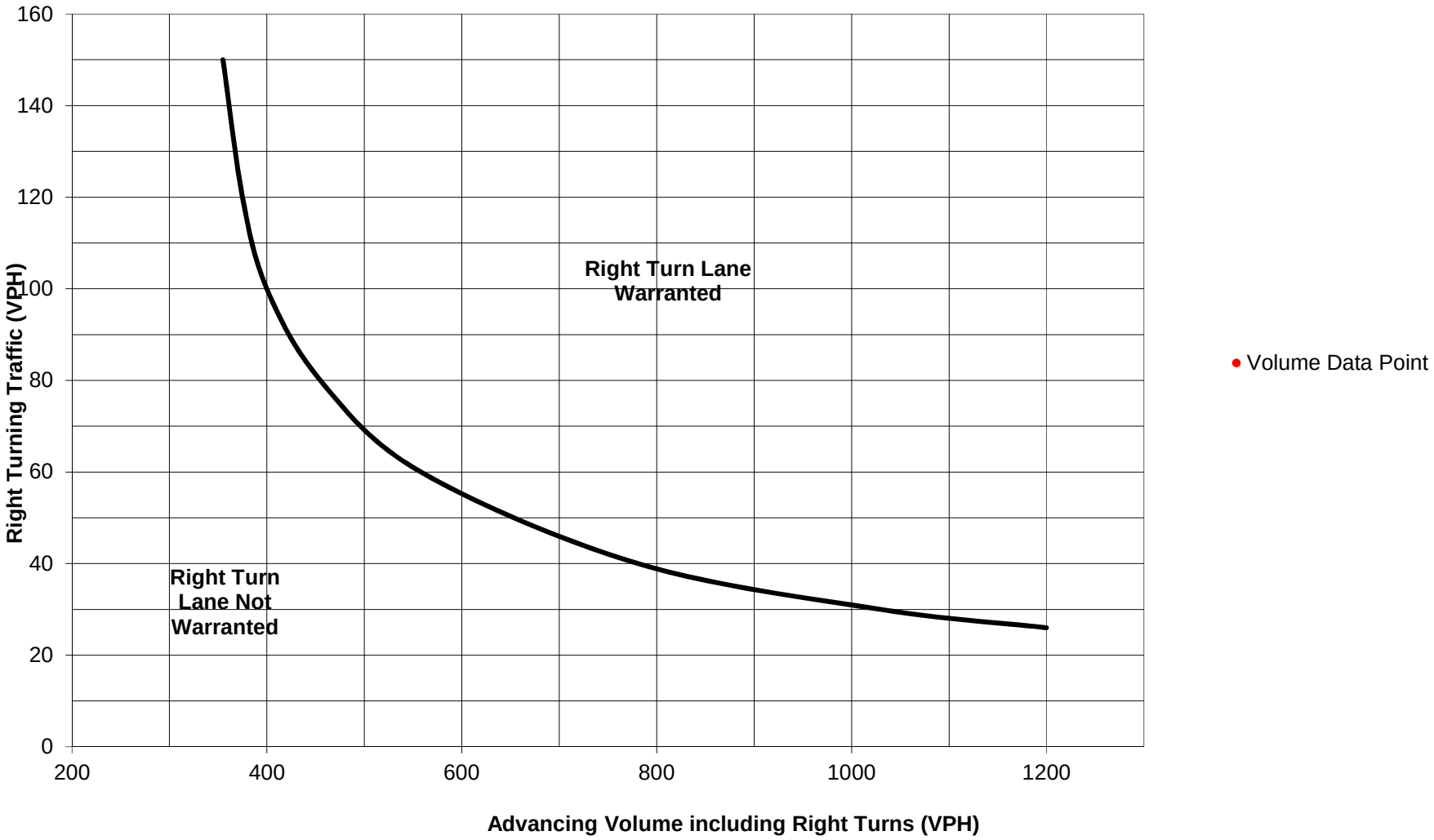
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



The point (86,14) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	3	2.0%	4
	Through	-	190	3.0%	199
	Right	Yes	3	50.0%	6
Opposing	Left	Yes	0	0.0%	0
	Through	-	56	5.0%	61
	Right	Yes	4	2.0%	5

Advancing Volume:	209
Opposing Volume:	66
Left Turn Volume:	4
% Left Turns in Advancing Volume:	1.91%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	4
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

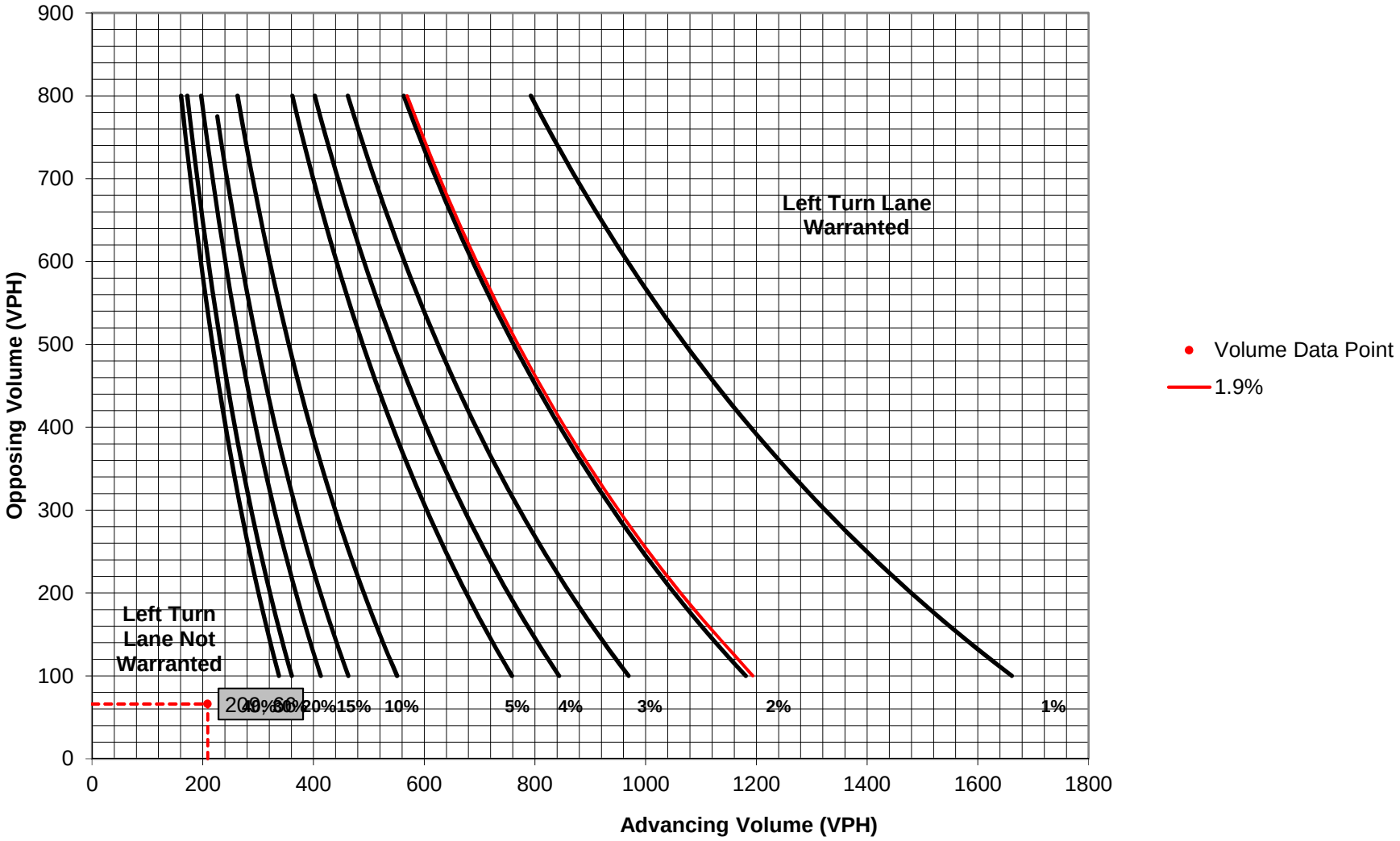
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	2.0%	11
	Through	-	213	1.0%	217
	Right	Yes	12	0.0%	12
Opposing	Left	Yes	3	0.0%	3
	Through	-	69	0.0%	69
	Right	Yes	13	2.0%	14

Advancing Volume:	240
Opposing Volume:	86
Left Turn Volume:	11
% Left Turns in Advancing Volume:	4.58%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

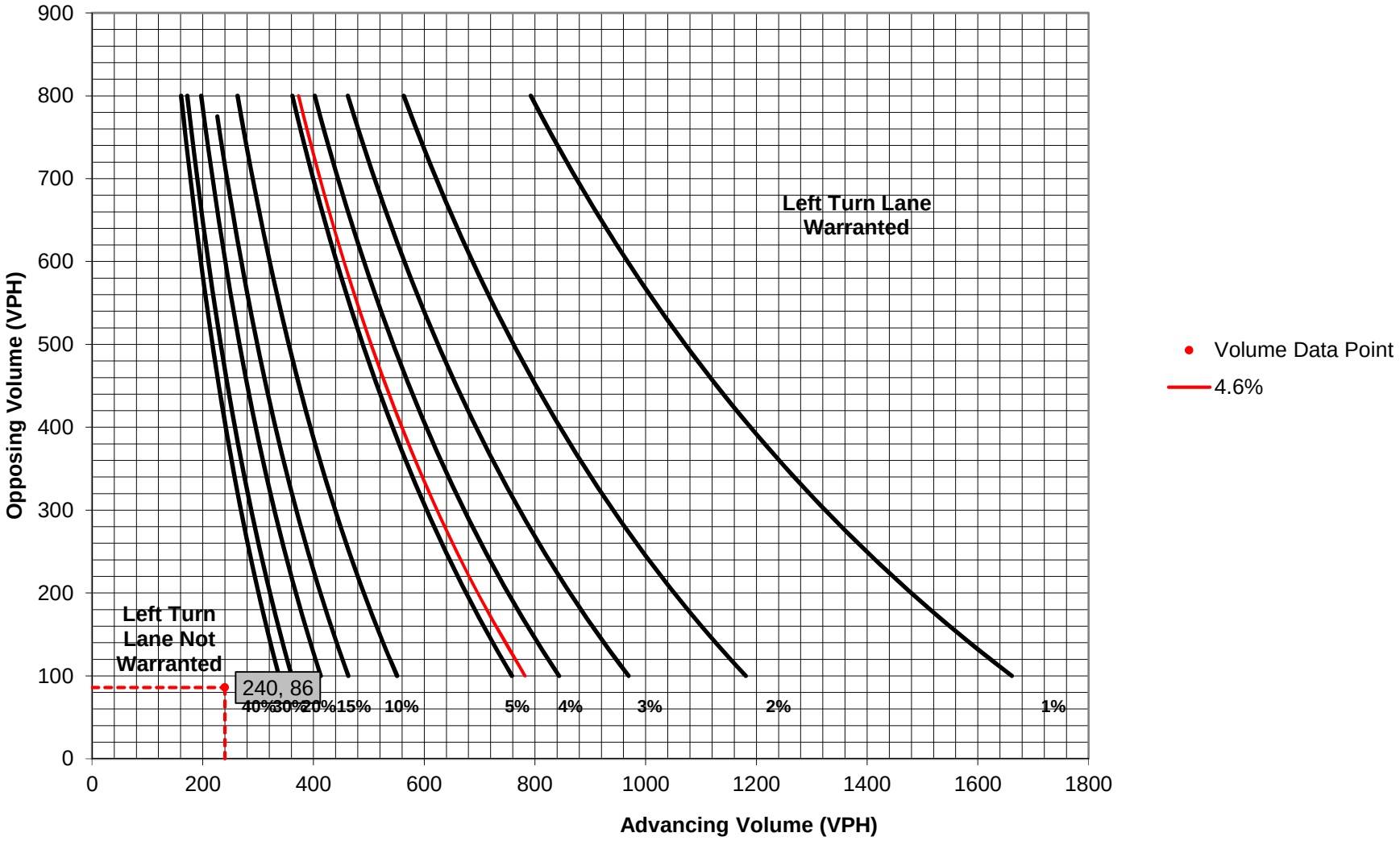
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



W. Pleasant Grove Road and
Road M

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road M
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-	69	5.0%	75
	Right	-	0	2.0%	0

Advancing Volume:	75
Right Turn Volume:	0

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	0
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

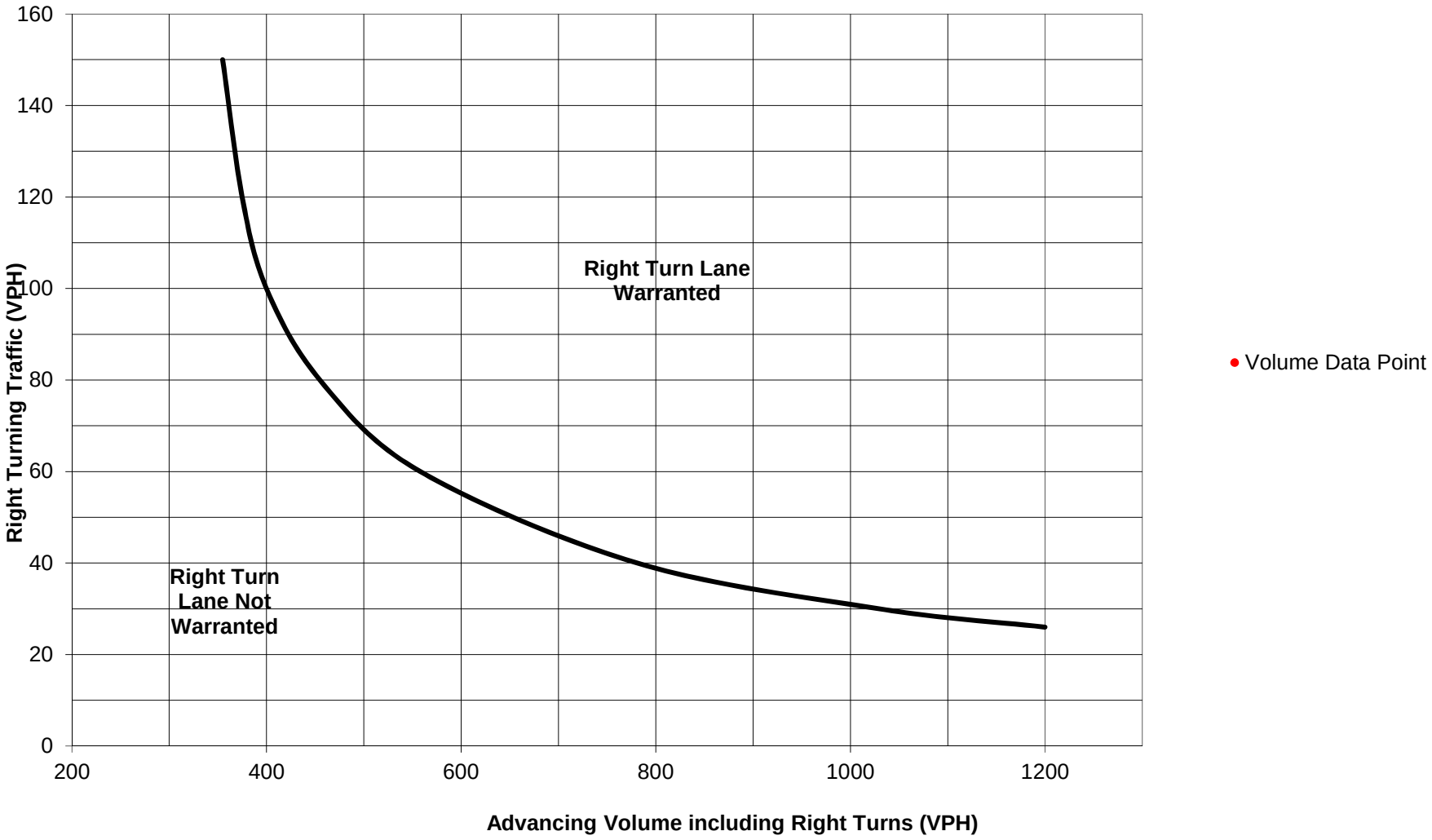
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (75,0) is below the viewport of the graph

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road M
Eastbound W. Pleasant Grove Road Right-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-	74	0.0%	74
	Right	-	2	2.0%	3

Advancing Volume:	77
Right Turn Volume:	3

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	3
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

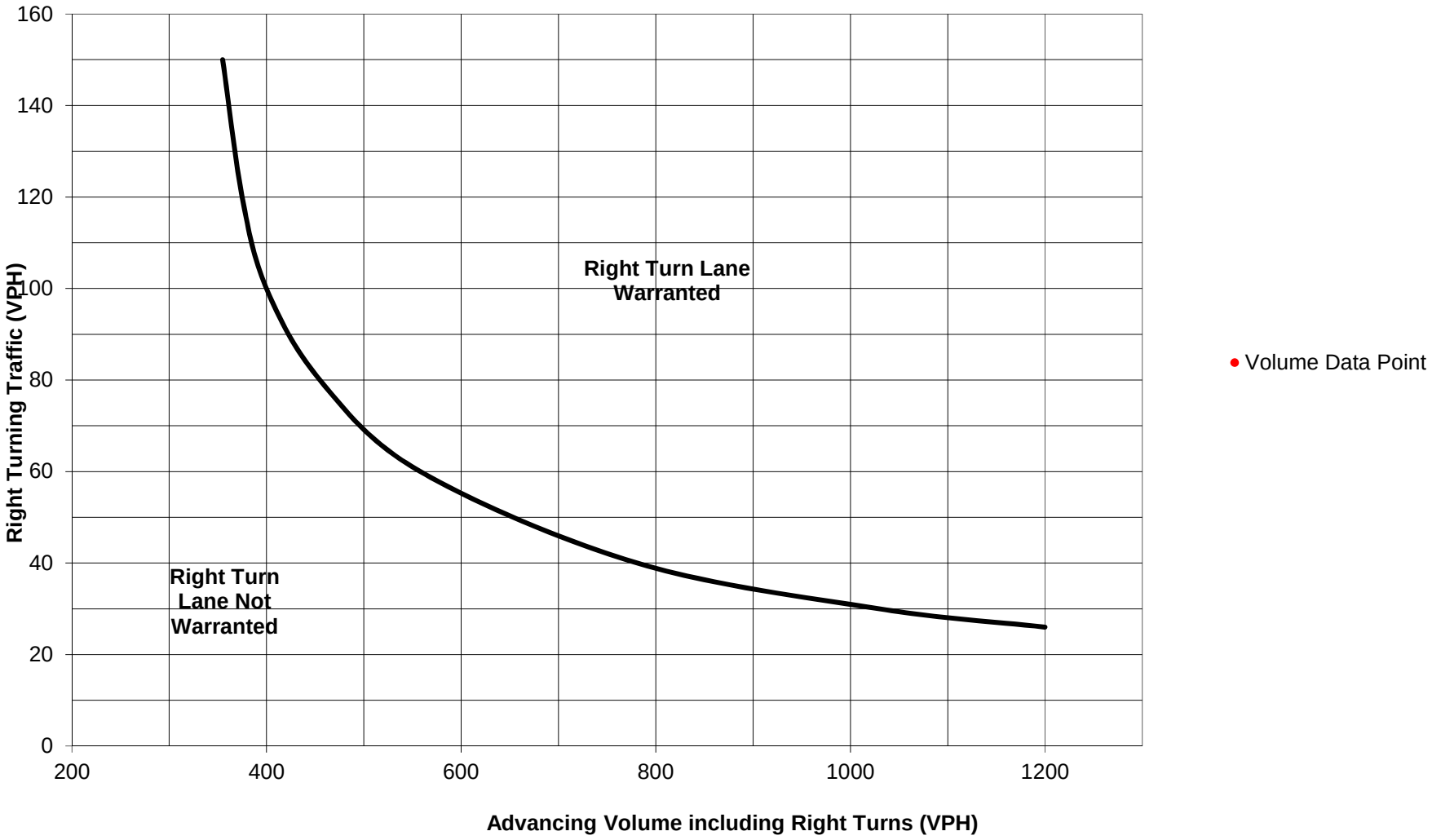
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings: N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (77,3) is below the viewport of the graph

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road M
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	4	2.0%	5
	Through	-	195	3.0%	204
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	69	5.0%	75
	Right	Yes	0	2.0%	0

Advancing Volume:	209
Opposing Volume:	75
Left Turn Volume:	5
% Left Turns in Advancing Volume:	2.39%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

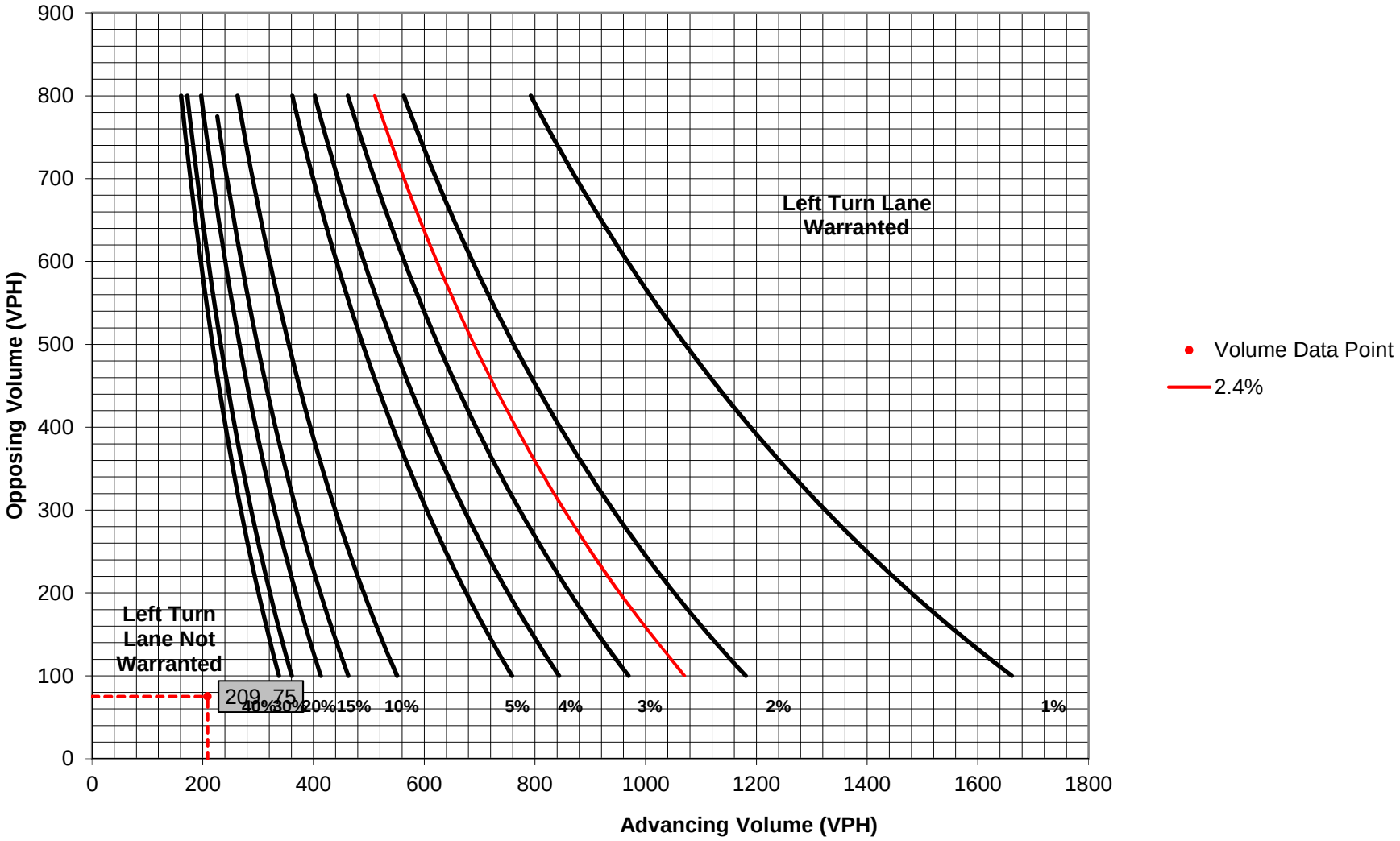
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: W. Pleasant Grove Road and Road M
Westbound W. Pleasant Grove Road Left-Turn Lane

Analysis Period:	2030 Design Year	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	14	2.0%	15
	Through	-	234	1.0%	238
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	74	0.0%	74
	Right	Yes	2	2.0%	3

Advancing Volume:	253
Opposing Volume:	77
Left Turn Volume:	15
% Left Turns in Advancing Volume:	5.93%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

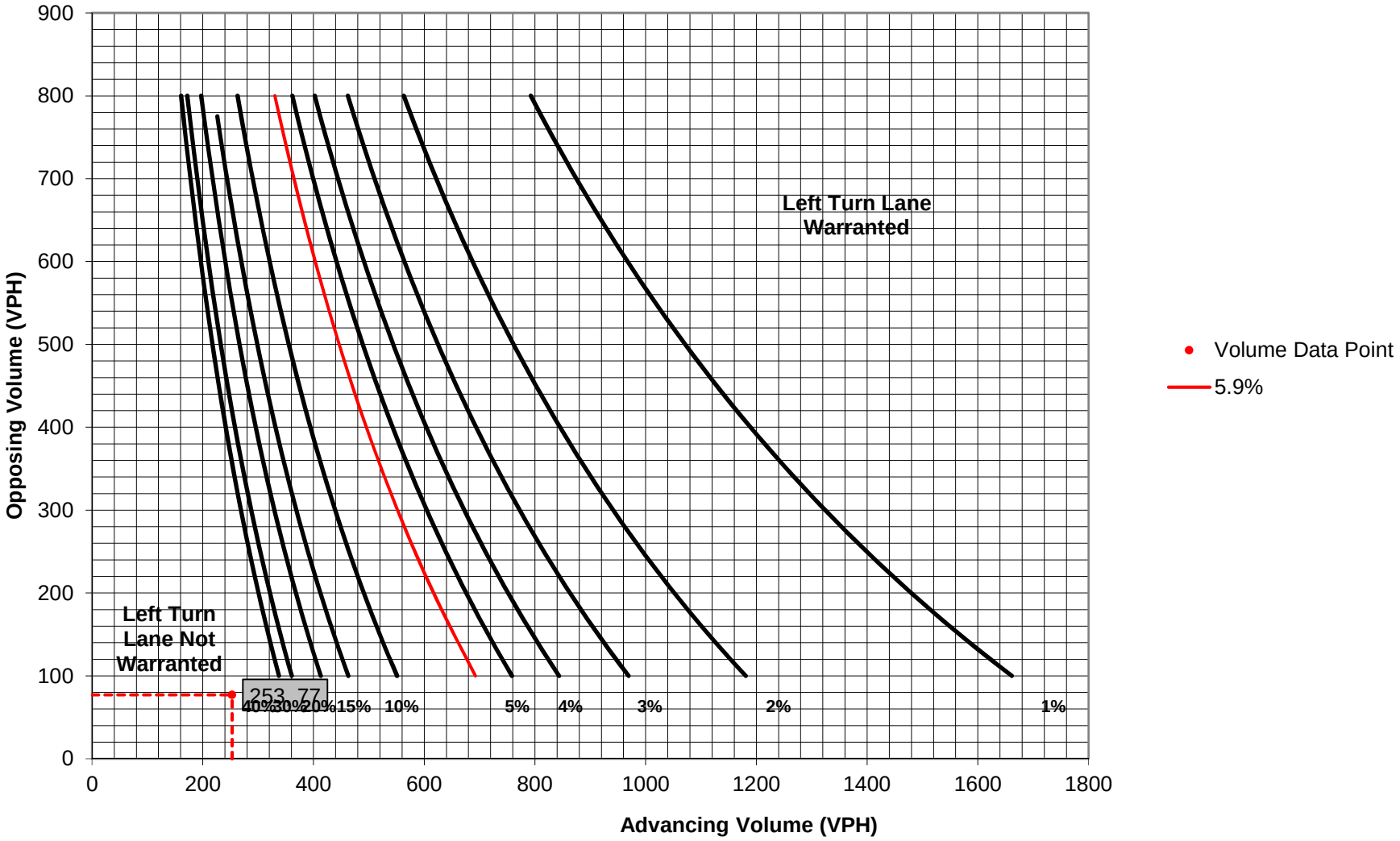
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix H

PennDOT M-950S

M-950S (3-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

APPLICANT Toll Brothers, Inc. APPLICATION NO. _____

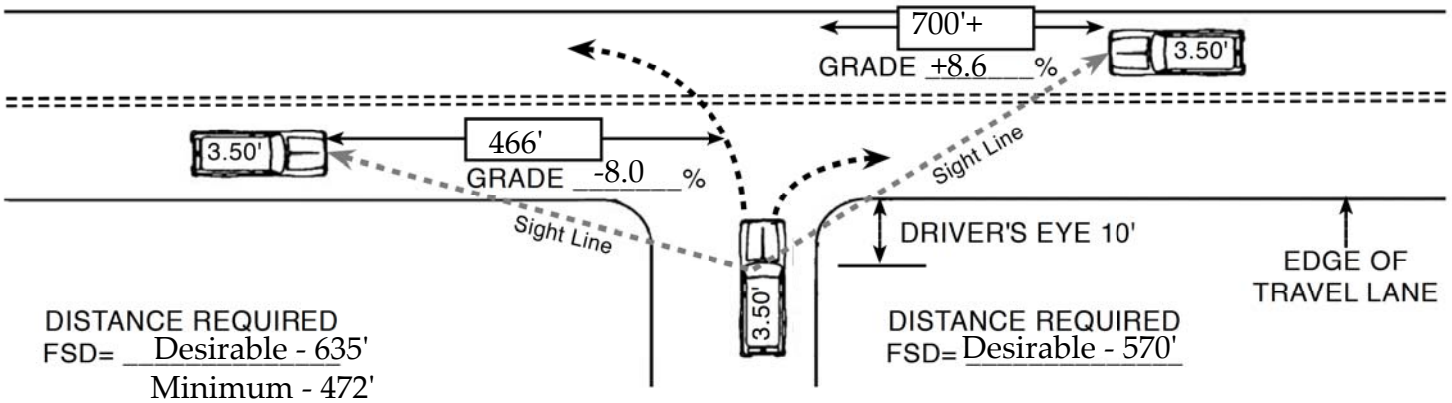
S.R. 0926 SEG. 0390 OFFSET 0757 LEGAL SPEED LIMIT 45 MPH

MEASURED BY BGG DATE 8/8/2019

FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

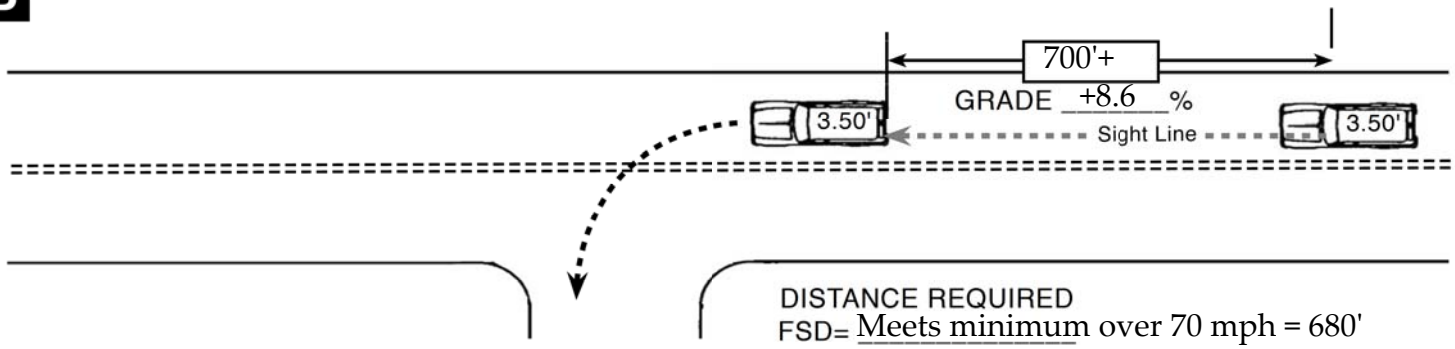
S.R. 0926 & Connector Road (opposite Bridlewood Boulevard) - Signal proposed

A



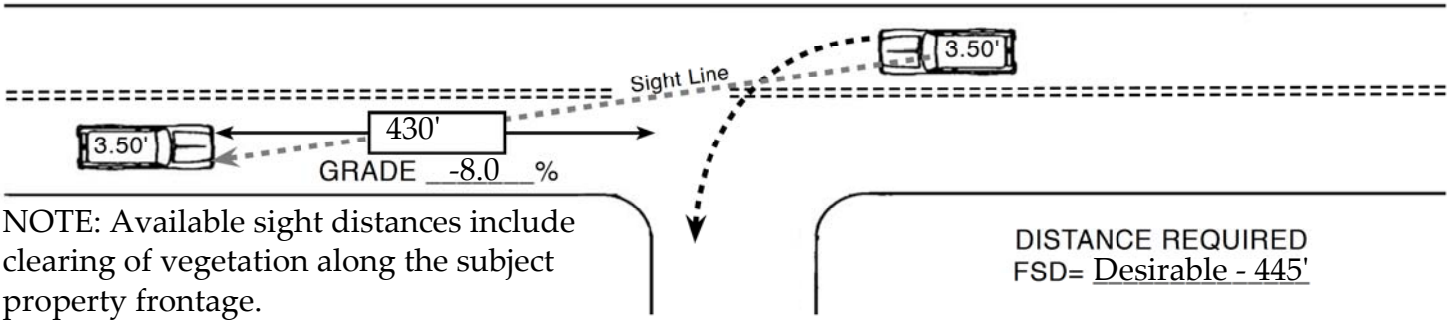
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

B



THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER ON THE ROADWAY CAN CONTINUOUSLY SEE THE REAR OF A VEHICLE WHICH IS LOCATED IN THE DRIVER'S TRAVEL LANE AND WHICH IS POSITIONED TO MAKE A LEFT TURN INTO A DRIVEWAY.

C



NOTE: Available sight distances include clearing of vegetation along the subject property frontage.

THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER OF A VEHICLE INTENDING TO MAKE A LEFT TURN INTO A DRIVEWAY CAN CONTINUOUSLY SEE A VEHICLE APPROACHING FROM THE OPPOSITE DIRECTION.

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Appendix I

Off-Site Intersection Turn Lane Warrants

Existing

Street Road (S.R. 0926) and
New Street

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	48	2.0%	50
	Through	-	648	4.0%	687
	Right	Yes	5	0.0%	5
Opposing	Left	Yes	8	0.0%	8
	Through	-	310	7.0%	343
	Right	Yes	36	3.0%	38

Advancing Volume:	742
Opposing Volume:	389
Left Turn Volume:	50
% Left Turns in Advancing Volume:	6.74%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	50
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

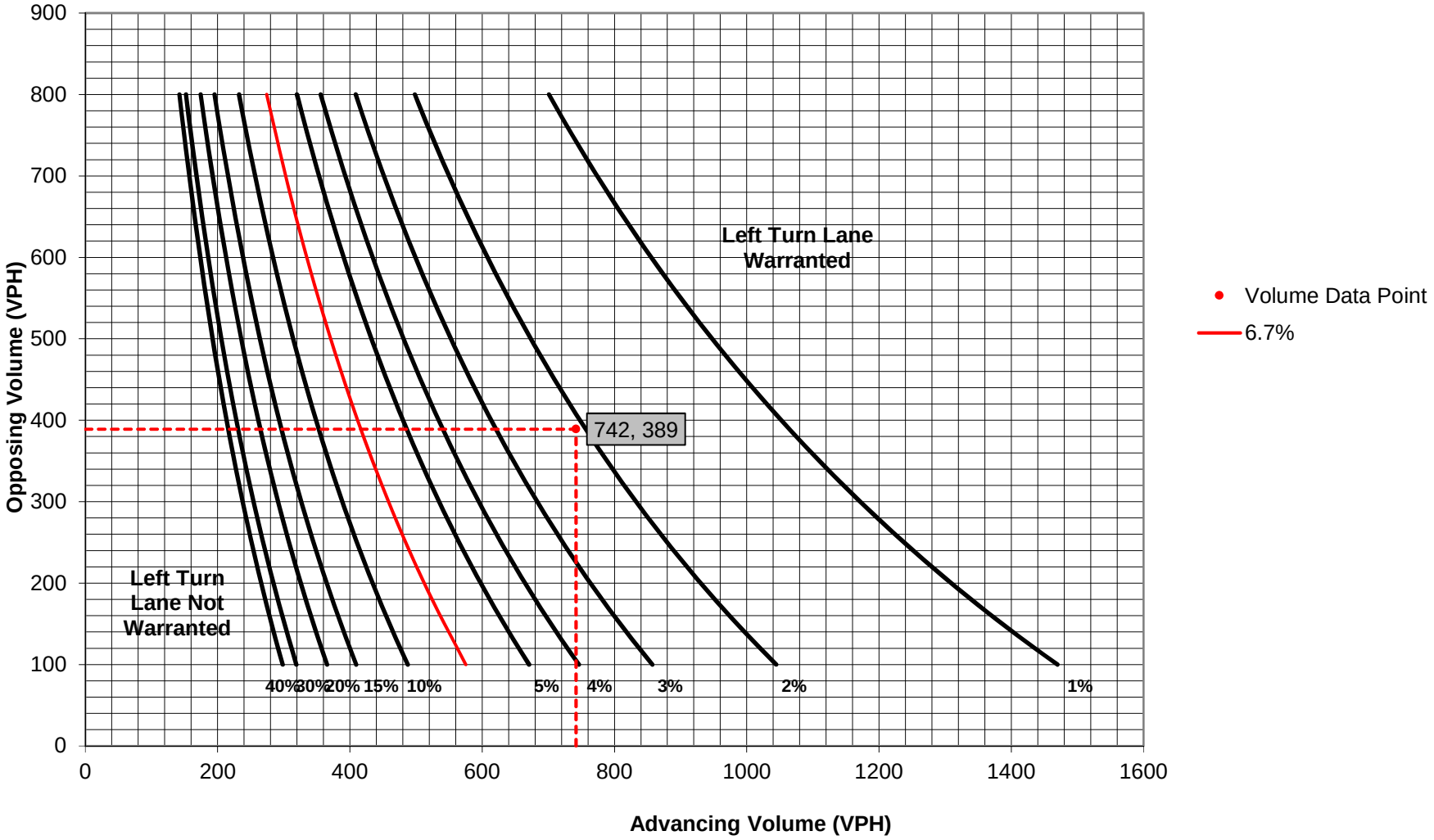
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	31
	Through	-	659	4.0%	699
	Right	Yes	13	0.0%	13
Opposing	Left	Yes	19	0.0%	19
	Through	-	305	7.0%	338
	Right	Yes	30	3.0%	32

Advancing Volume:	743
Opposing Volume:	389
Left Turn Volume:	31
% Left Turns in Advancing Volume:	4.17%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	31
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

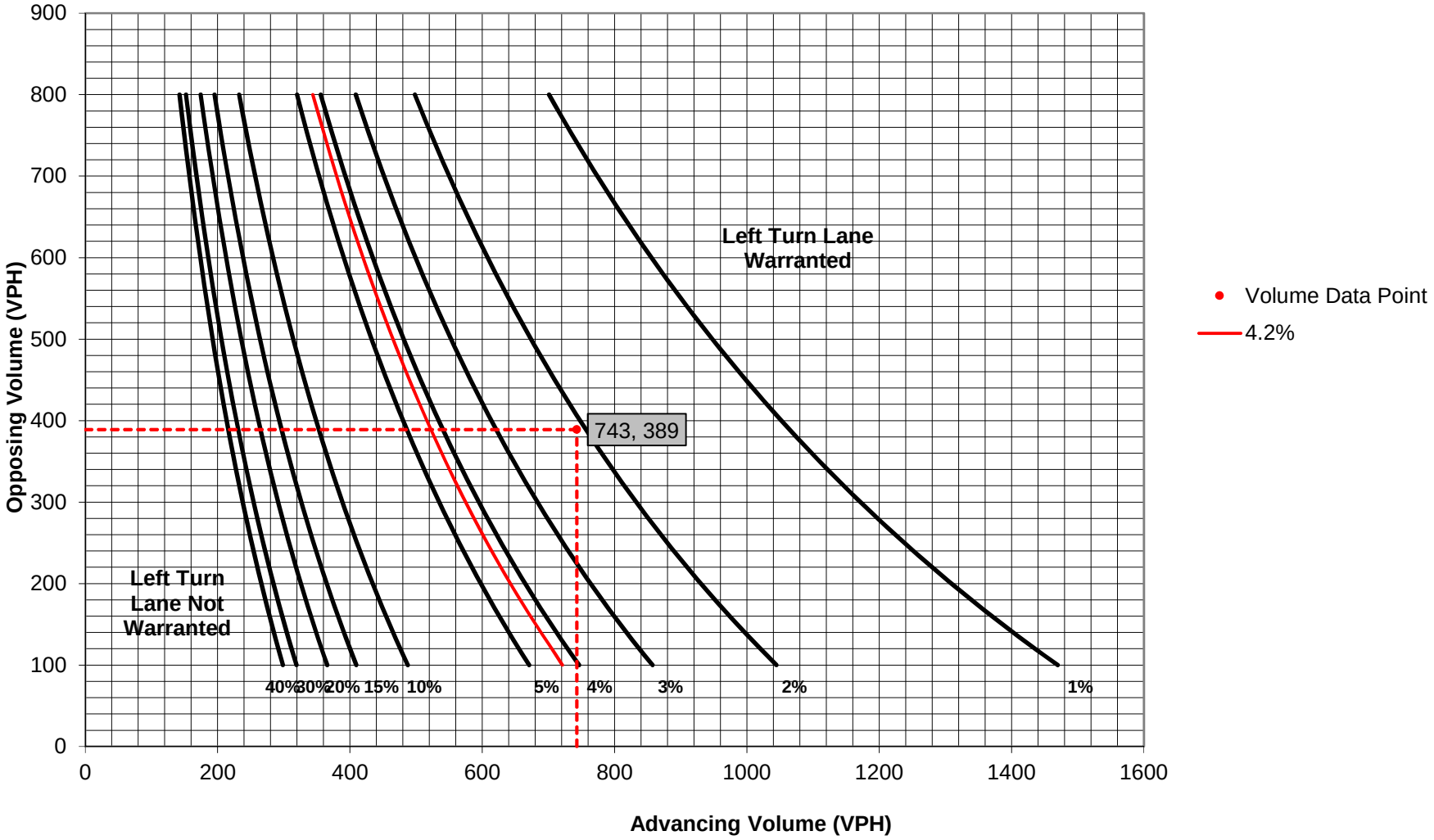
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	48	2.0%	50
	Through	-	648	4.0%	687
	Right	-	5	0.0%	5

Advancing Volume:	742
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

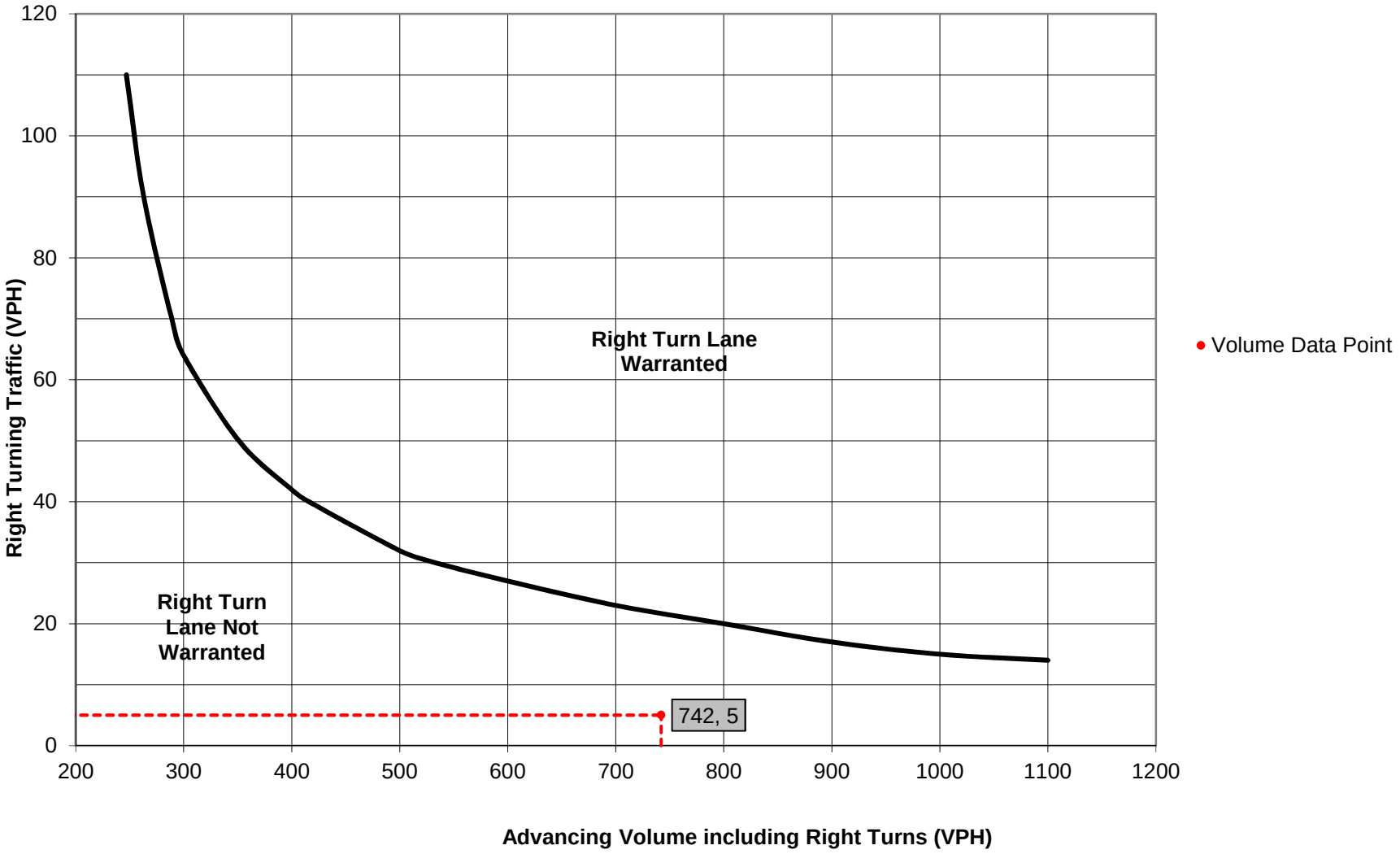
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	30	2.0%	31
	Through	-	659	4.0%	699
	Right	-	13	0.0%	13

Advancing Volume:	743
Right Turn Volume:	13

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	13
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

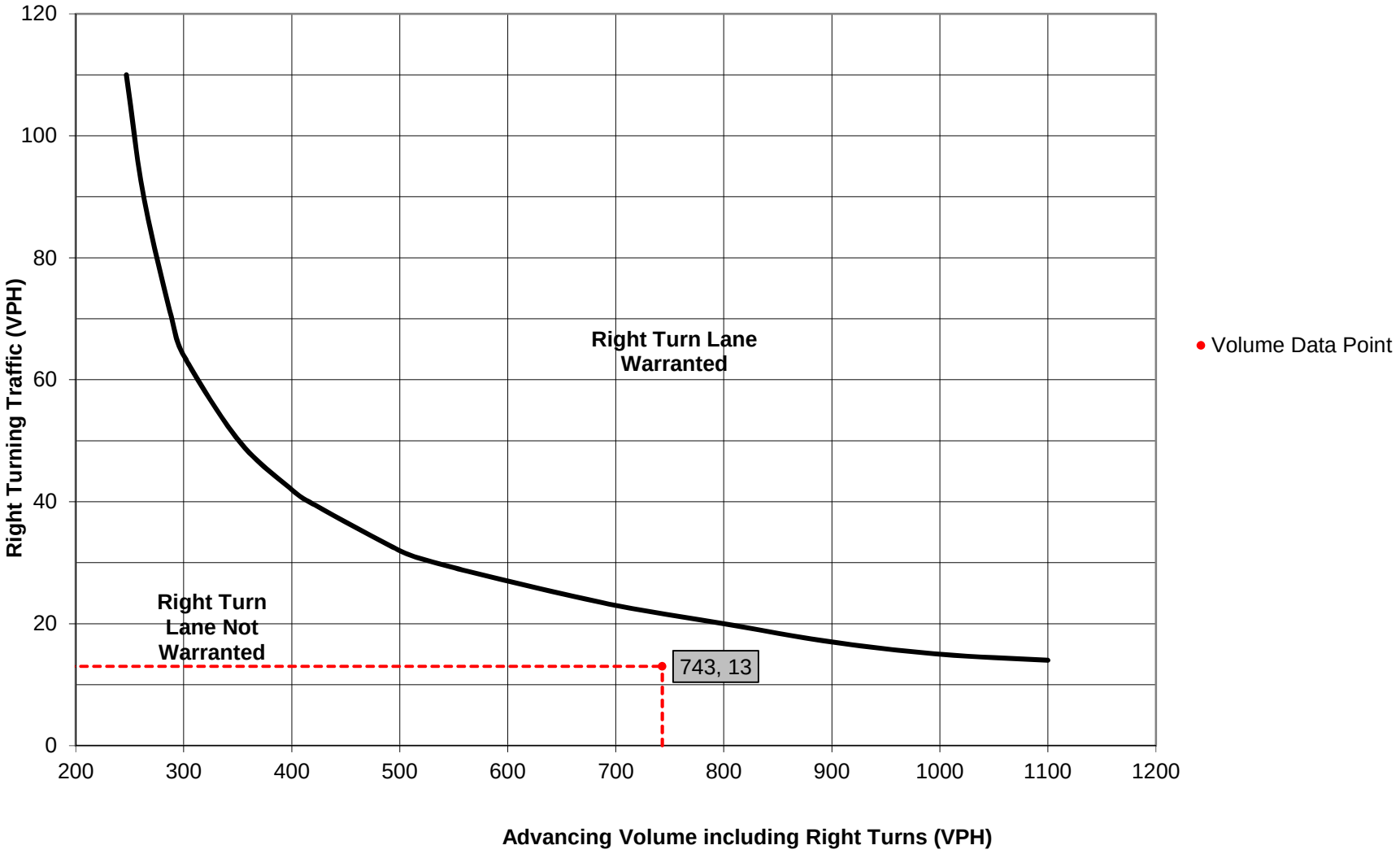
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	11.0%	11
	Through	-	97	1.0%	99
	Right	Yes	41	5.0%	45
Opposing	Left	Yes	8	13.0%	10
	Through	-	122	0.0%	122
	Right	Yes	190	2.0%	196

Advancing Volume:	155
Opposing Volume:	328
Left Turn Volume:	11
% Left Turns in Advancing Volume:	7.10%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

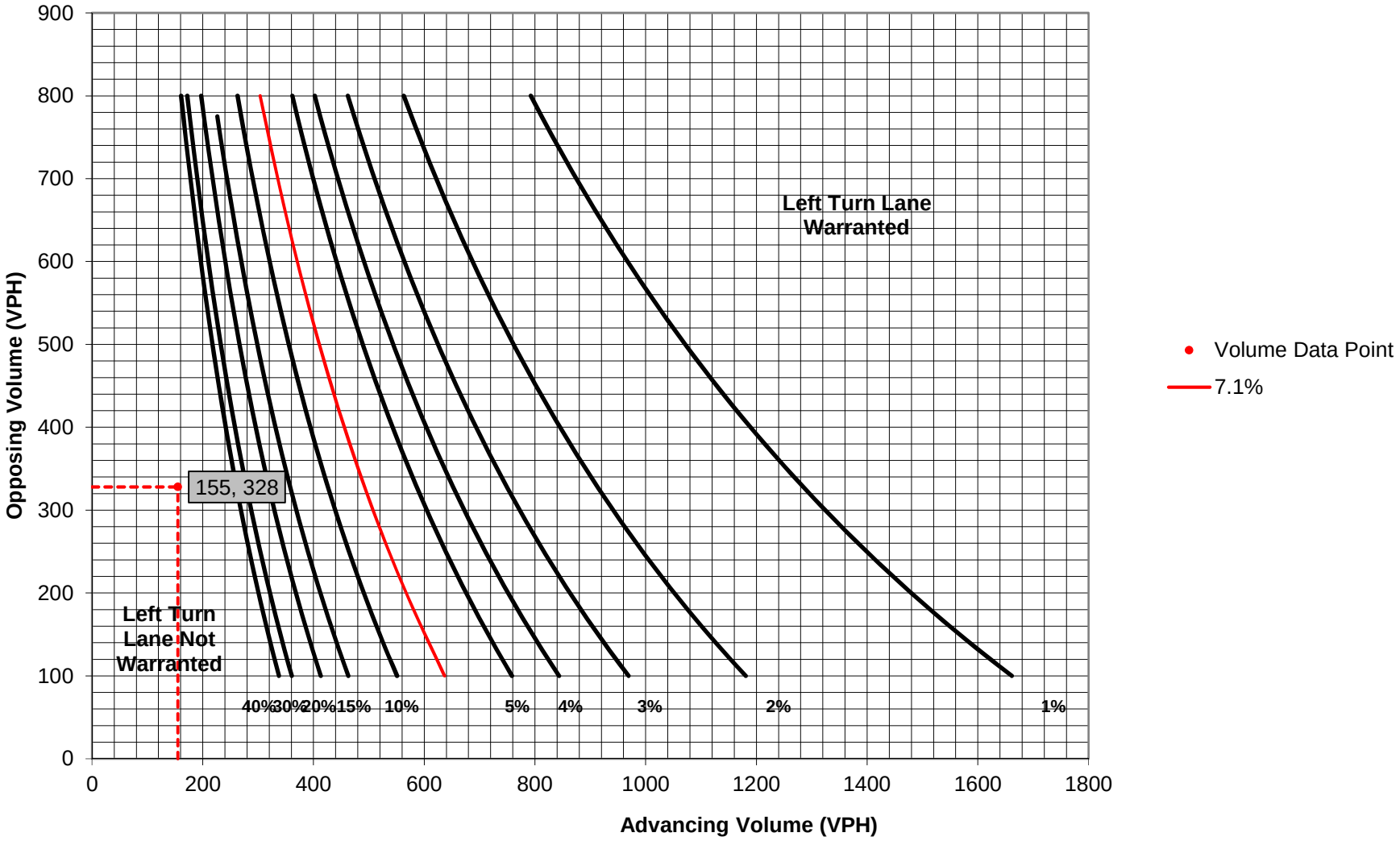
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	11.0%	11
	Through	-	83	1.0%	85
	Right	Yes	37	5.0%	40
Opposing	Left	Yes	49	13.0%	59
	Through	-	164	0.0%	164
	Right	Yes	143	2.0%	148

Advancing Volume:	136
Opposing Volume:	371
Left Turn Volume:	11
% Left Turns in Advancing Volume:	8.09%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	11
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

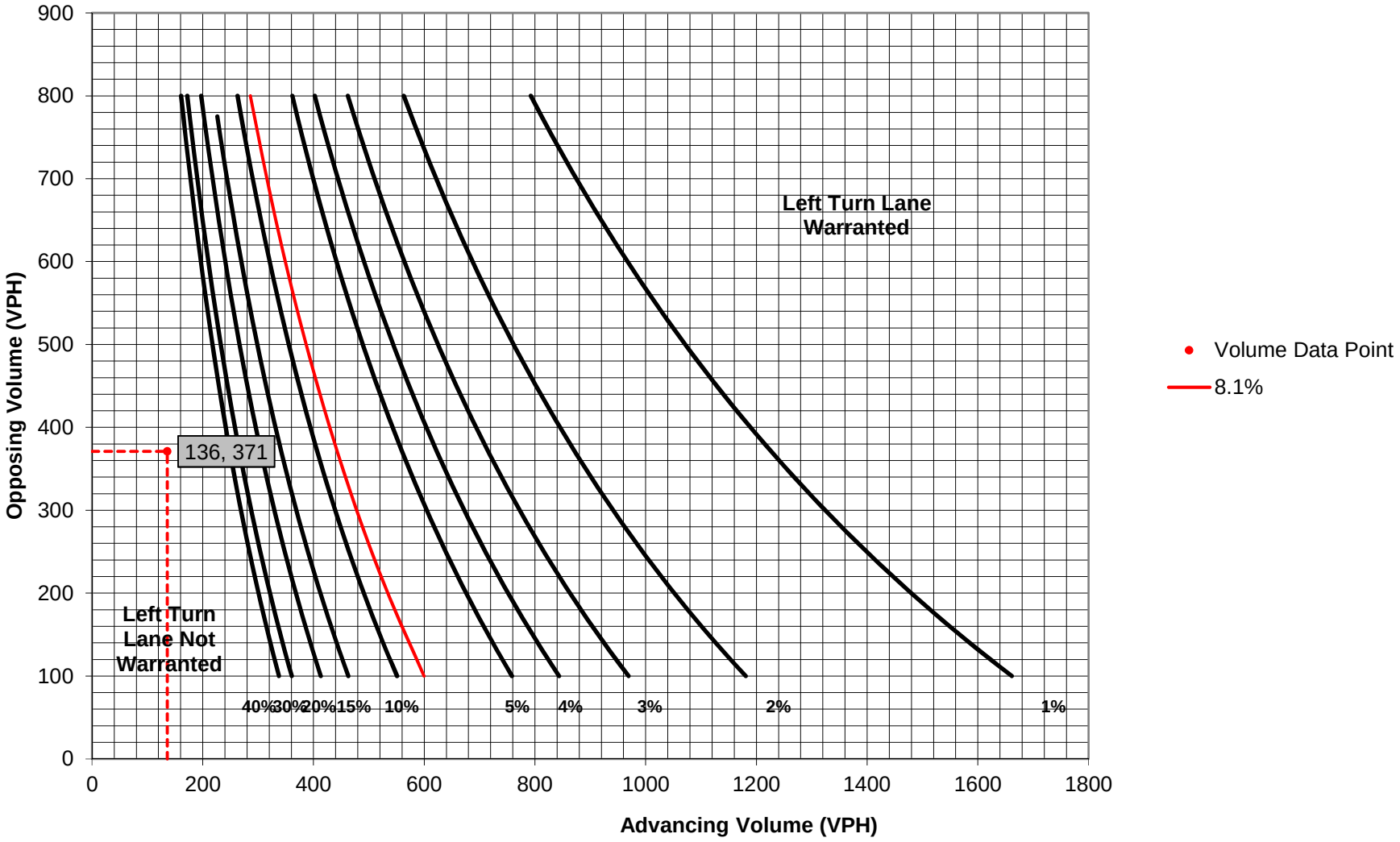
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	11.0%	11
	Through	-	97	1.0%	99
	Right	-	41	5.0%	45

Advancing Volume:	155
Right Turn Volume:	45

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	45
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

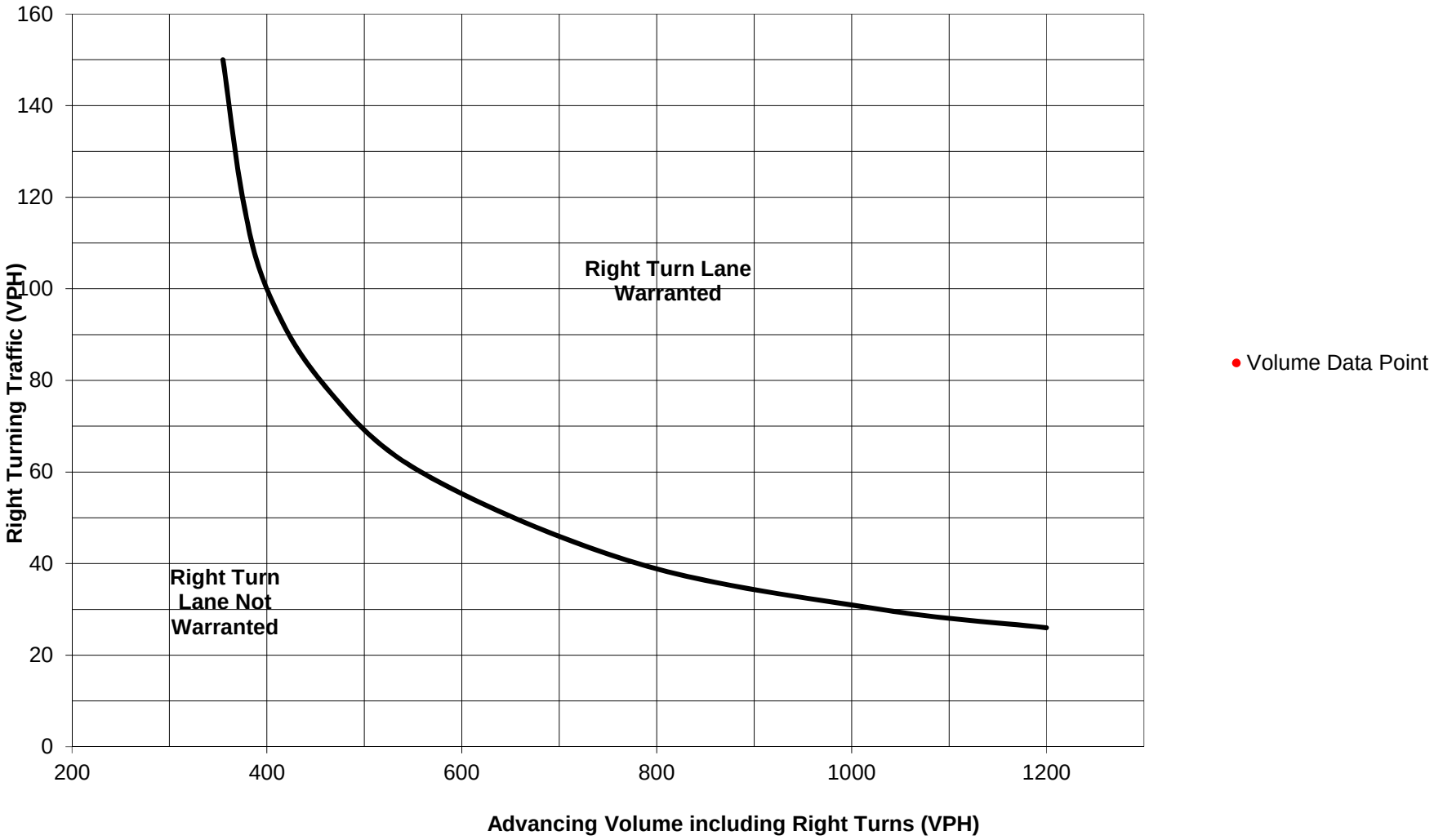
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (155,45) is below the viewport of the graph

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	9	11.0%	11
	Through	-	83	1.0%	85
	Right	-	37	5.0%	40

Advancing Volume:	136
Right Turn Volume:	40

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

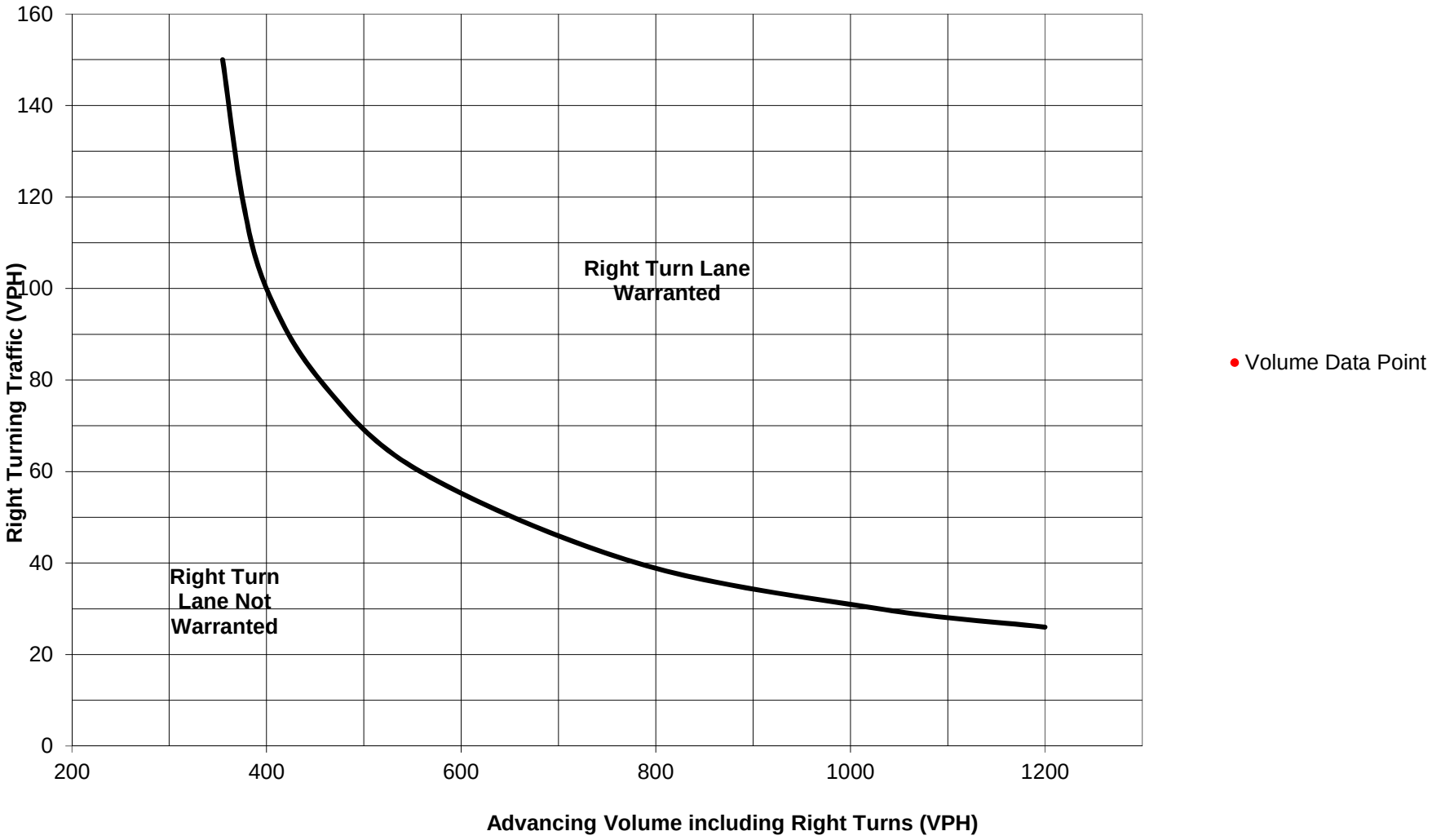
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (136,40) is below the viewport of the graph

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Left-Turn Lane

Analysis Period:	2019 Exisitng	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	13.0%	10
	Through	-	122	0.0%	122
	Right	Yes	190	2.0%	196
Opposing	Left	Yes	9	11.0%	11
	Through	-	97	1.0%	99
	Right	Yes	41	5.0%	45

Advancing Volume:	328
Opposing Volume:	155
Left Turn Volume:	10
% Left Turns in Advancing Volume:	3.05%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

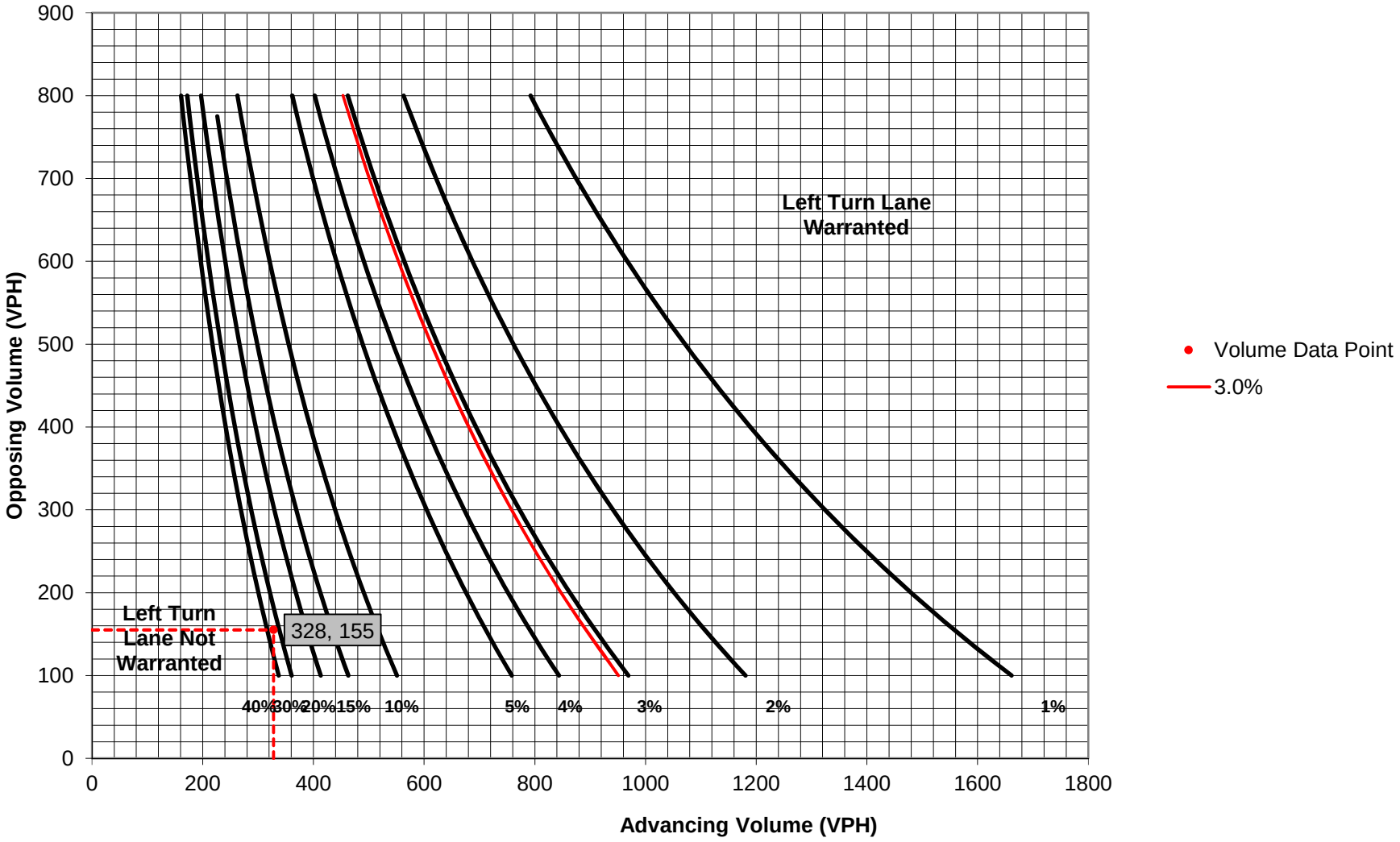
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	49	13.0%	59
	Through	-	164	0.0%	164
	Right	Yes	143	2.0%	148
Opposing	Left	Yes	9	11.0%	11
	Through	-	83	1.0%	85
	Right	Yes	37	5.0%	40

Advancing Volume:	371
Opposing Volume:	136
Left Turn Volume:	59
% Left Turns in Advancing Volume:	15.90%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	59
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

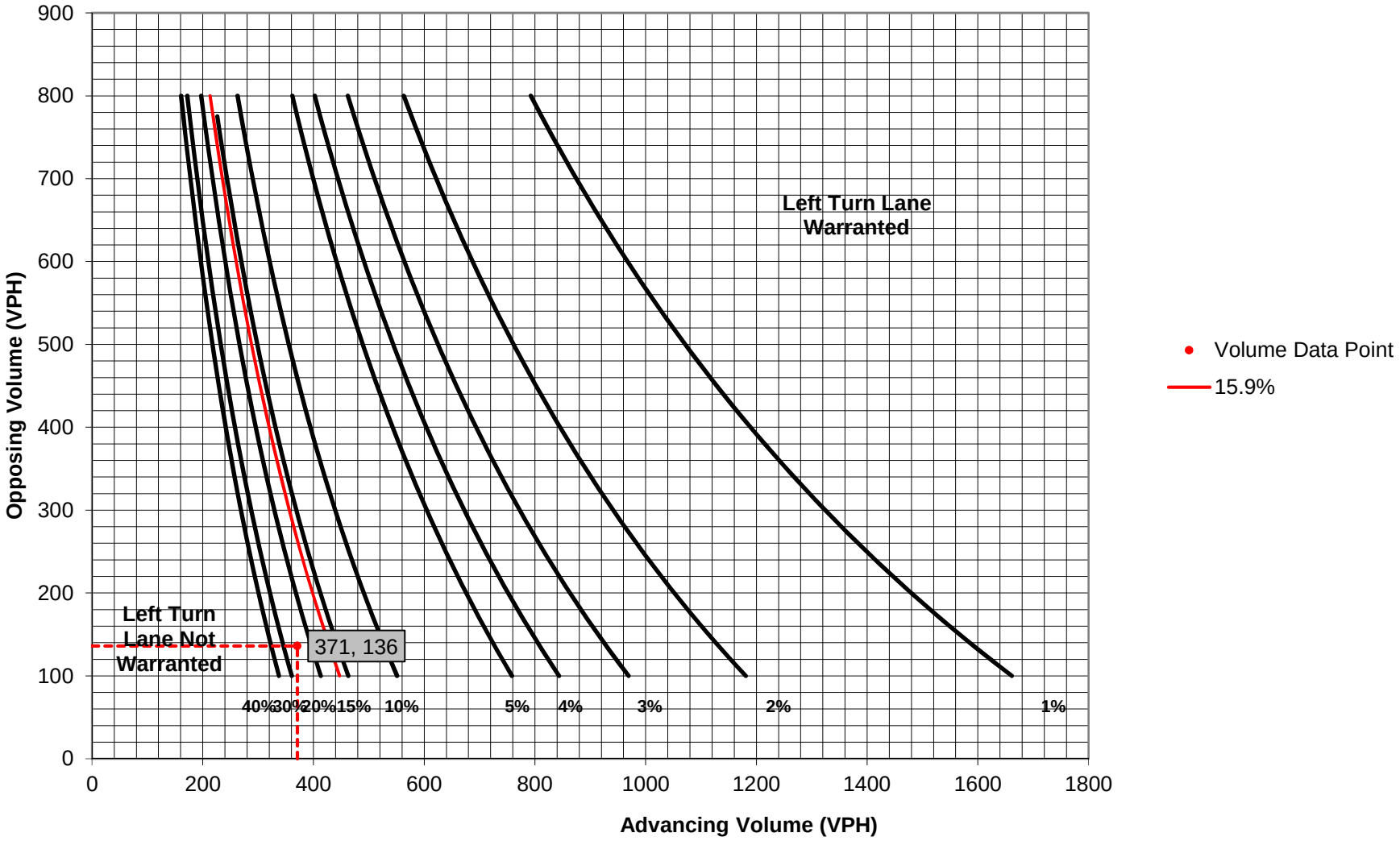
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	13.0%	10
	Through	-	122	0.0%	122
	Right	-	190	2.0%	196

Advancing Volume:	328
Right Turn Volume:	196

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	196
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

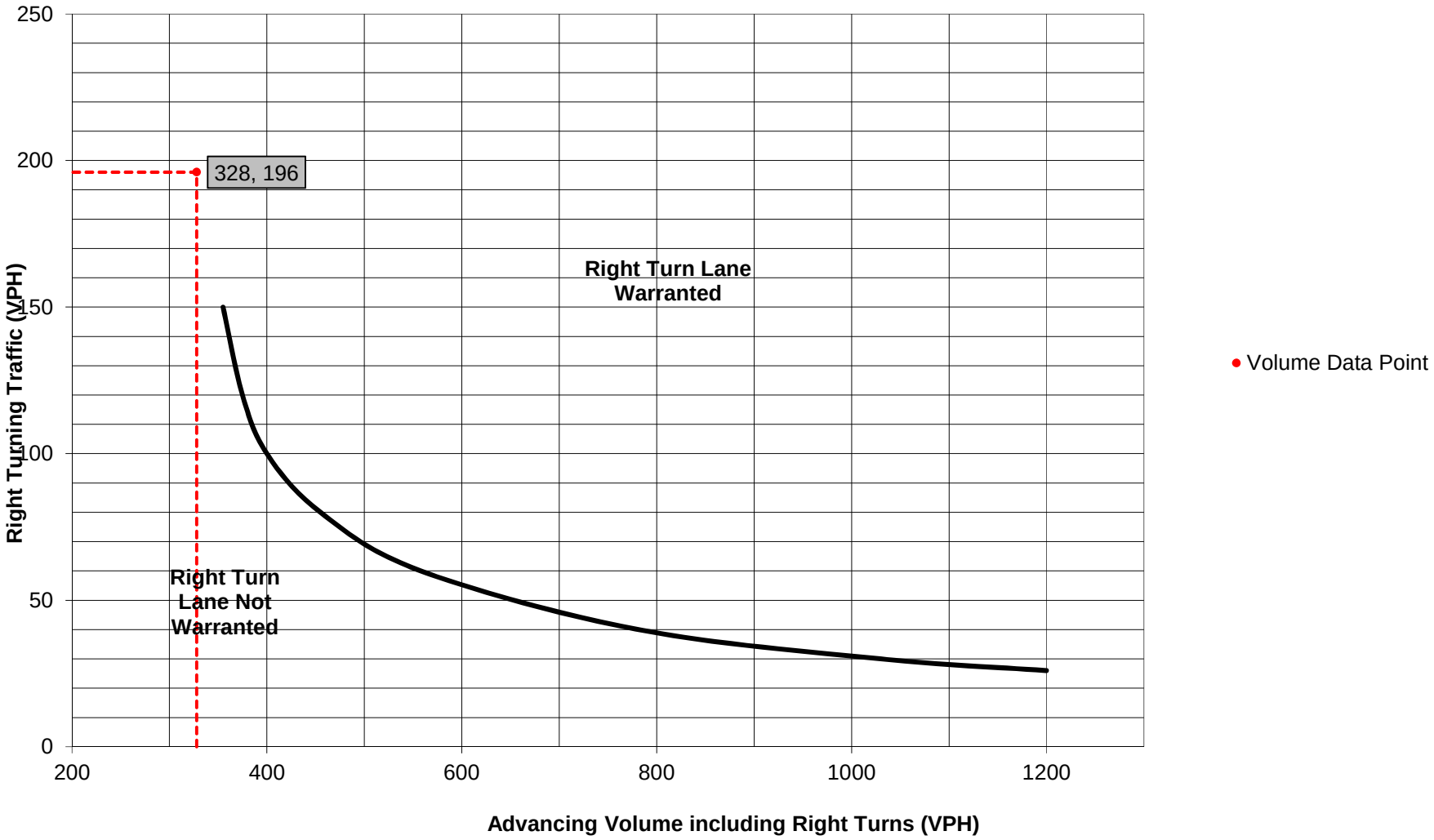
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	49	13.0%	59
	Through	-	164	0.0%	164
	Right	-	143	2.0%	148

Advancing Volume:	371
Right Turn Volume:	148

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	148
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: 4.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

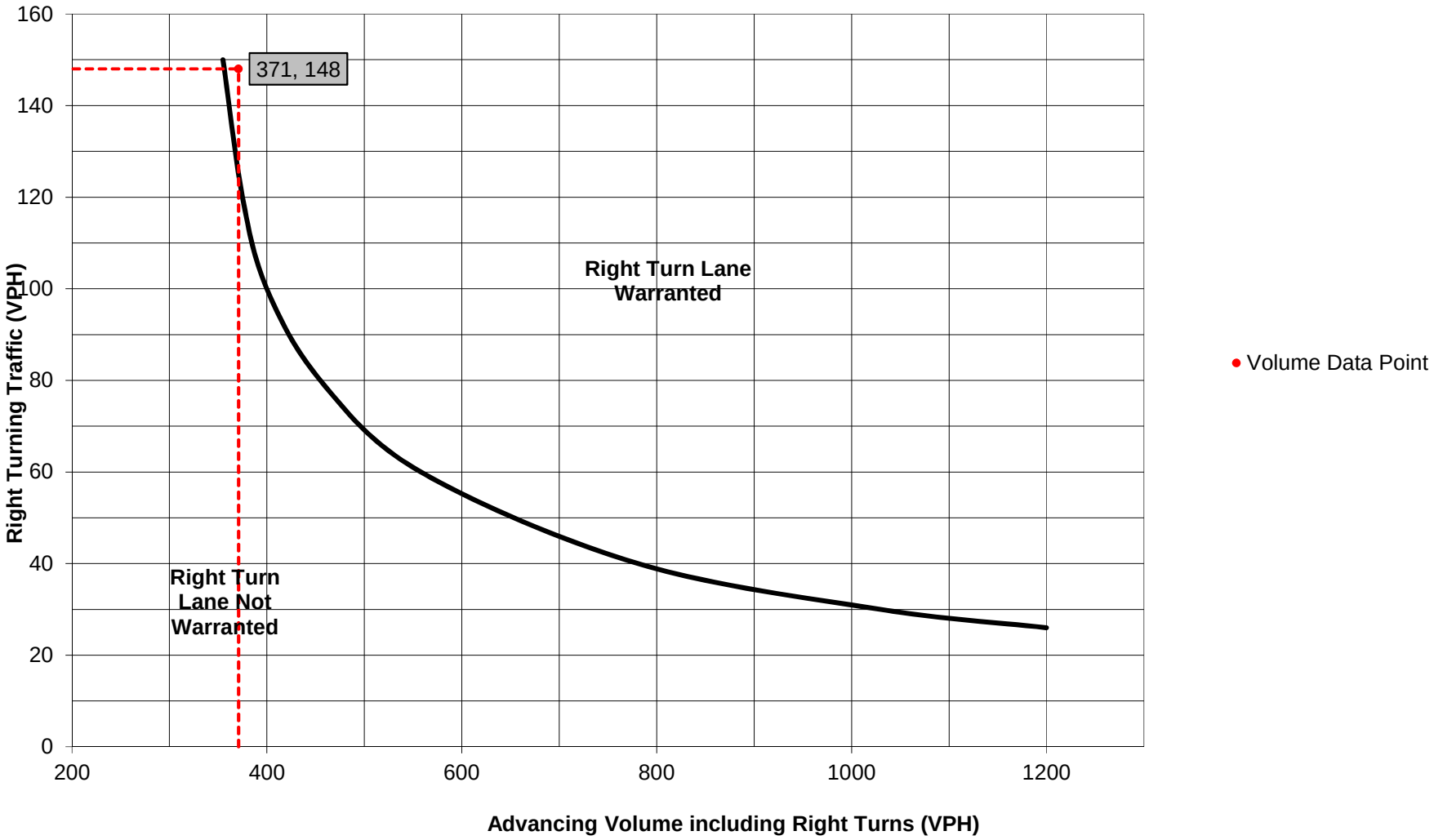
Right Turn Lane Storage Length, Condition A:	**175**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**175**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	310	7.0%	343
	Right	Yes	36	3.0%	38
Opposing	Left	Yes	48	2.0%	50
	Through	-	648	4.0%	687
	Right	Yes	5	0.0%	5

Advancing Volume:	389
Opposing Volume:	742
Left Turn Volume:	8
% Left Turns in Advancing Volume:	2.06%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	8
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

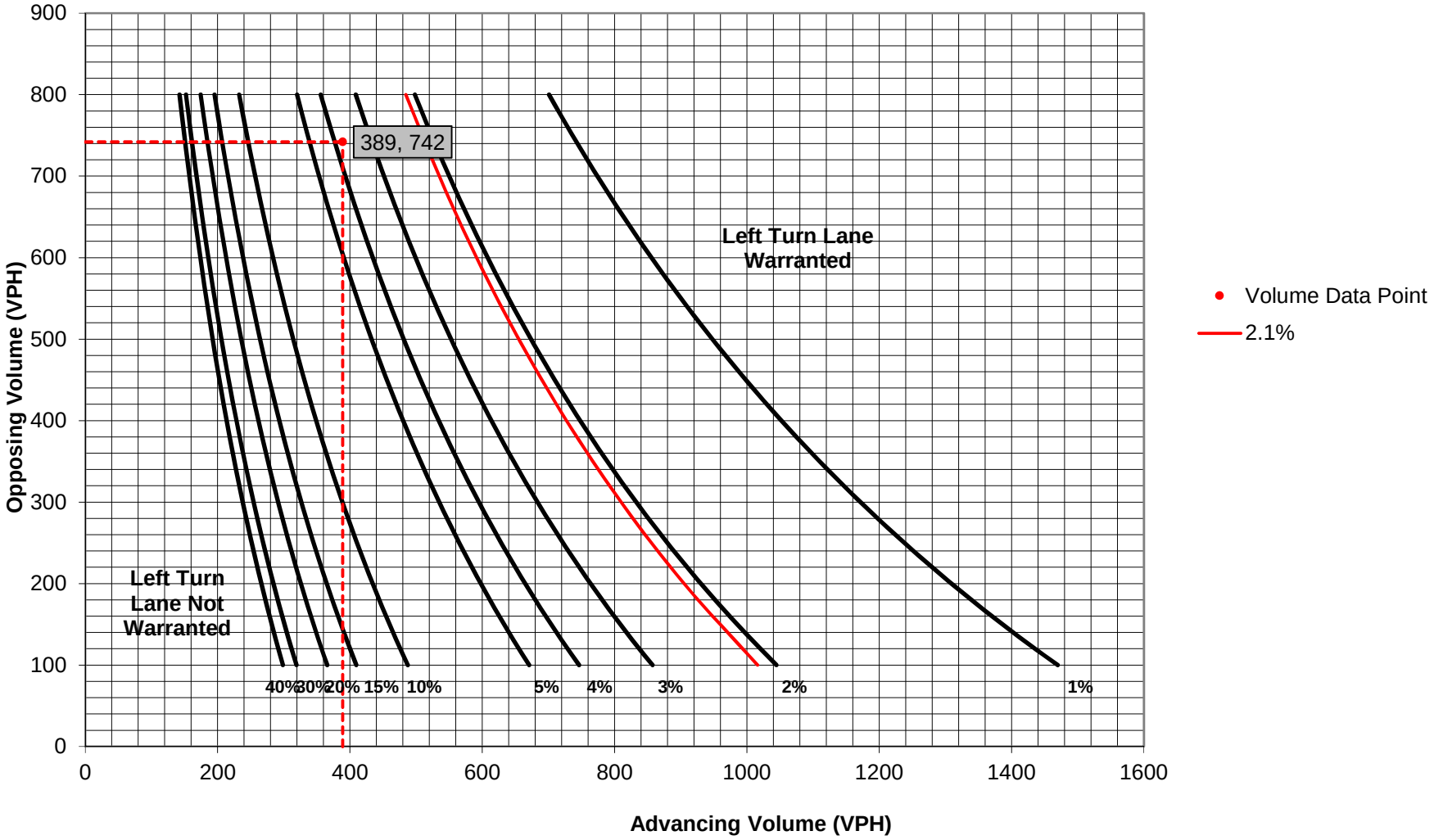
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	0.0%	19
	Through	-	305	7.0%	338
	Right	Yes	30	3.0%	32
Opposing	Left	Yes	30	2.0%	31
	Through	-	659	4.0%	699
	Right	Yes	13	0.0%	13

Advancing Volume:	389
Opposing Volume:	743
Left Turn Volume:	19
% Left Turns in Advancing Volume:	4.88%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	19
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

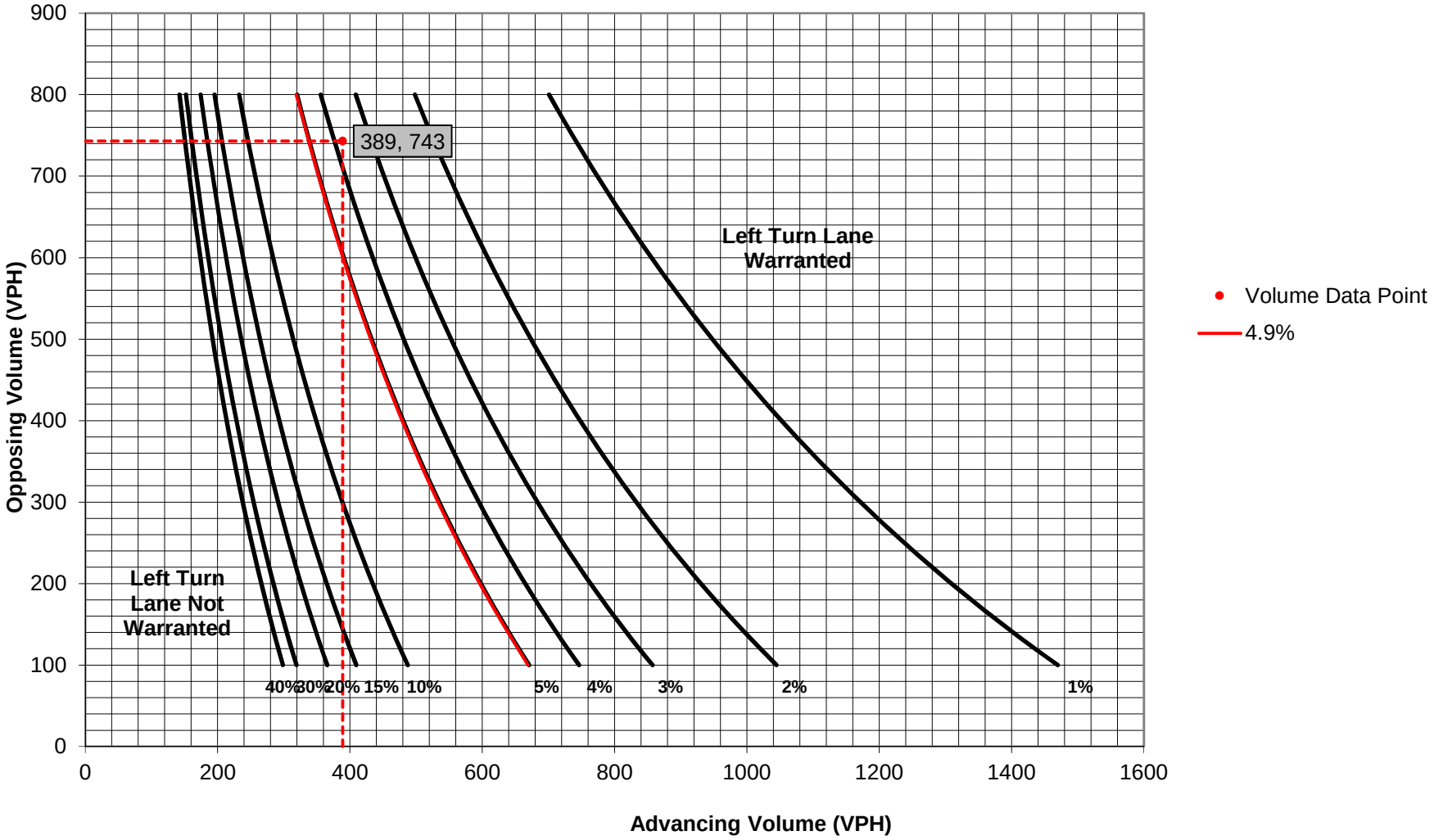
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Exisiting	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	0.0%	8
	Through	-	310	7.0%	343
	Right	-	36	3.0%	38

Advancing Volume:	389
Right Turn Volume:	38

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	38
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

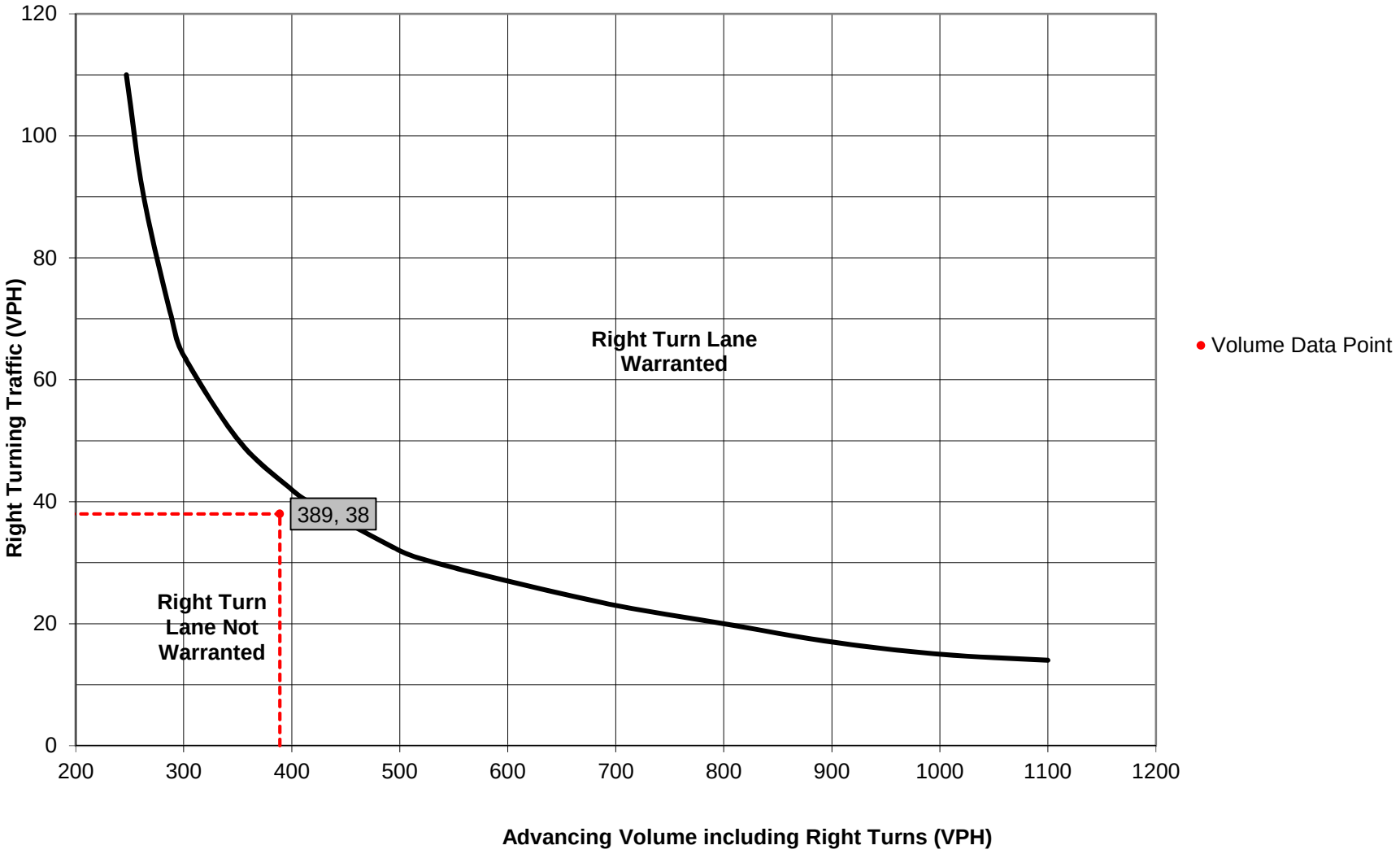
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	0.0%	19
	Through	-	305	7.0%	338
	Right	-	30	3.0%	32

Advancing Volume:	389
Right Turn Volume:	32

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	32
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

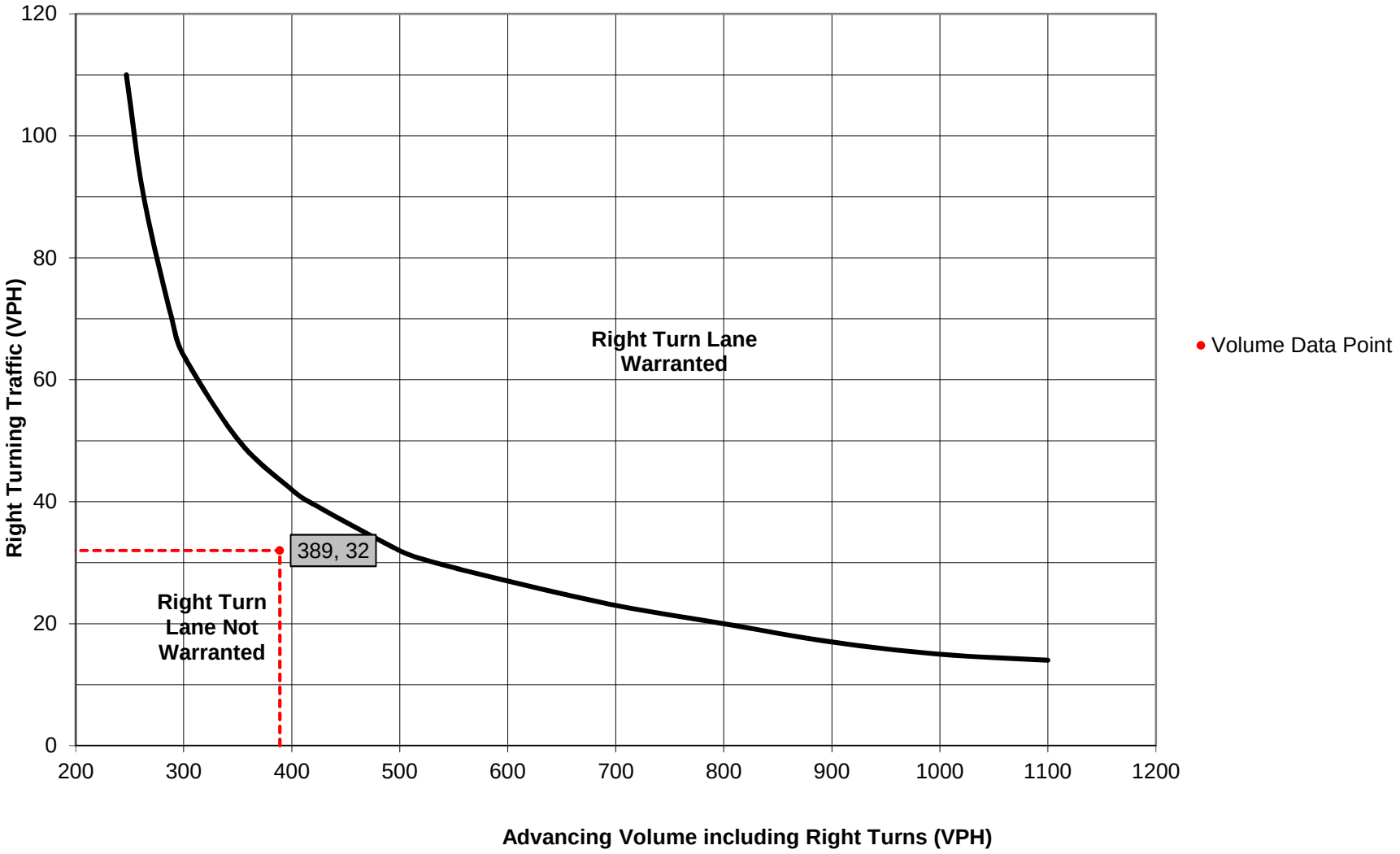
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



New Street and
W. Pleasant Grove Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Northbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	173	2.0%	179
	Right	-	6	0.0%	6

Advancing Volume:	185
Right Turn Volume:	6

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	6
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

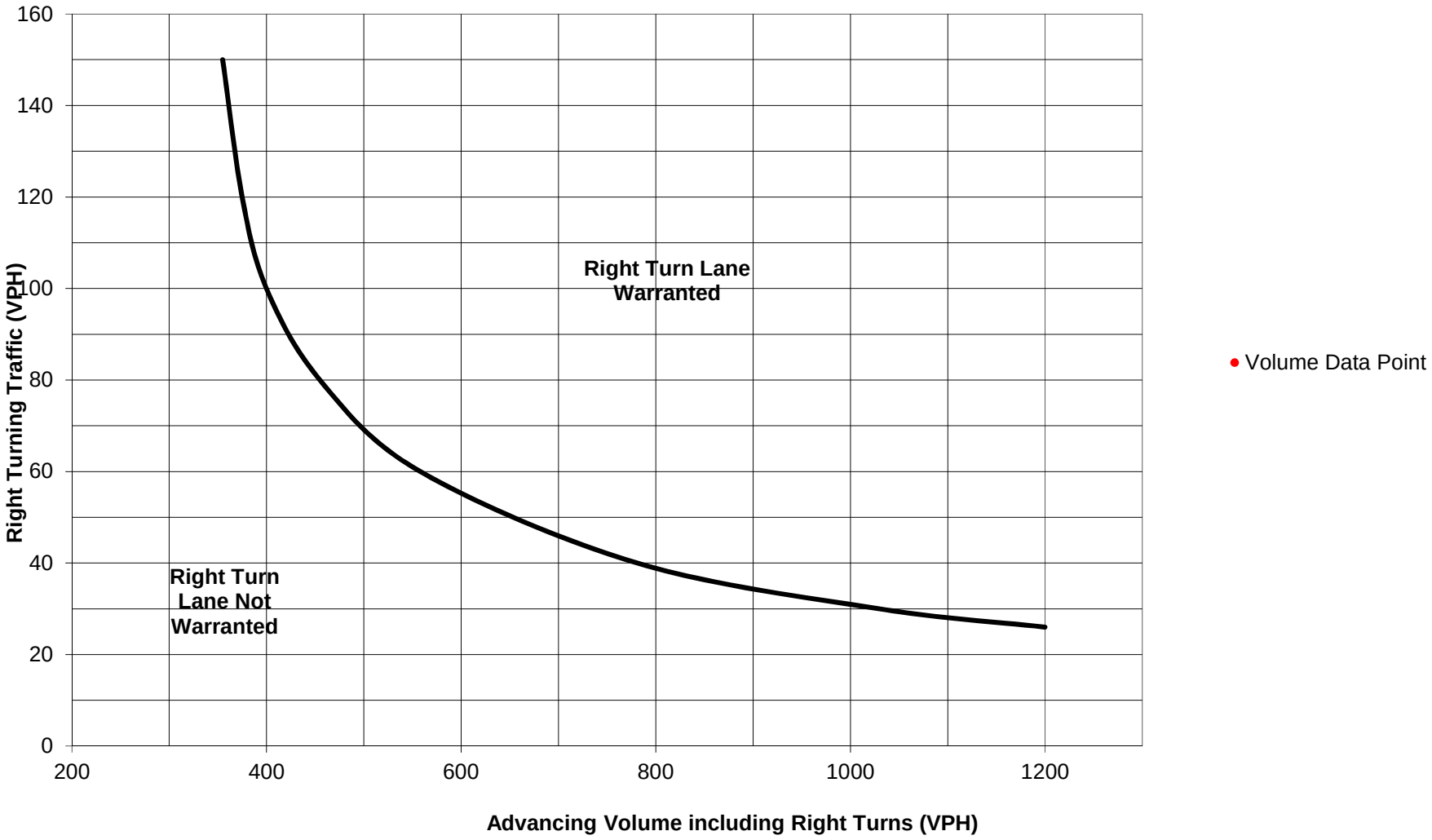
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (185,6) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Northbound New Street Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	143	1.0%	146
	Right	-	17	0.0%	17

Advancing Volume:	163
Right Turn Volume:	17

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	17
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

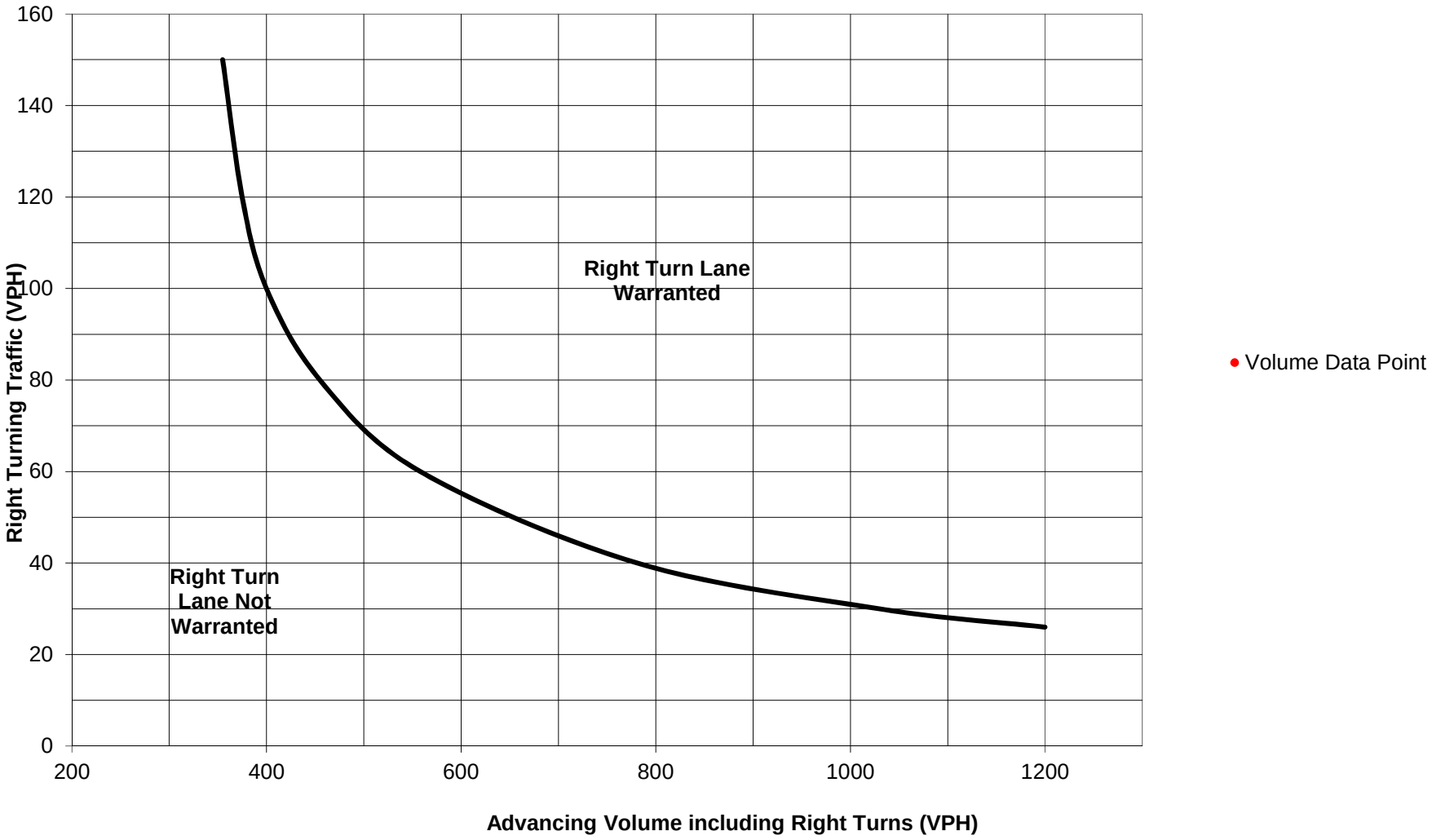
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



NOTE: The point (163,17) is below the viewport of the graph.

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Southbound New Street Left-Turn Lane

Analysis Period:	2019 Exisitng	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	13	8.0%	15
	Through	-	127	1.0%	129
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	173	2.0%	179
	Right	Yes	6	0.0%	6

Advancing Volume:	144
Opposing Volume:	185
Left Turn Volume:	15
% Left Turns in Advancing Volume:	10.42%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	15
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

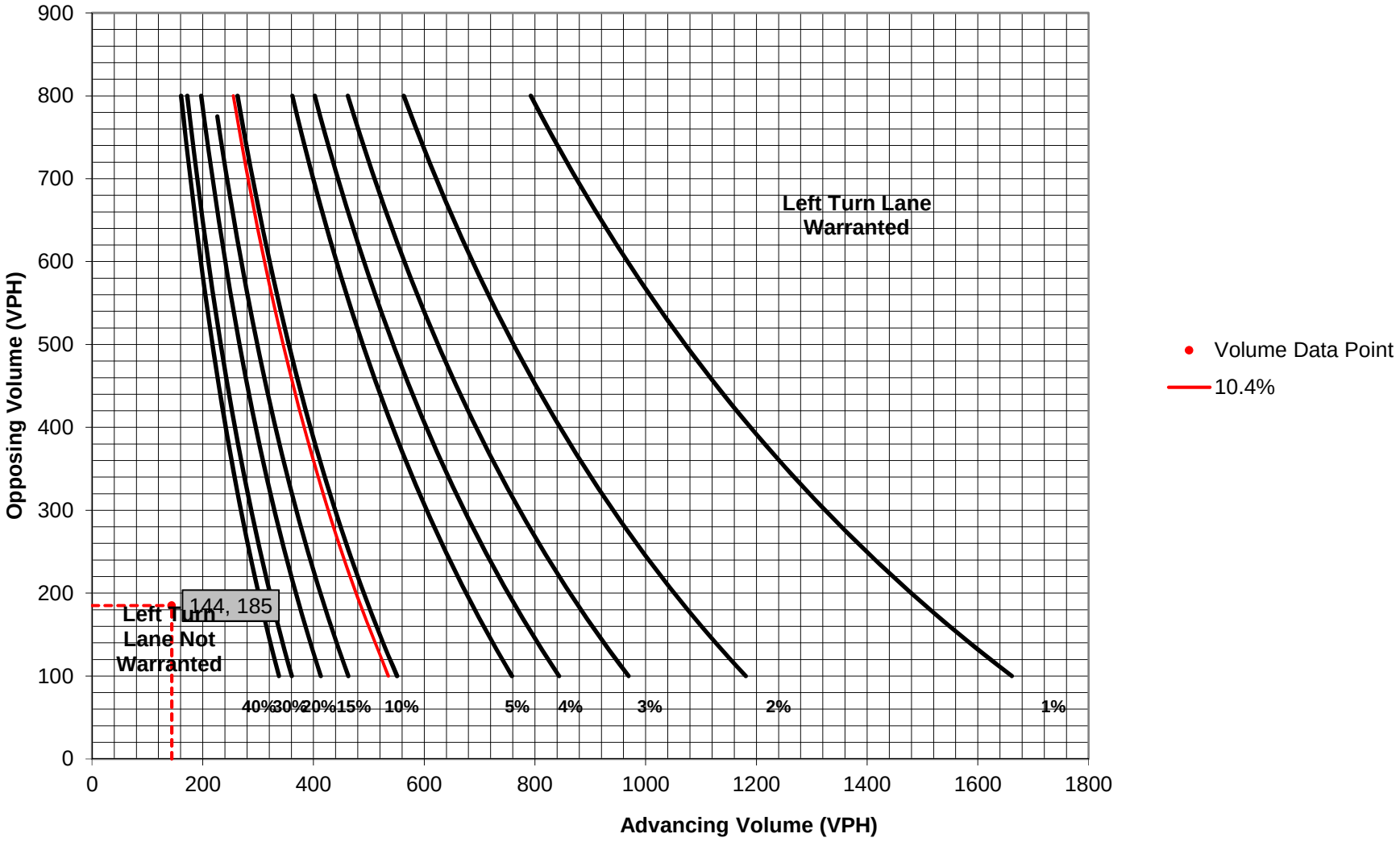
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Southbound New Street Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	18	0.0%	18
	Through	-	168	2.0%	174
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	143	1.0%	146
	Right	Yes	17	0.0%	17

Advancing Volume:	192
Opposing Volume:	163
Left Turn Volume:	18
% Left Turns in Advancing Volume:	9.38%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	18
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

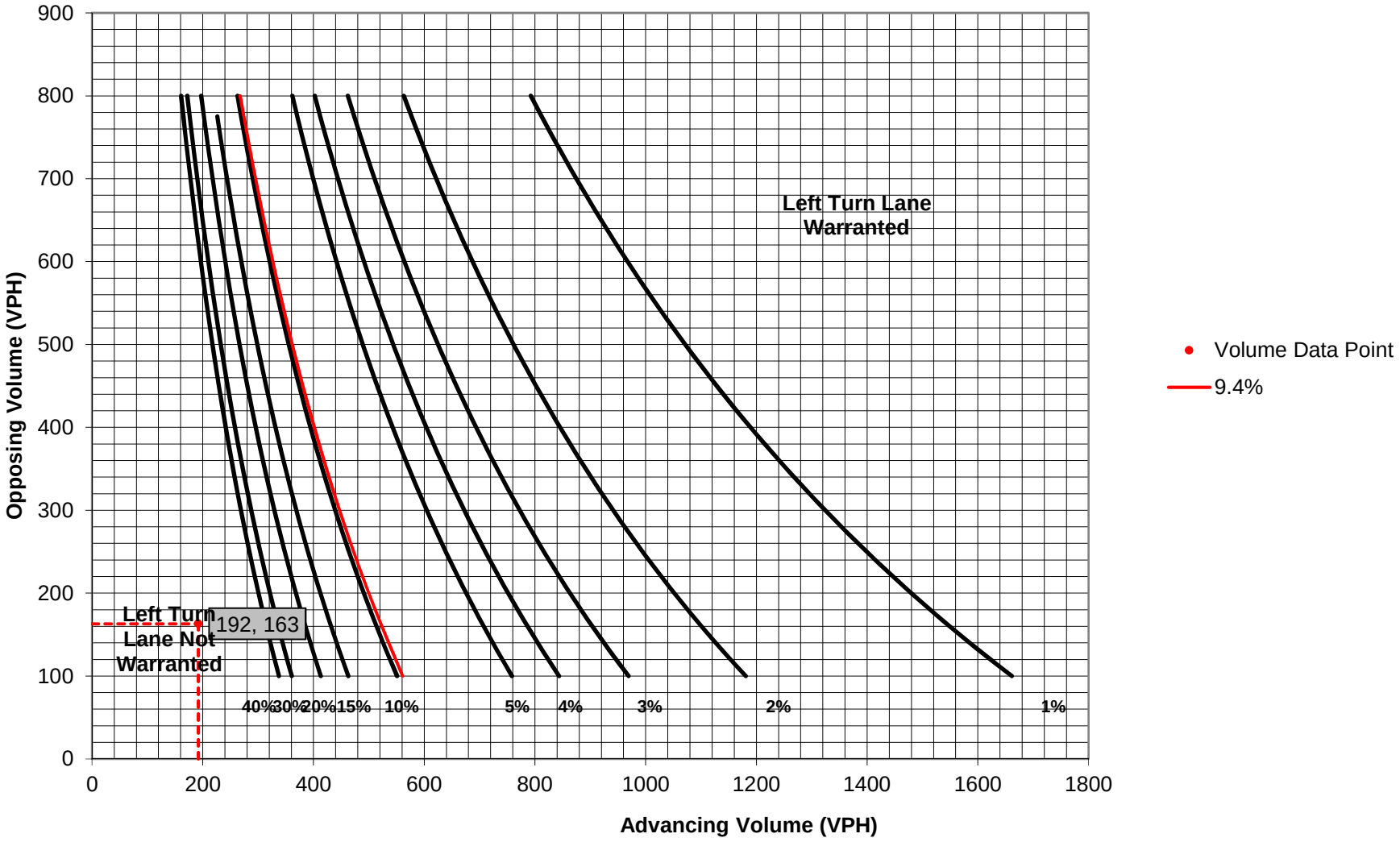
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/219
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Exisiting	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	203	2.0%	210
	Through	-	0	0.0%	0
	Right	-	21	12.0%	25

Advancing Volume:	235
Right Turn Volume:	25

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	25
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

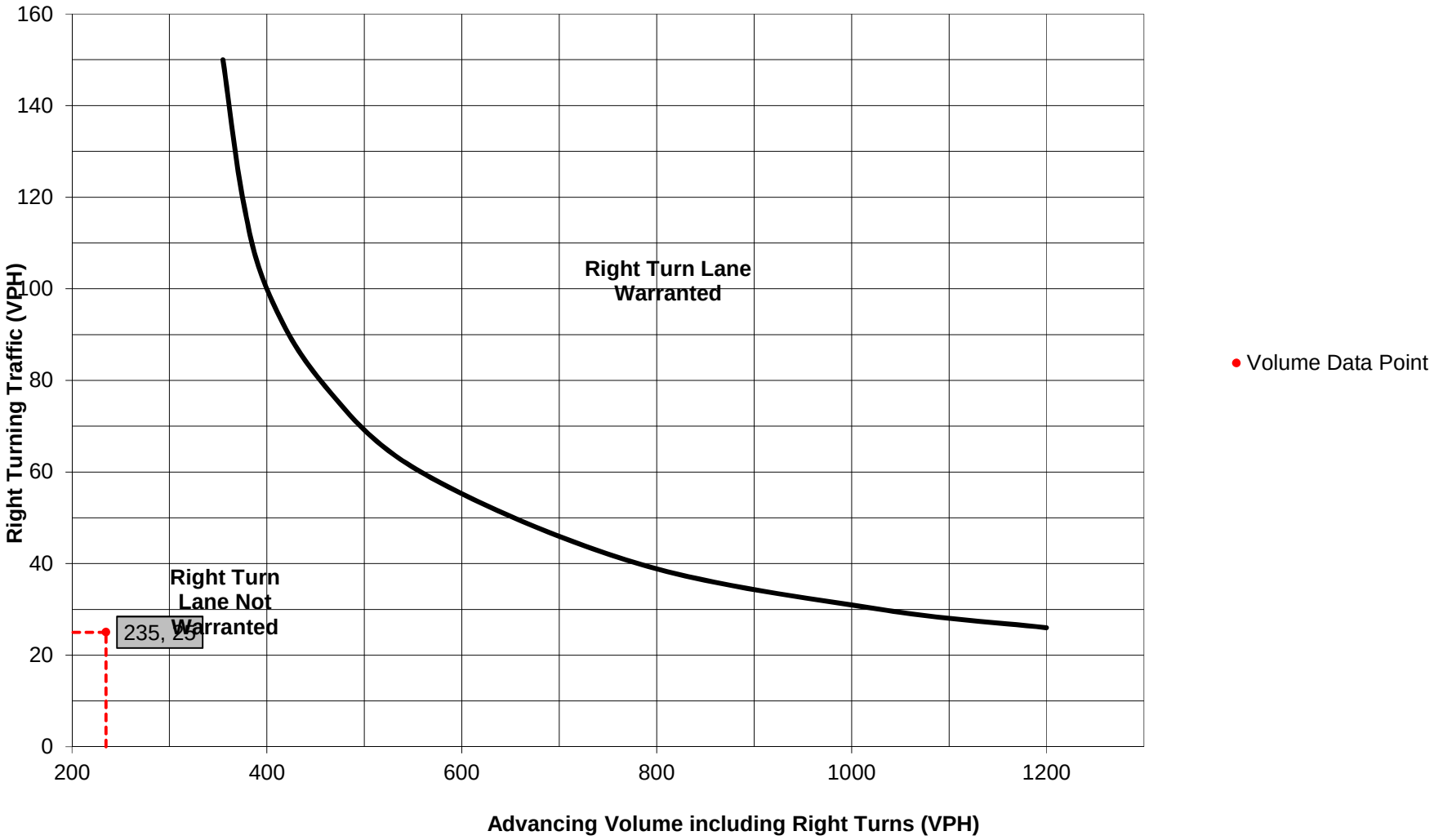
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	198	1.0%	201
	Through	-	0	0.0%	0
	Right	-	47	2.0%	49

Advancing Volume:	250
Right Turn Volume:	49

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	49
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

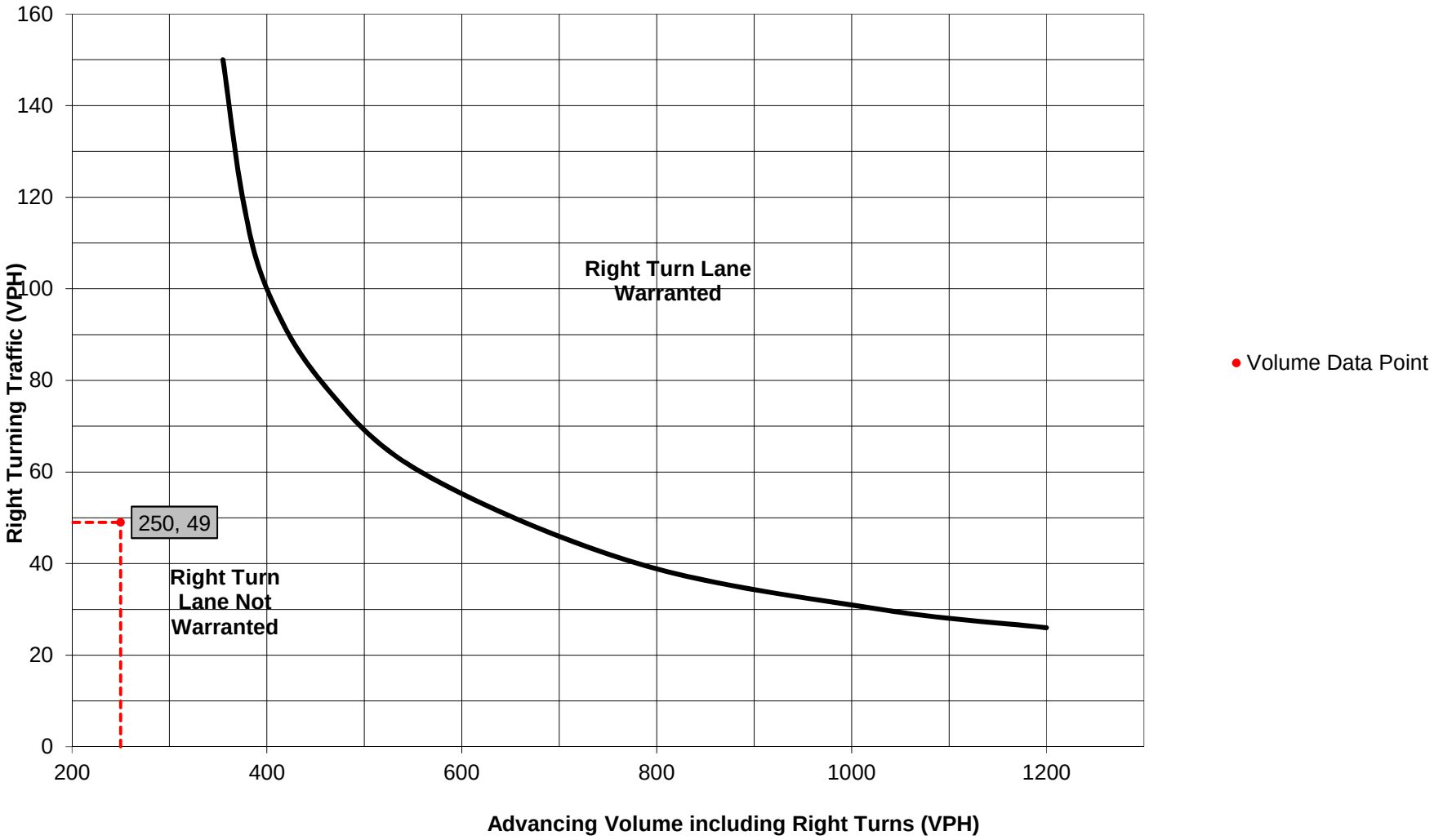
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



U.S. Route 202 (Wilmington Pike) and
W. Pleasant Grove Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road
Southbound U.S. Route 202 Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	37	3.0%	N/A
	Through	-	1753	9.0%	1990
	Right	-	150	3.0%	157

Advancing Volume:	2147
Right Turn Volume:	157

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 12**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	157
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

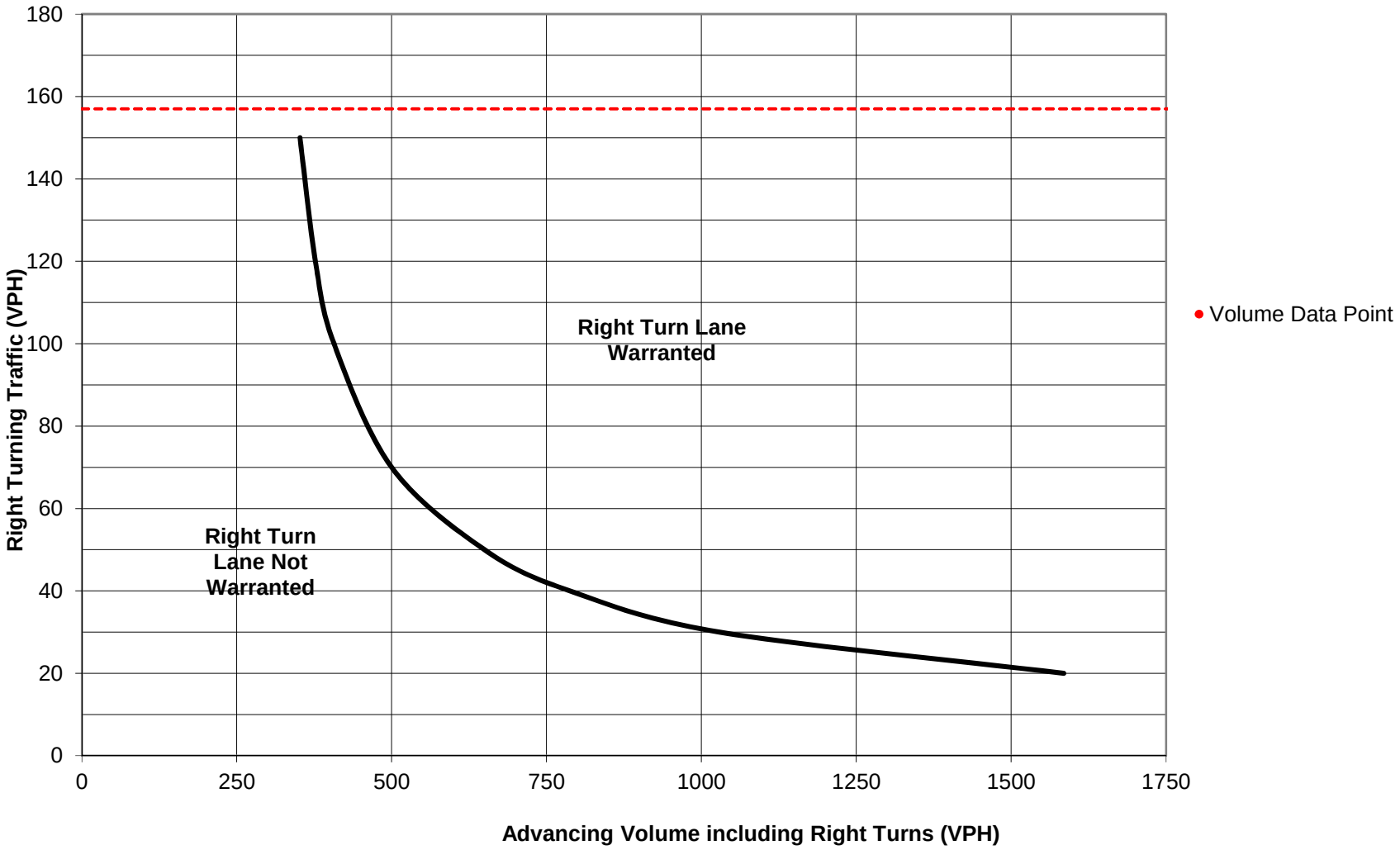
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**225**	**Feet**
Required Right Turn Lane Storage Length:	**225**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/21/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road
Southbound U.S. Route 202 Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	89	0.0%	N/A
	Through	-	1701	3.0%	1778
	Right	-	202	1.0%	206

Advancing Volume:	1984
Right Turn Volume:	206

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 12**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	206
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 3.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

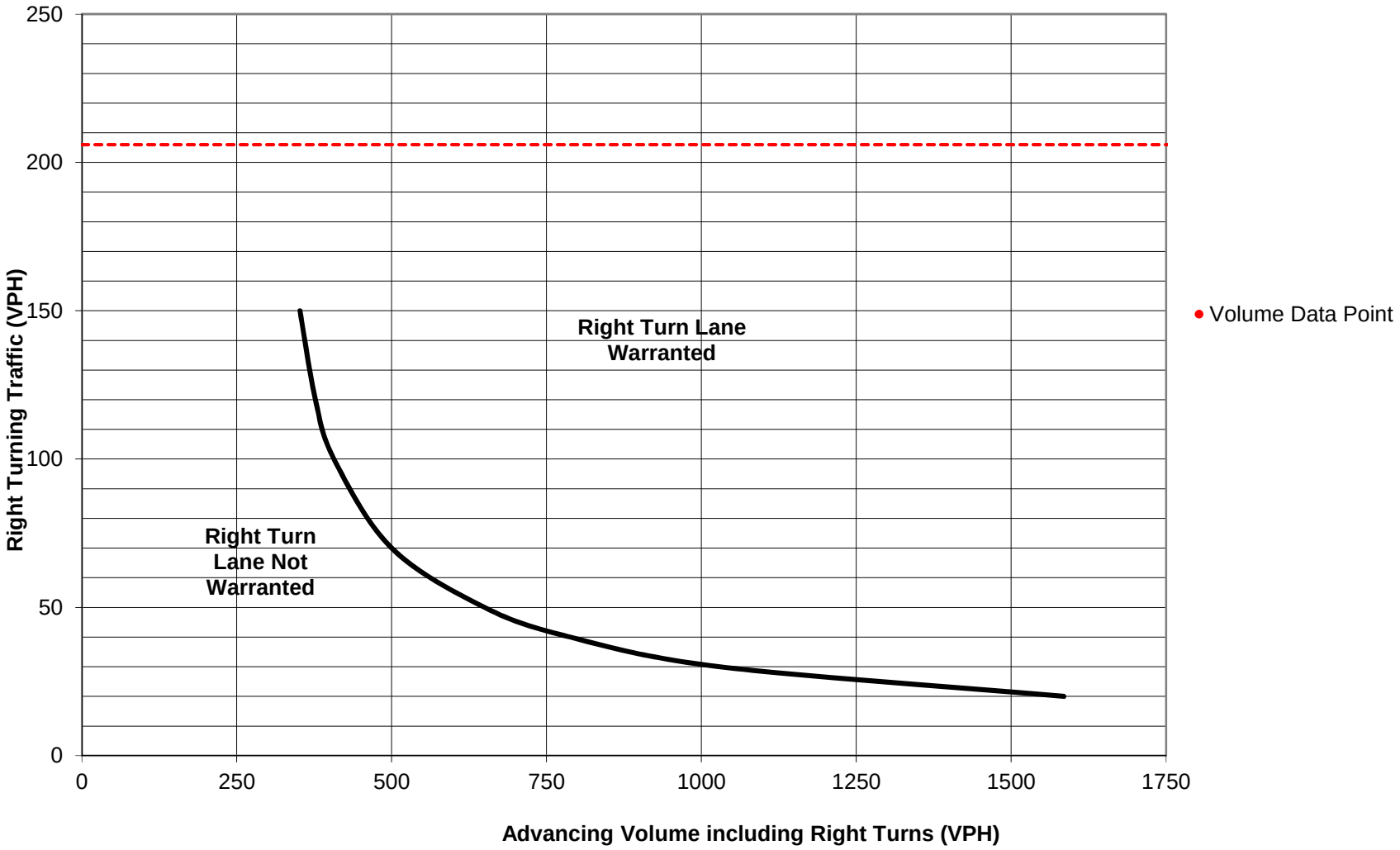
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**225**	**Feet**
Required Right Turn Lane Storage Length:	**225**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



2030 with Development

West Pleasant Grove Road and Orvis Way

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	1/9/2020
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: West Pleasant Grove Road and Orvis Way
Eastbound West Pleasant Grove Left-Turn Lane

Analysis Period:	2030 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	134	2.0%	136
	Through	-	29	0.0%	29
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	262	3.0%	266
	Right	Yes	28	2.0%	29

Advancing Volume:	165
Opposing Volume:	295
Left Turn Volume:	136
% Left Turns in Advancing Volume:	82.42%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	136
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

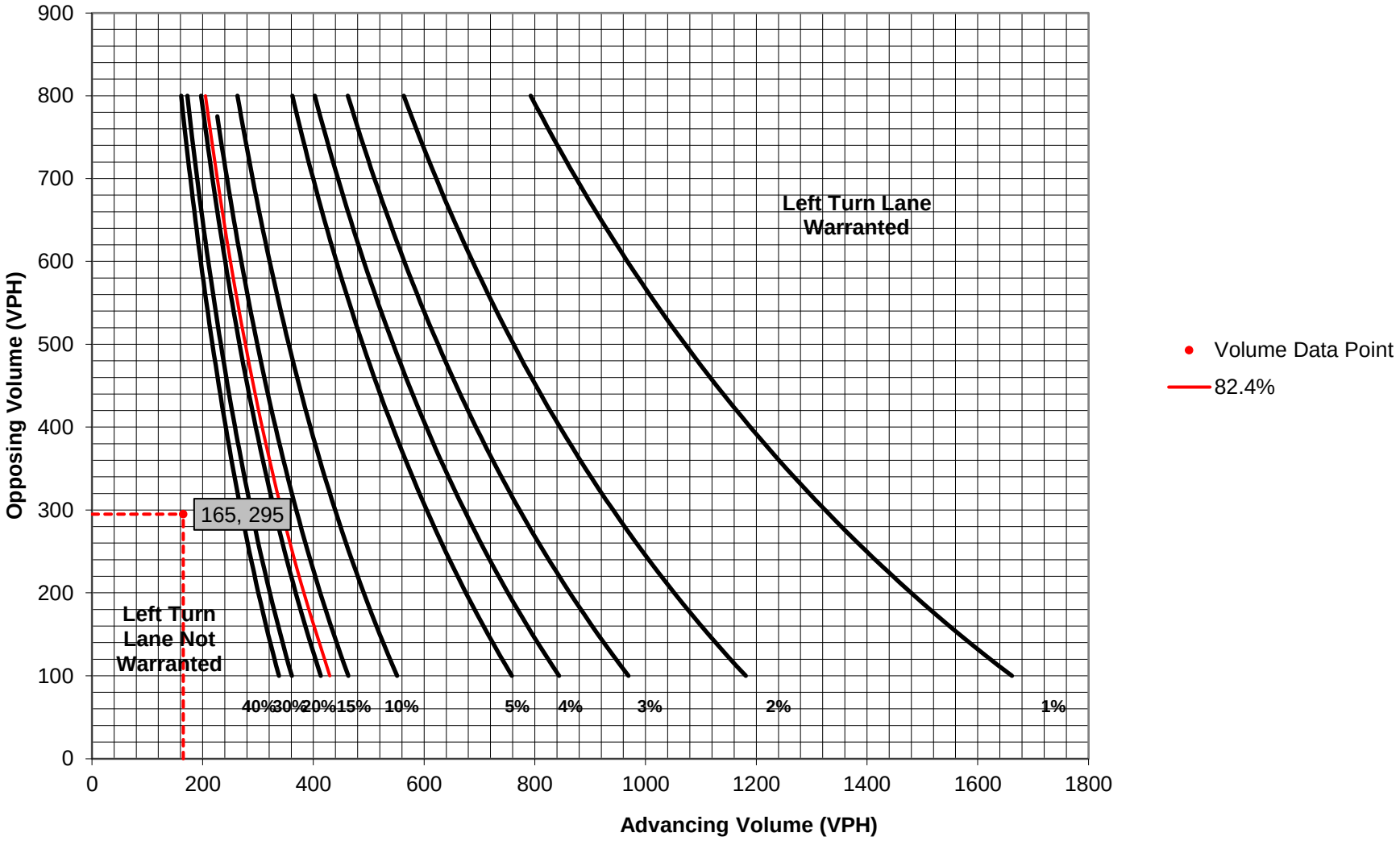
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	1/9/2020
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: West Pleasant Grove Road and Orvis Way
Eastbound West Pleasant Grove Left-Turn Lane

Analysis Period:	2030 Build	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	195	2.0%	197
	Through	-	36	0.0%	36
	Right	Yes			0
Opposing	Left	Yes			0
	Through	-	399	1.0%	401
	Right	Yes	21	2.0%	22

Advancing Volume:	233
Opposing Volume:	423
Left Turn Volume:	197
% Left Turns in Advancing Volume:	84.55%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	197
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

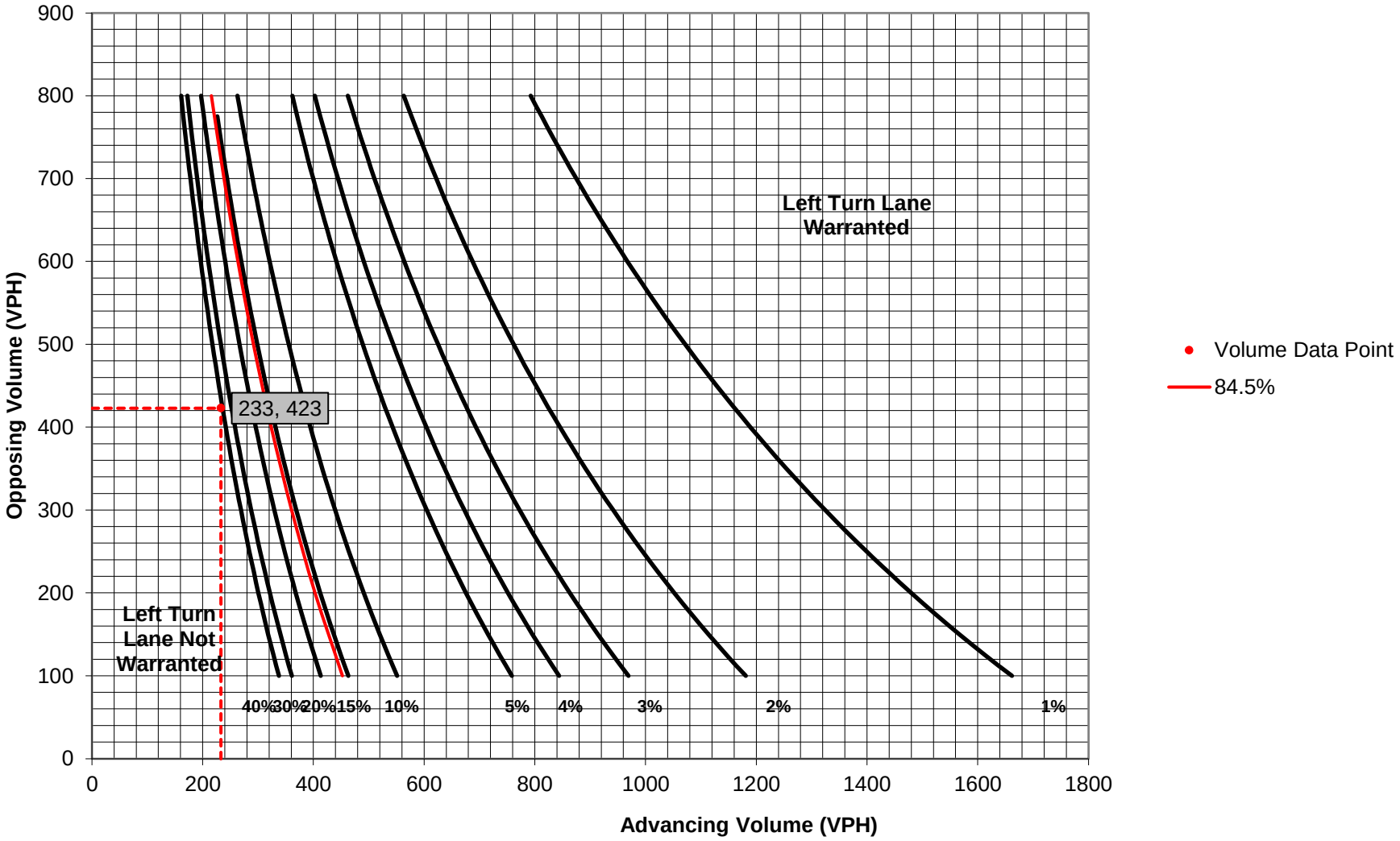
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



New Street and
W. Pleasant Grove Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Northbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	183	2.0%	189
	Right	-	41	0.0%	41

Advancing Volume:	230
Right Turn Volume:	41

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	41
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

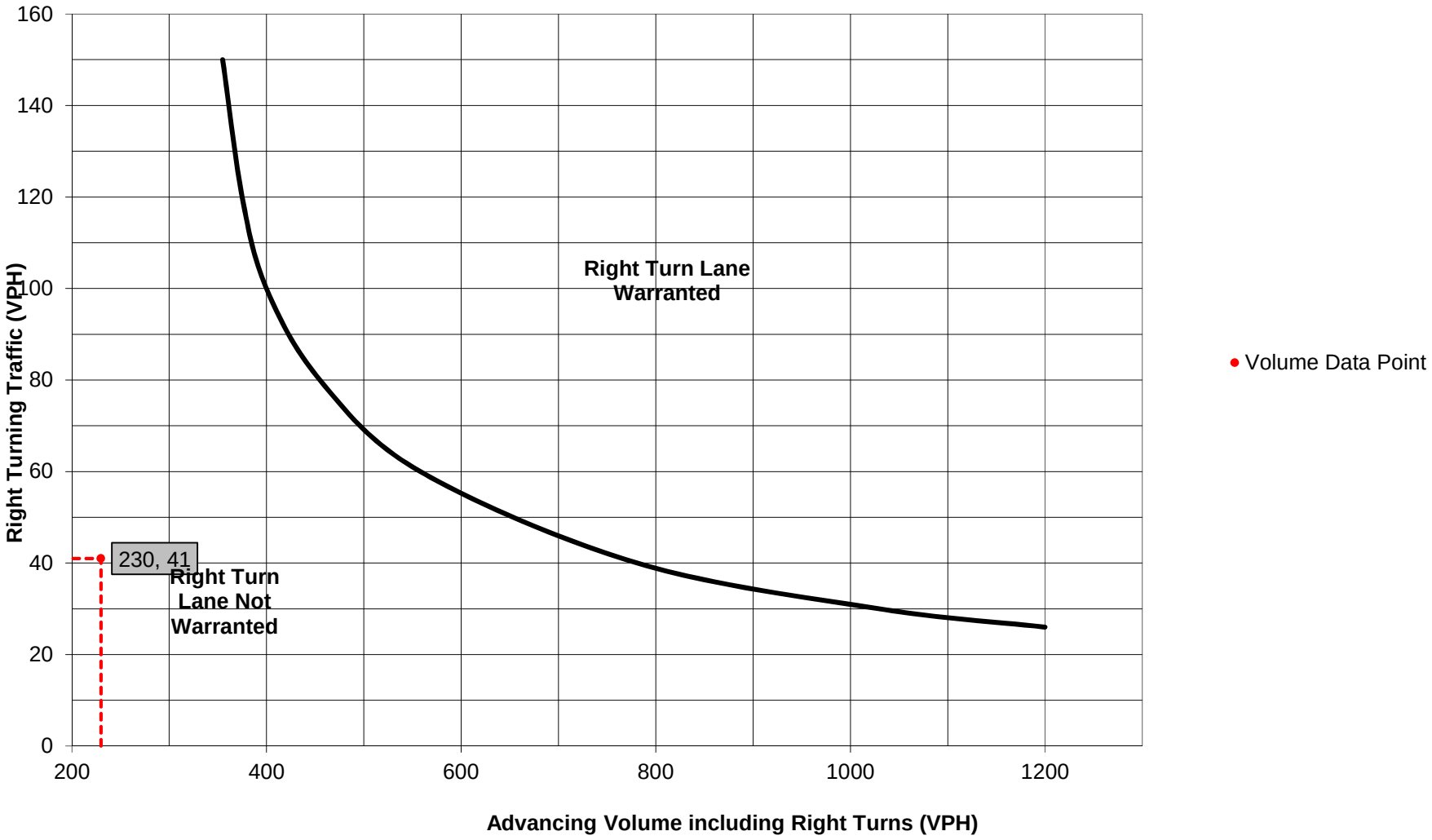
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Northbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	0
	Through	-	151	1.0%	154
	Right	-	56	0.0%	56

Advancing Volume:	210
Right Turn Volume:	56

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	56
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

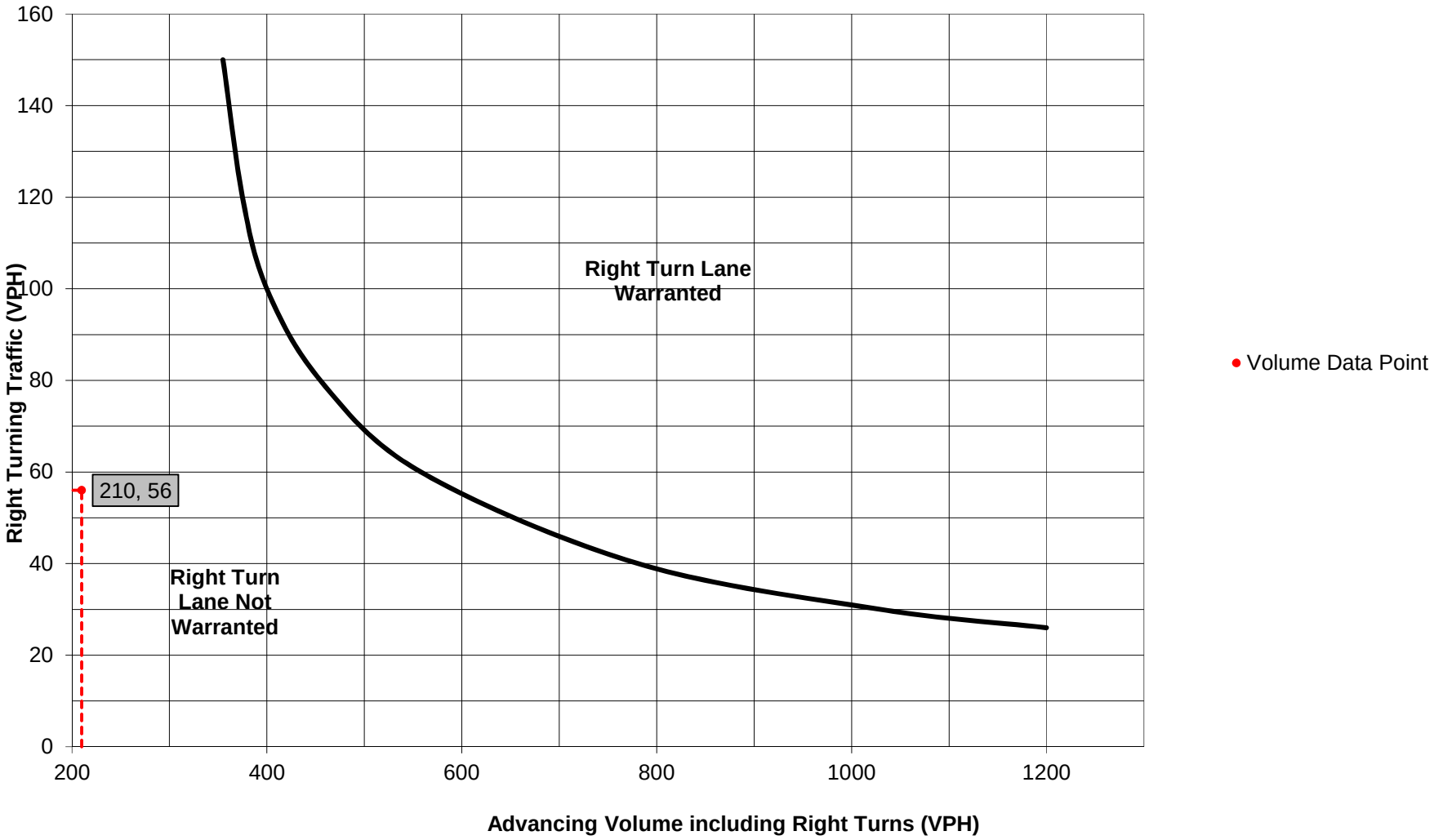
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Southbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	19	8.0%	22
	Through	-	134	1.0%	137
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	183	2.0%	189
	Right	Yes	41	0.0%	41

Advancing Volume:	159
Opposing Volume:	230
Left Turn Volume:	22
% Left Turns in Advancing Volume:	13.84%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	22
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

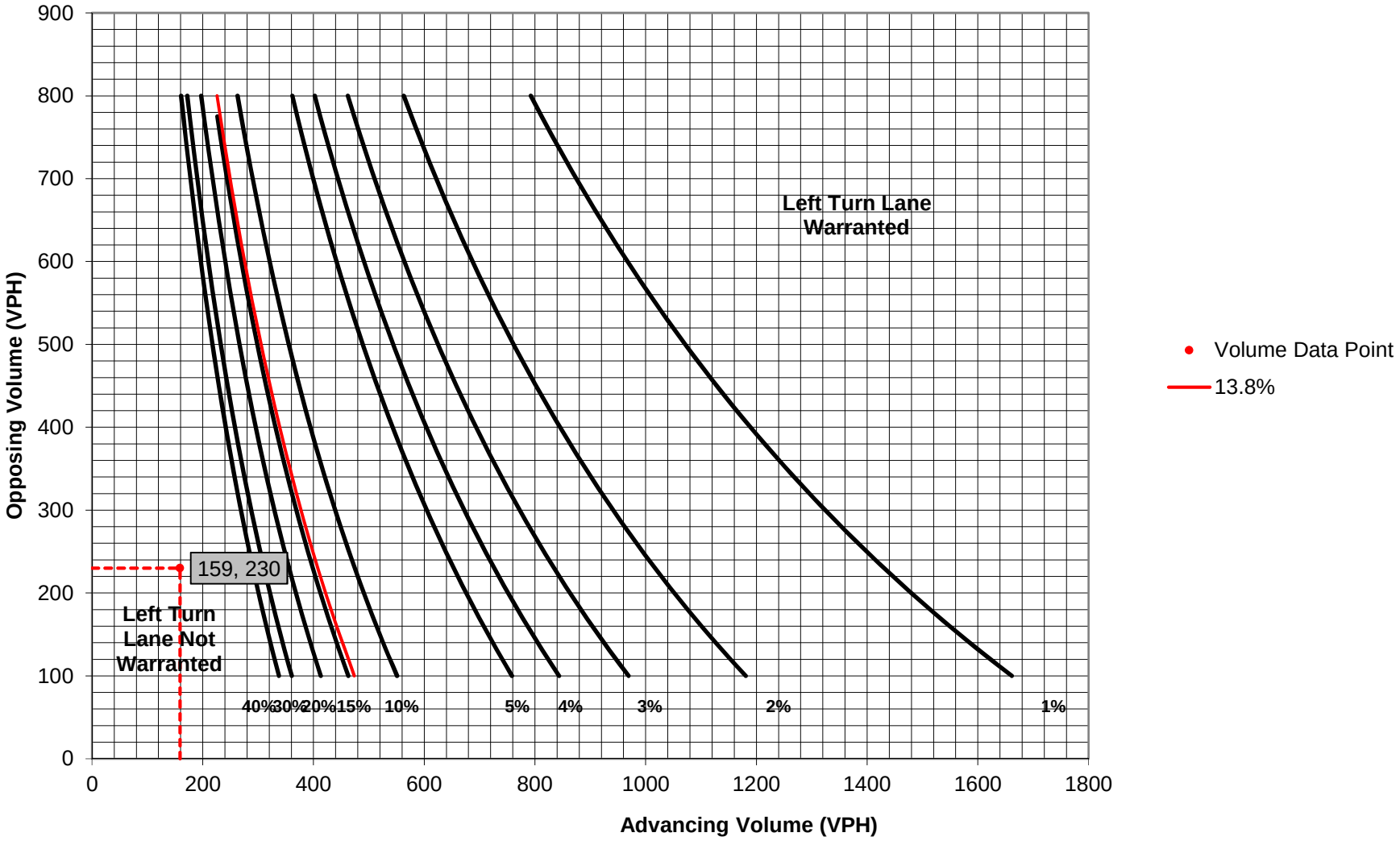
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Southbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	29	0.0%	29
	Through	-	178	2.0%	184
	Right	Yes	0	0.0%	0
Opposing	Left	Yes	0	0.0%	0
	Through	-	151	1.0%	154
	Right	Yes	56	0.0%	56

Advancing Volume:	213
Opposing Volume:	210
Left Turn Volume:	29
% Left Turns in Advancing Volume:	13.62%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	-	0	0.0%	N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	29
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

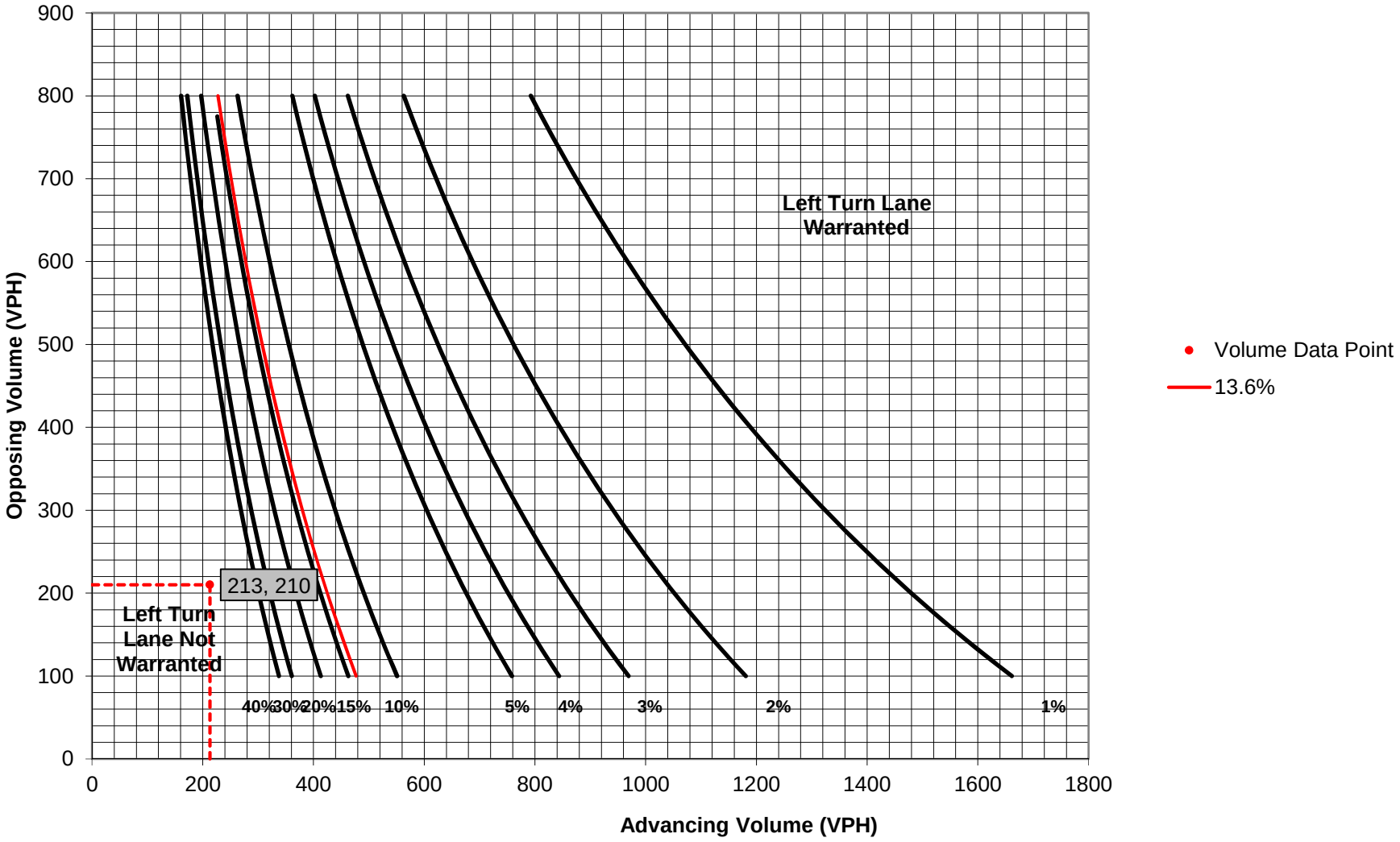
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 ith Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	174	2.0%	180
	Through	-	0	0.0%	0
	Right	-	30	12.0%	36

Advancing Volume:	216
Right Turn Volume:	36

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	36
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

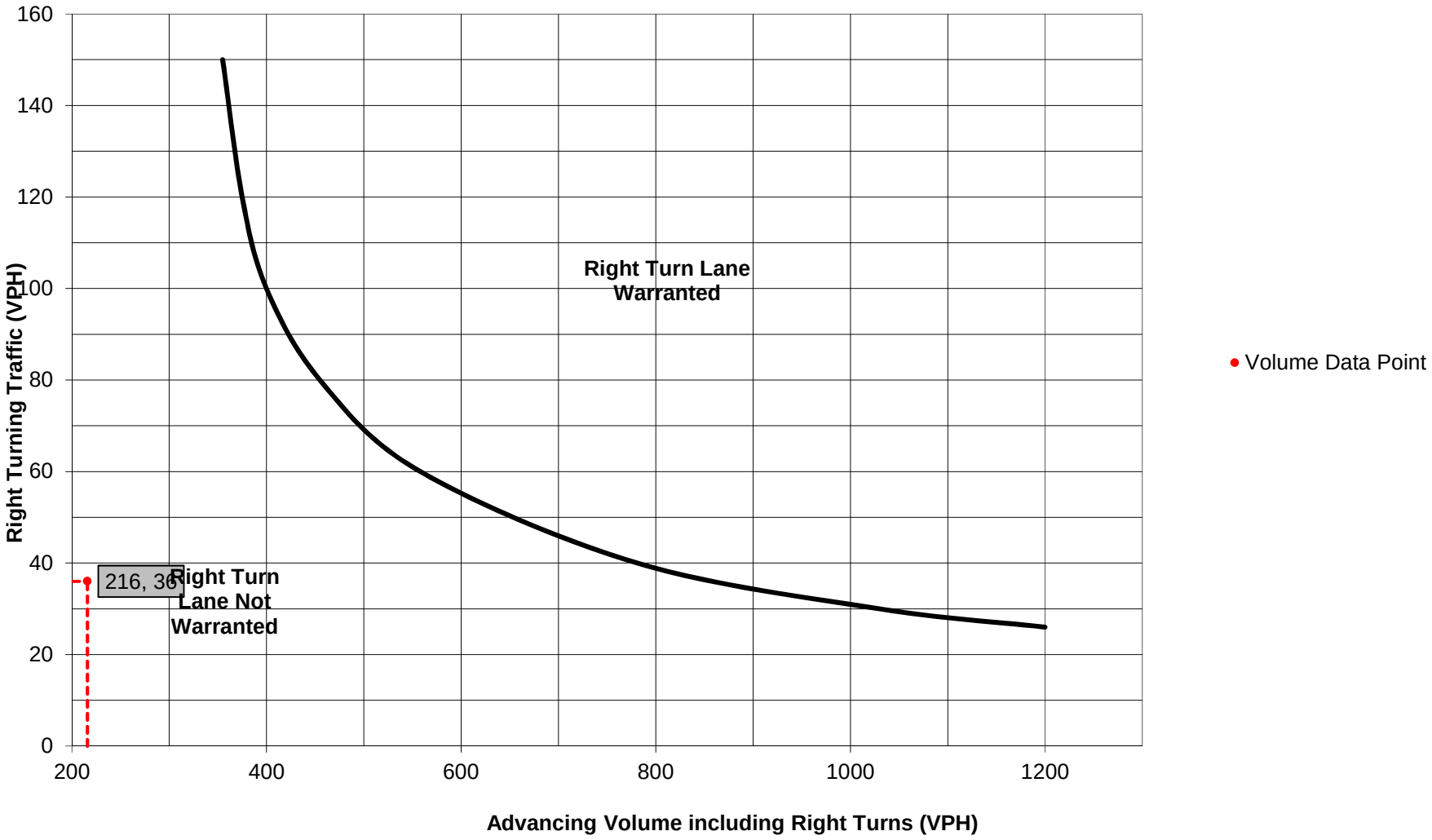
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: New Street and West Pleasant Grove Road
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	167	1.0%	170
	Through	-	0	0.0%	0
	Right	-	56	2.0%	58

Advancing Volume:	228
Right Turn Volume:	58

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 9

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	58
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

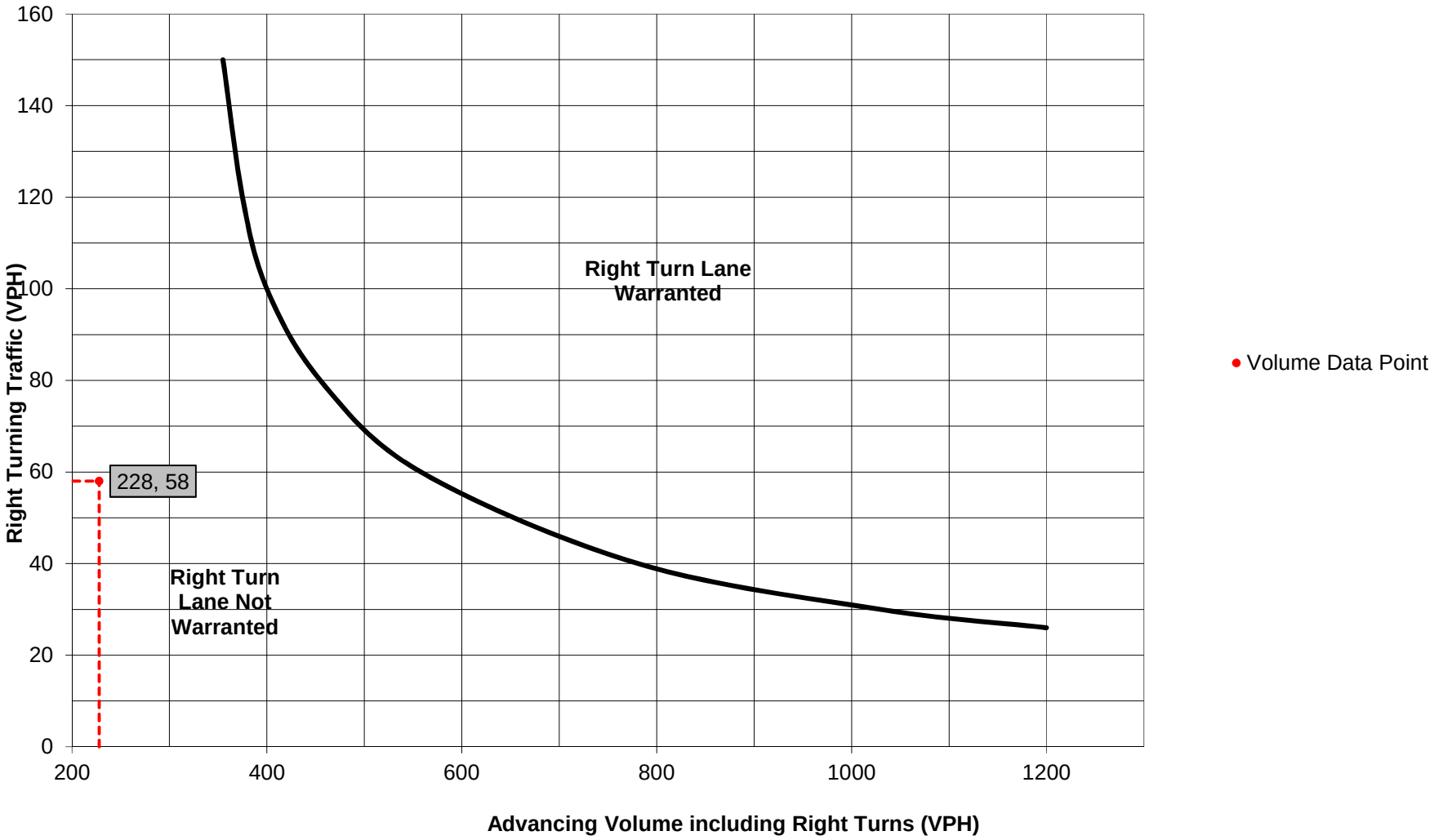
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



U.S. Route 202 (Wilmington Pike) and
W. Pleasant Grove Road

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road
Southbound U.S. Route 202 Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	2
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	54	3.0%	N/A
	Through	-	1778	9.0%	2019
	Right	-	265	3.0%	277

Advancing Volume:	2296
Right Turn Volume:	277

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 12**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	277
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 5.0

PennDOT Publication 46, Exhibit 11-6

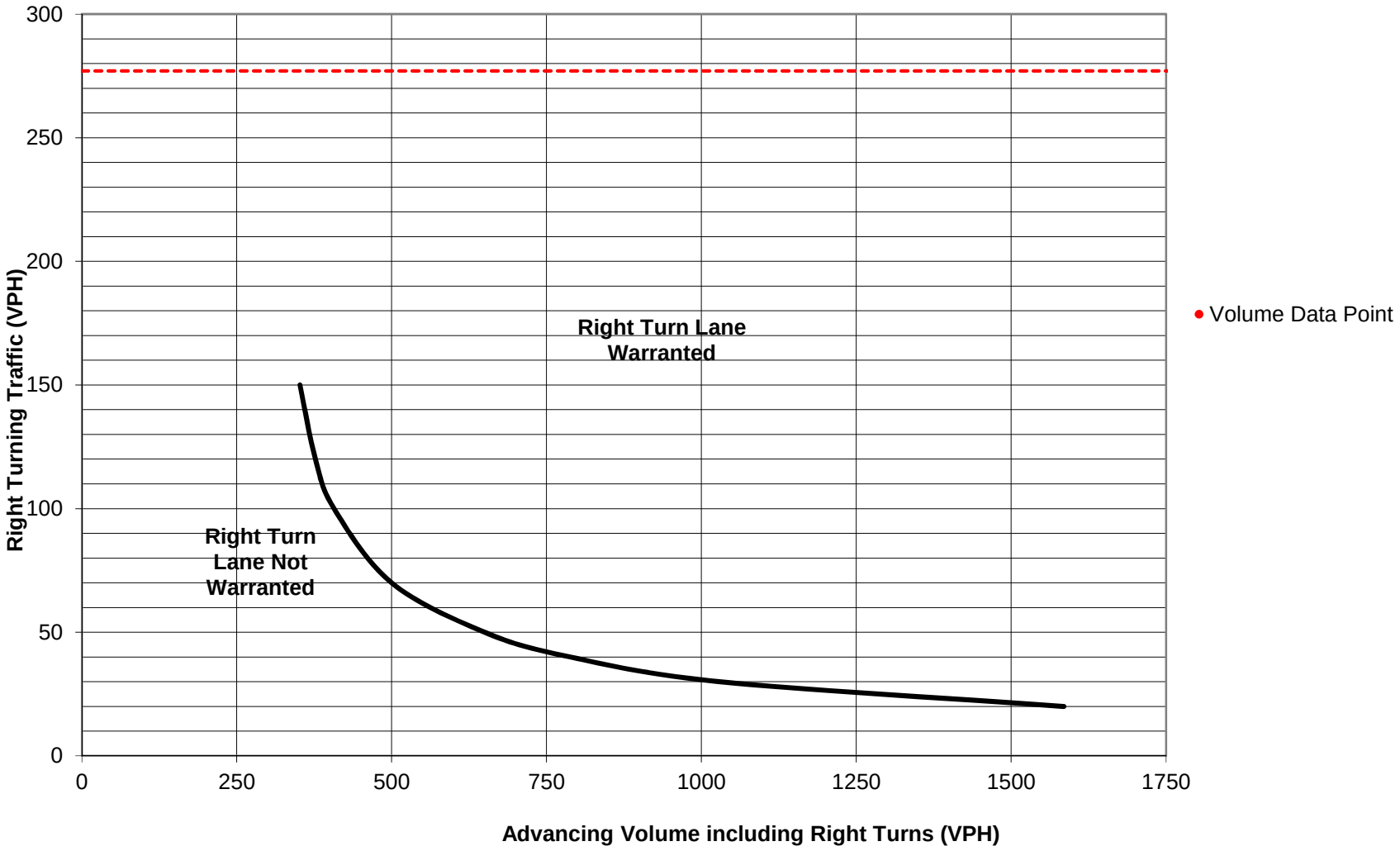
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**275**	**Feet**
Required Right Turn Lane Storage Length:	**275**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	11/5/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road
Southbound U.S. Route 202 Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	2
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Divided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A
Opposing	Left	Yes	0	0.0%	N/A
	Through	-	0	0.0%	N/A
	Right	Yes	0	0.0%	N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	110	0.0%	N/A
	Through	-	1506	3.0%	1574
	Right	-	373	1.0%	379

Advancing Volume:	1953
Right Turn Volume:	379

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 12

Warrant Met?: Yes

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Unsignalized
Design Hour Volume of Turning Lane:	379
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: 6.0

PennDOT Publication 46, Exhibit 11-6

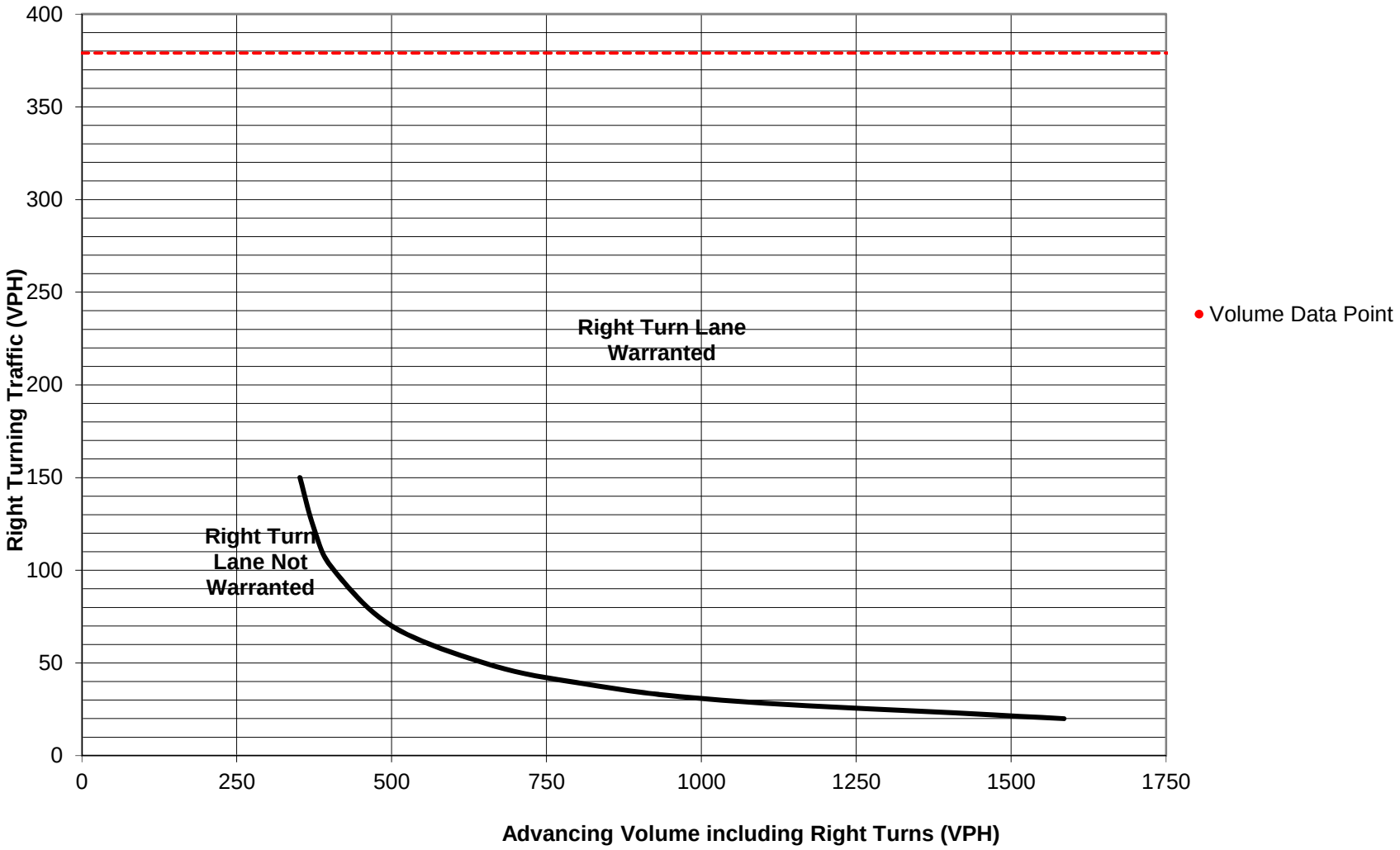
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	325	Feet
Required Right Turn Lane Storage Length:	325	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 12. Warrant for right turn lanes on four-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Street Road (S.R. 0926) and
New Street

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	84	2.0%	87
	Through	-	663	4.0%	703
	Right	Yes	5	0.0%	5
Opposing	Left	Yes	12	0.0%	12
	Through	-	393	7.0%	435
	Right	Yes	38	3.0%	40

Advancing Volume:	795
Opposing Volume:	487
Left Turn Volume:	87
% Left Turns in Advancing Volume:	10.94%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	87
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 2.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**175**	**Feet**
Required Left Turn Lane Storage Length:	**175**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)

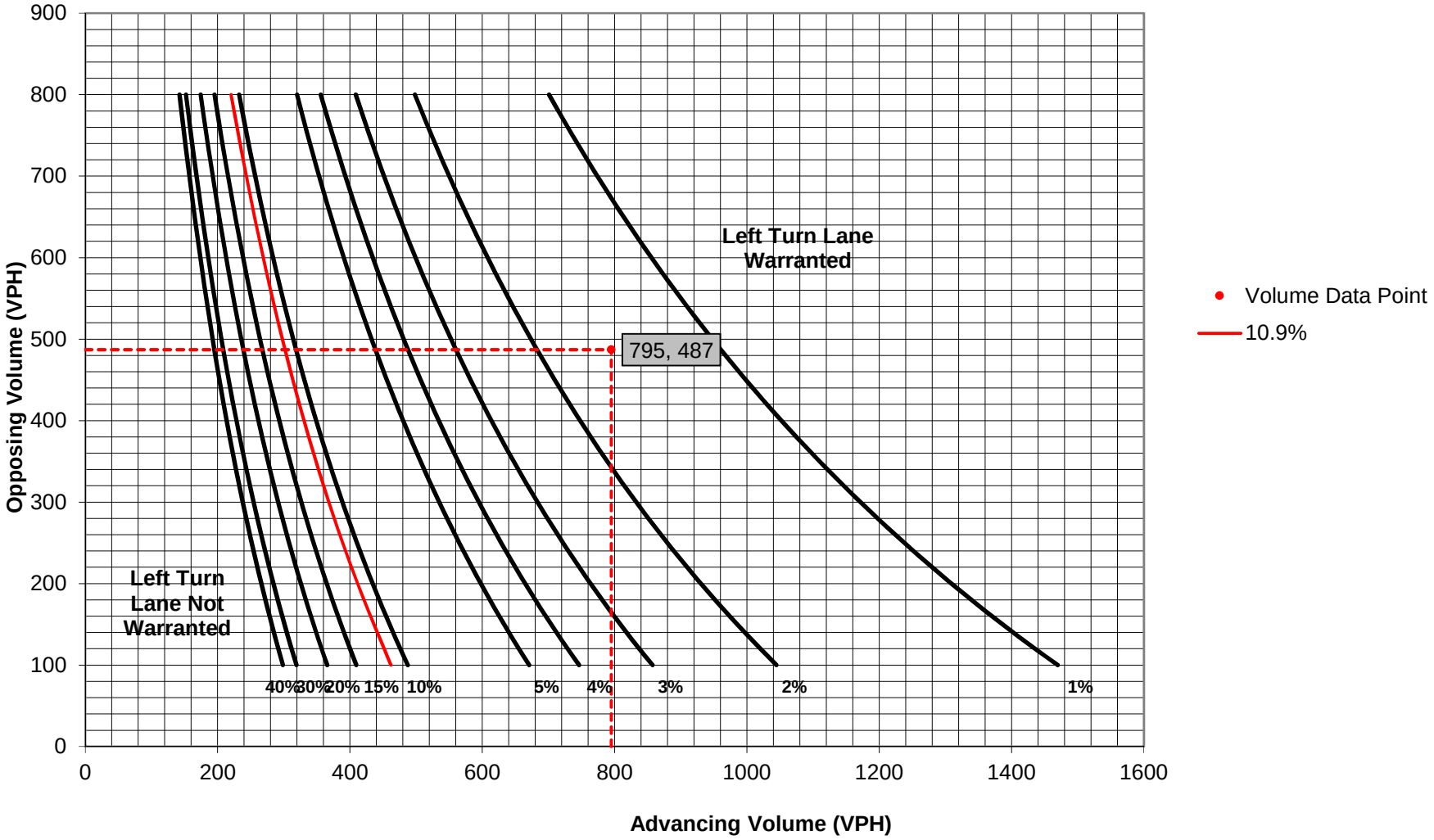
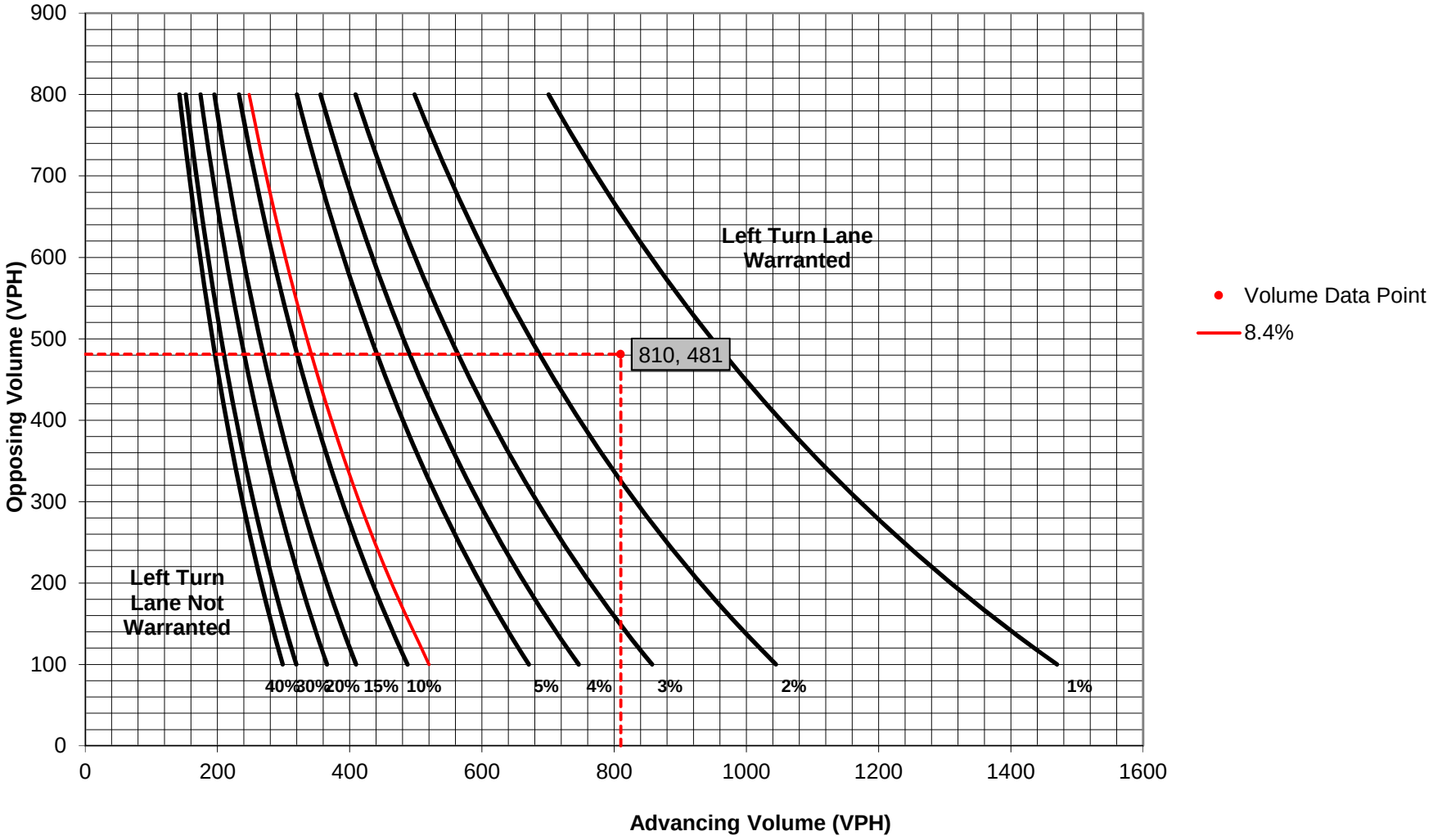


Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	84	2.0%	87
	Through	-	663	4.0%	703
	Right	-	5	0.0%	5

Advancing Volume:	795
Right Turn Volume:	5

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: N/A

Warrant Met?: N/A

Right Turn Lane Warrant Findings

Applicable Warrant Figure: Figure 10

Warrant Met?: No

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	5
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

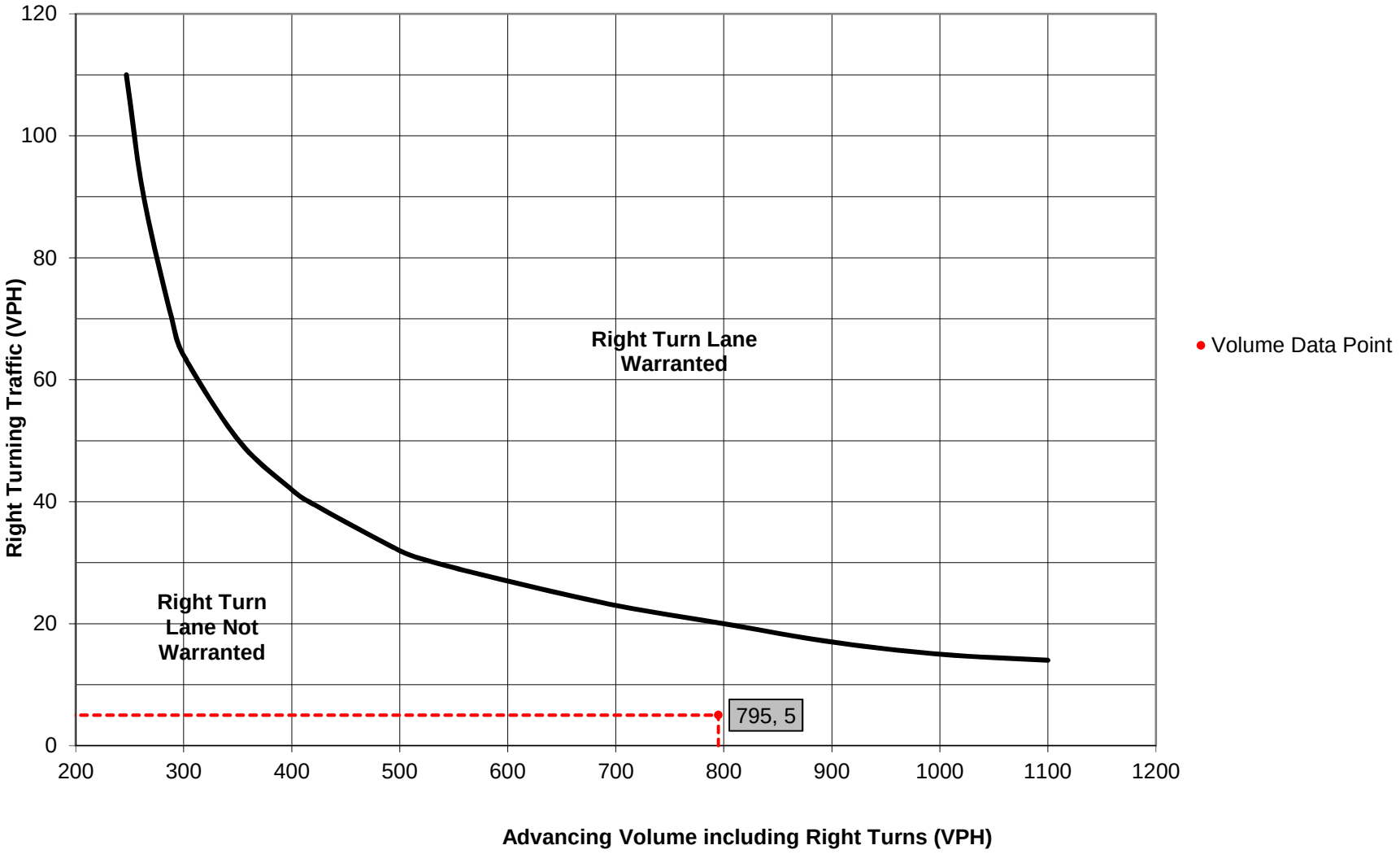
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Right Turn Lane Storage Length:	N/A	Feet

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Eastbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	66	2.0%	68
	Through	-	686	4.0%	728
	Right	-	14	0.0%	14

Advancing Volume:	810
Right Turn Volume:	14

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 10**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	14
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	36

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

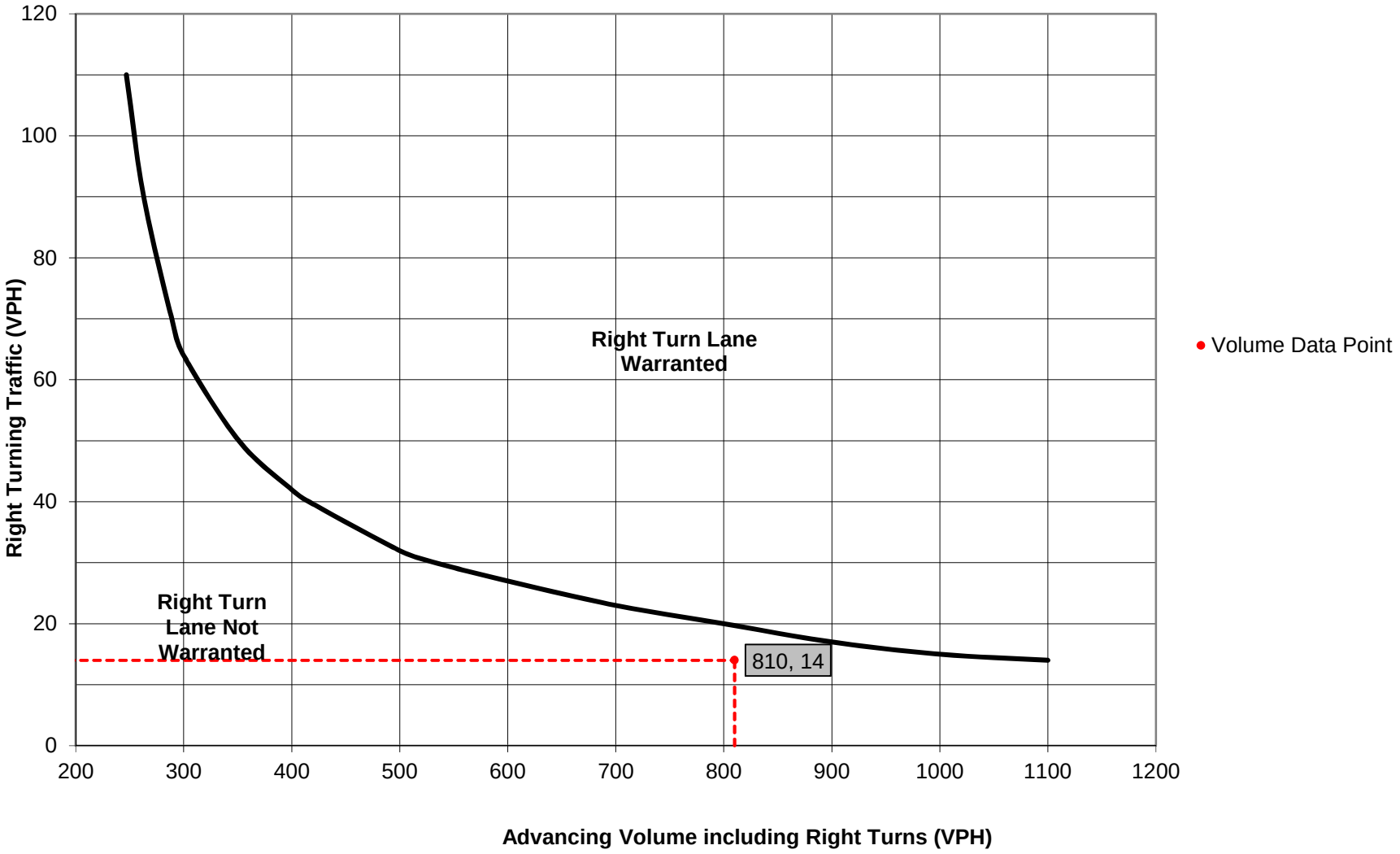
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	11.0%	12
	Through	-	106	1.0%	108
	Right	Yes	44	5.0%	48
Opposing	Left	Yes	8	13.0%	10
	Through	-	133	0.0%	133
	Right	Yes	156	2.0%	161

Advancing Volume:	168
Opposing Volume:	304
Left Turn Volume:	12
% Left Turns in Advancing Volume:	7.14%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

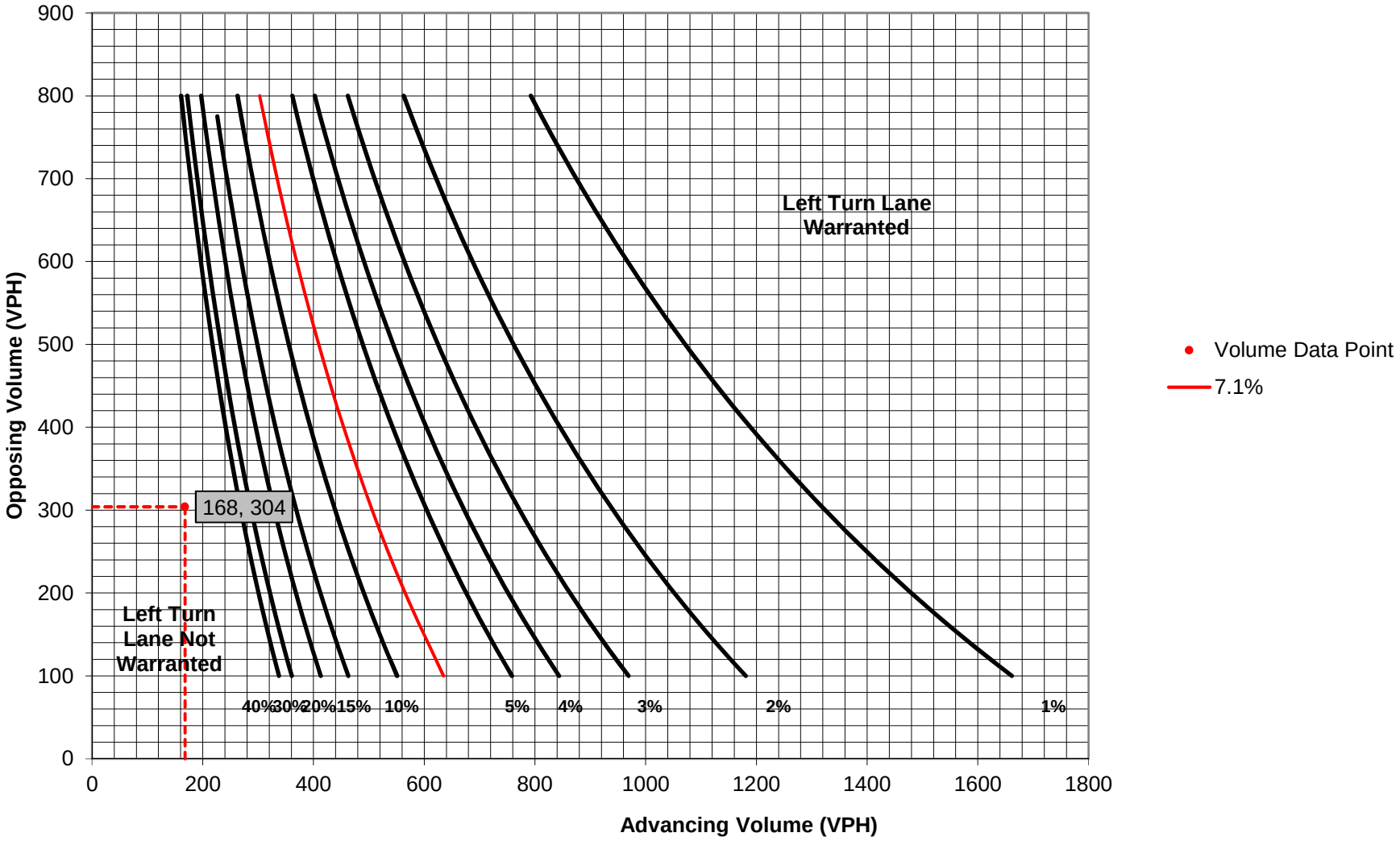
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	11.0%	12
	Through	-	92	1.0%	94
	Right	Yes	43	5.0%	47
Opposing	Left	Yes	52	13.0%	63
	Through	-	178	0.0%	178
	Right	Yes	104	2.0%	108

Advancing Volume:	153
Opposing Volume:	349
Left Turn Volume:	12
% Left Turns in Advancing Volume:	7.84%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	36

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

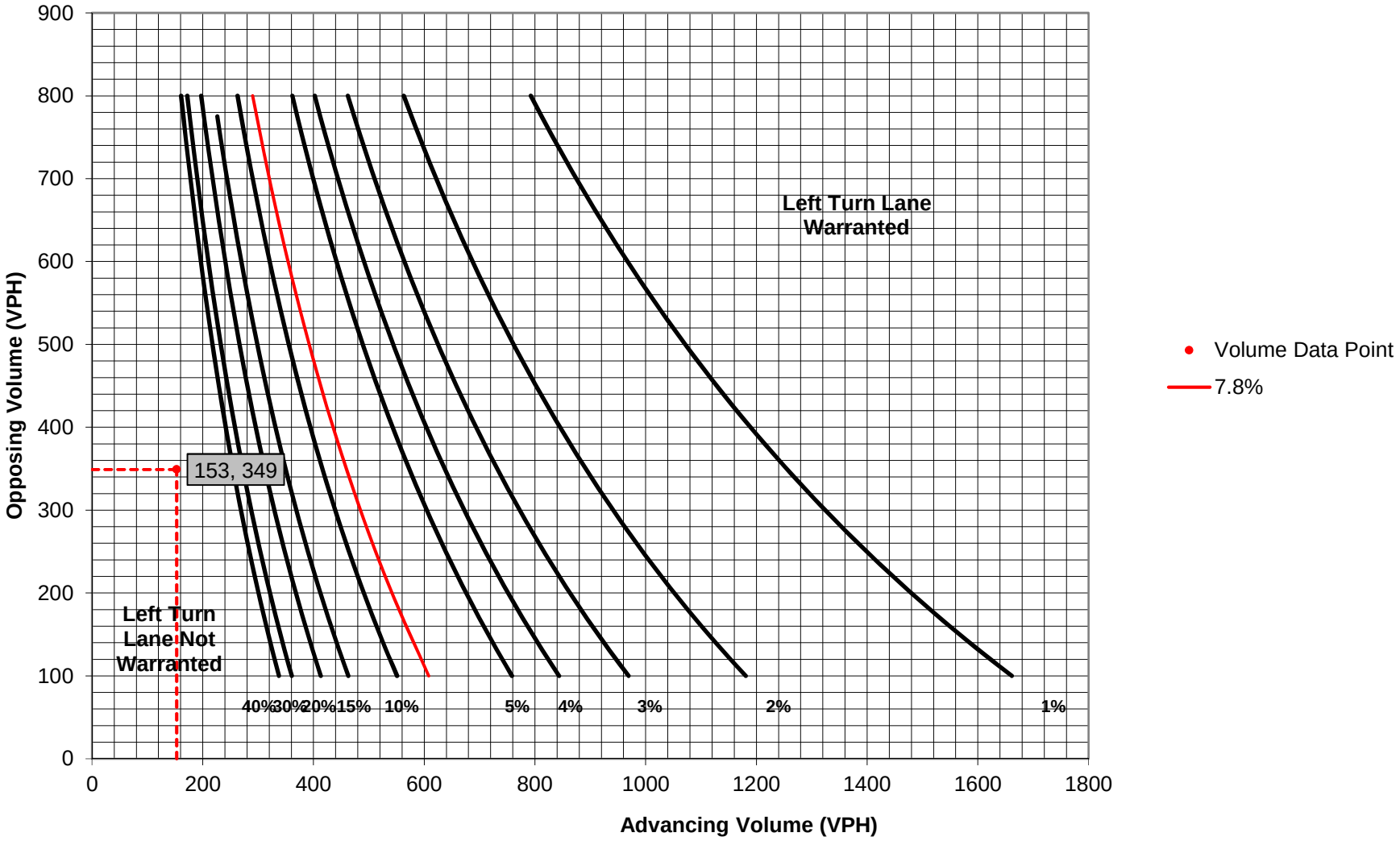
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	11.0%	12
	Through	-	106	1.0%	108
	Right	-	44	5.0%	48

Advancing Volume:	168
Right Turn Volume:	48

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	48
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

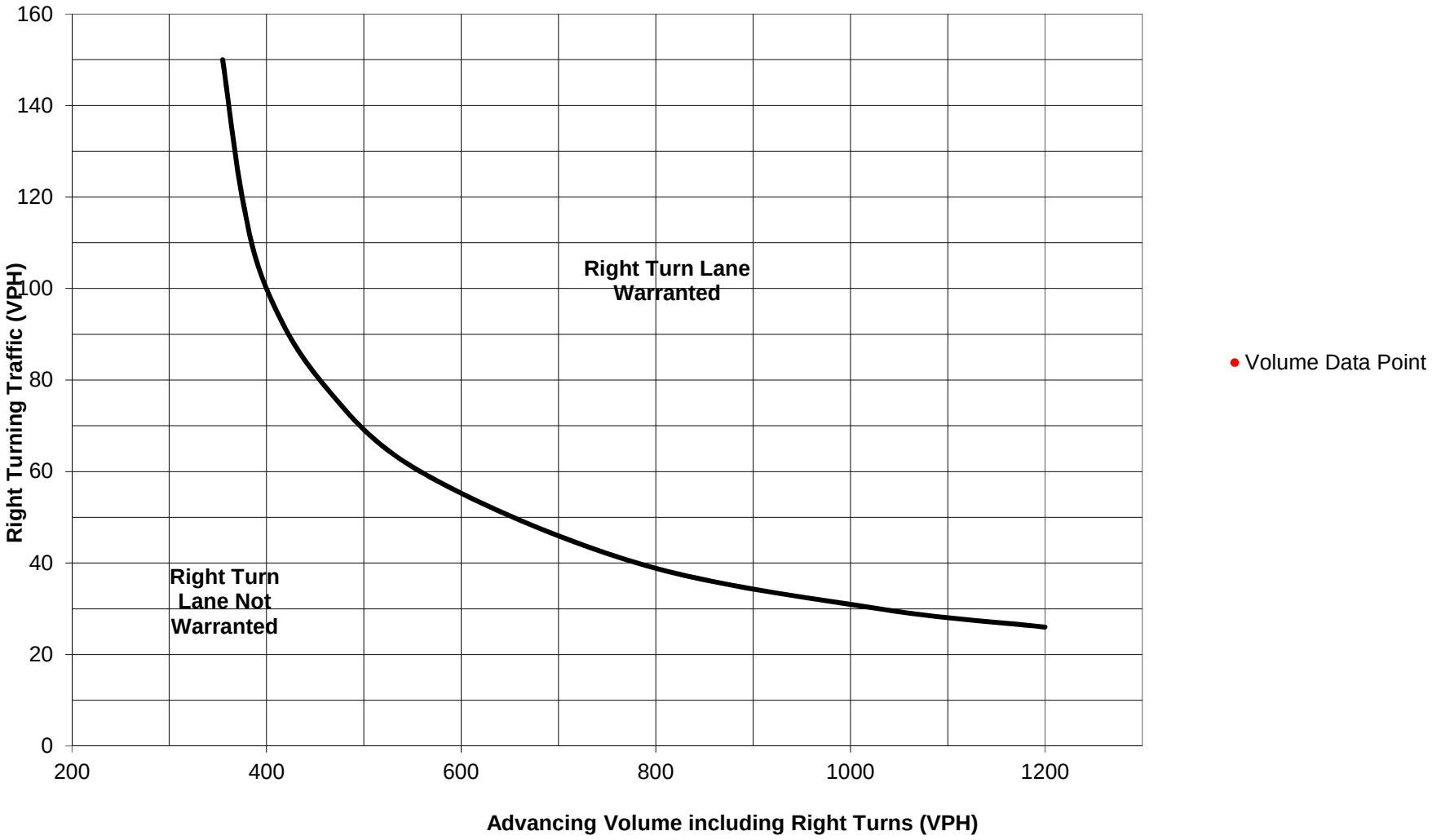
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Northbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	25		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	10	11.0%	12
	Through	-	92	1.0%	94
	Right	-	43	5.0%	47

Advancing Volume:	153
Right Turn Volume:	47

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	47
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	36

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

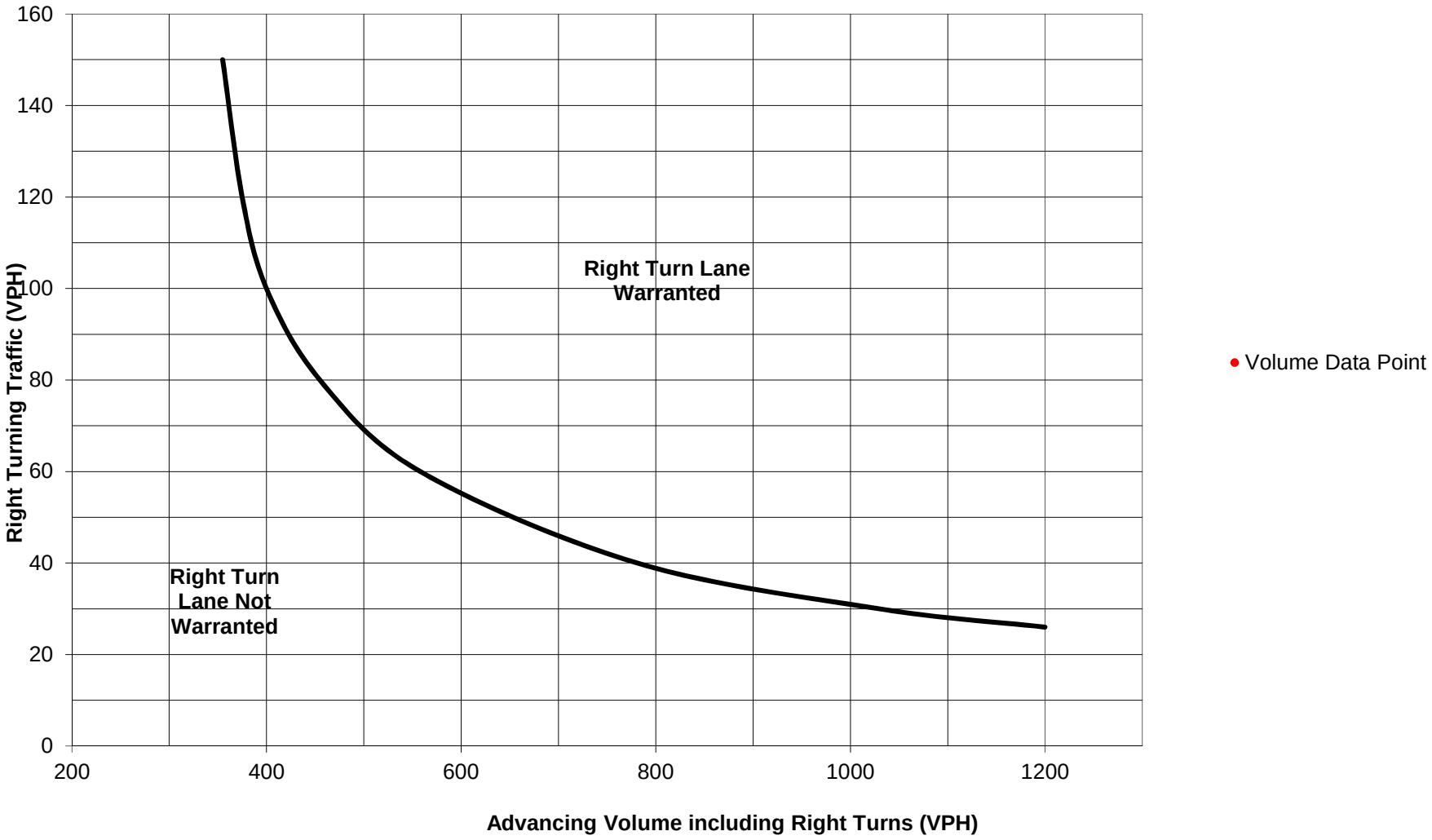
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	13.0%	10
	Through	-	133	0.0%	133
	Right	Yes	156	2.0%	161
Opposing	Left	Yes	10	11.0%	12
	Through	-	106	1.0%	108
	Right	Yes	44	5.0%	48

Advancing Volume:	304
Opposing Volume:	168
Left Turn Volume:	10
% Left Turns in Advancing Volume:	3.29%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	10
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

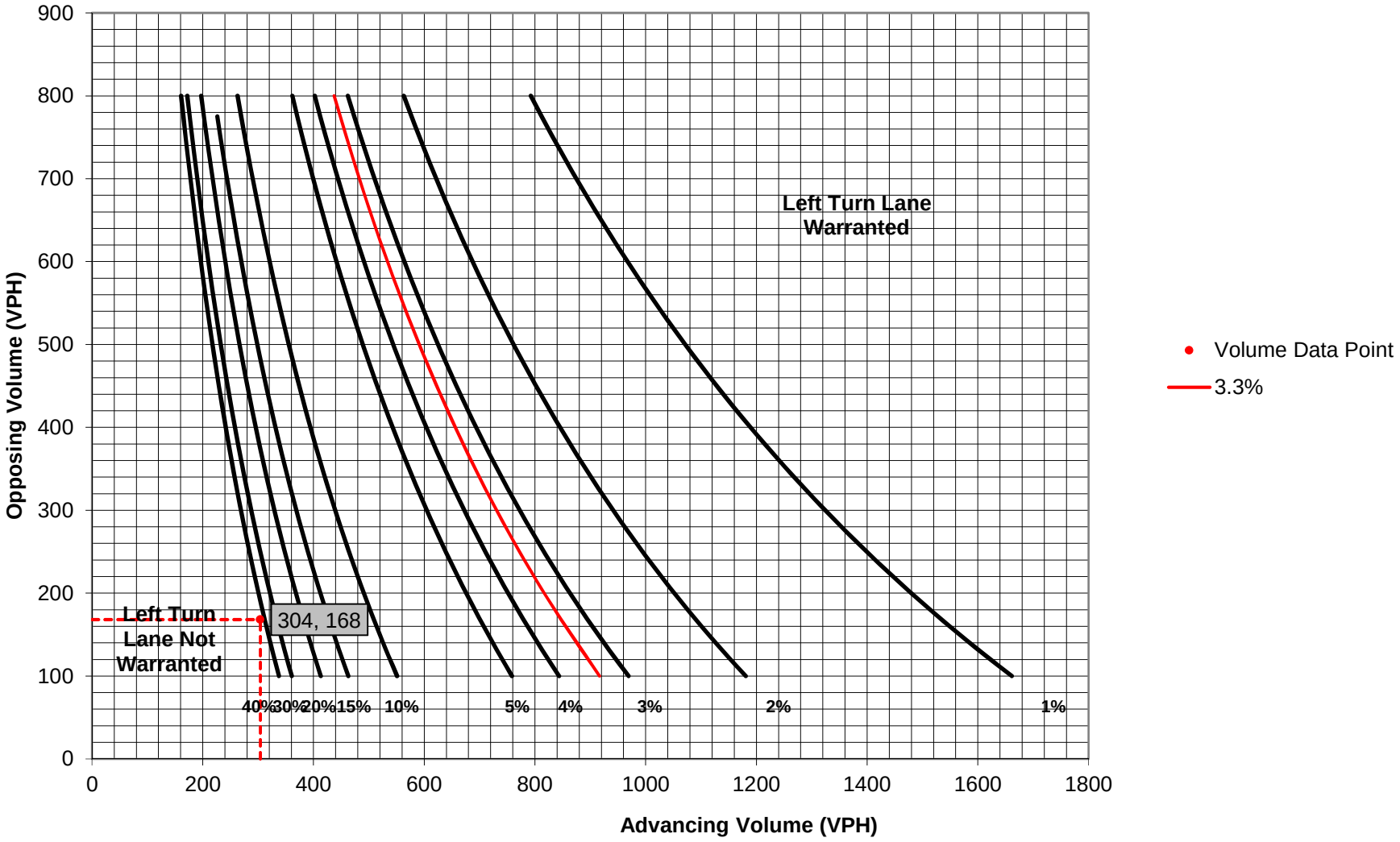
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	52	13.0%	63
	Through	-	178	0.0%	178
	Right	Yes	104	2.0%	108
Opposing	Left	Yes	10	11.0%	12
	Through	-	92	1.0%	94
	Right	Yes	43	5.0%	47

Advancing Volume:	349
Opposing Volume:	153
Left Turn Volume:	63
% Left Turns in Advancing Volume:	18.05%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 1**

Warrant Met?: **No**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	63
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

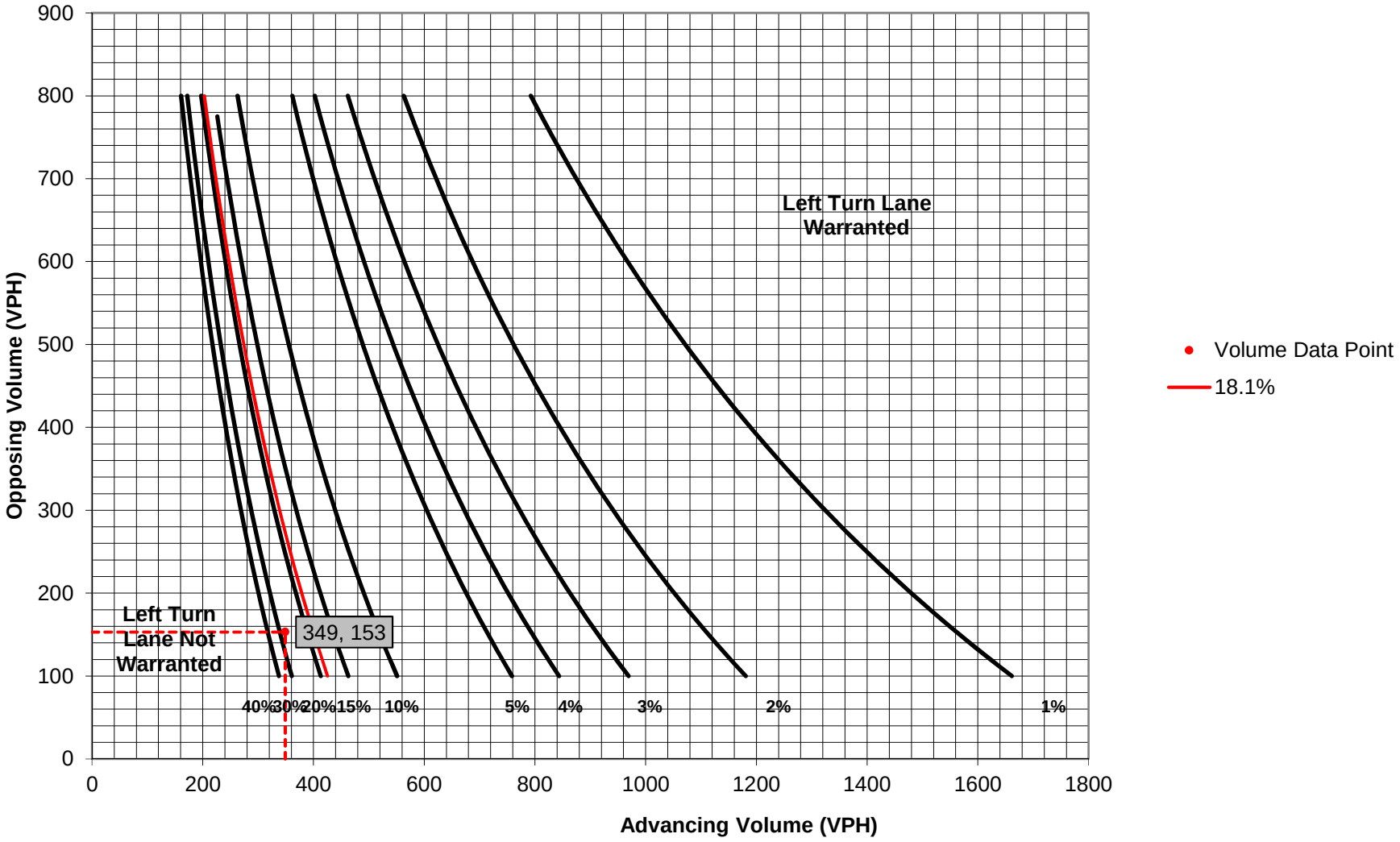
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Left Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 1. Warrant for left turn lanes on two-lane roadways
(speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	8	13.0%	10
	Through	-	133	0.0%	133
	Right	-	156	2.0%	161

Advancing Volume:	304
Right Turn Volume:	161

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	161
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

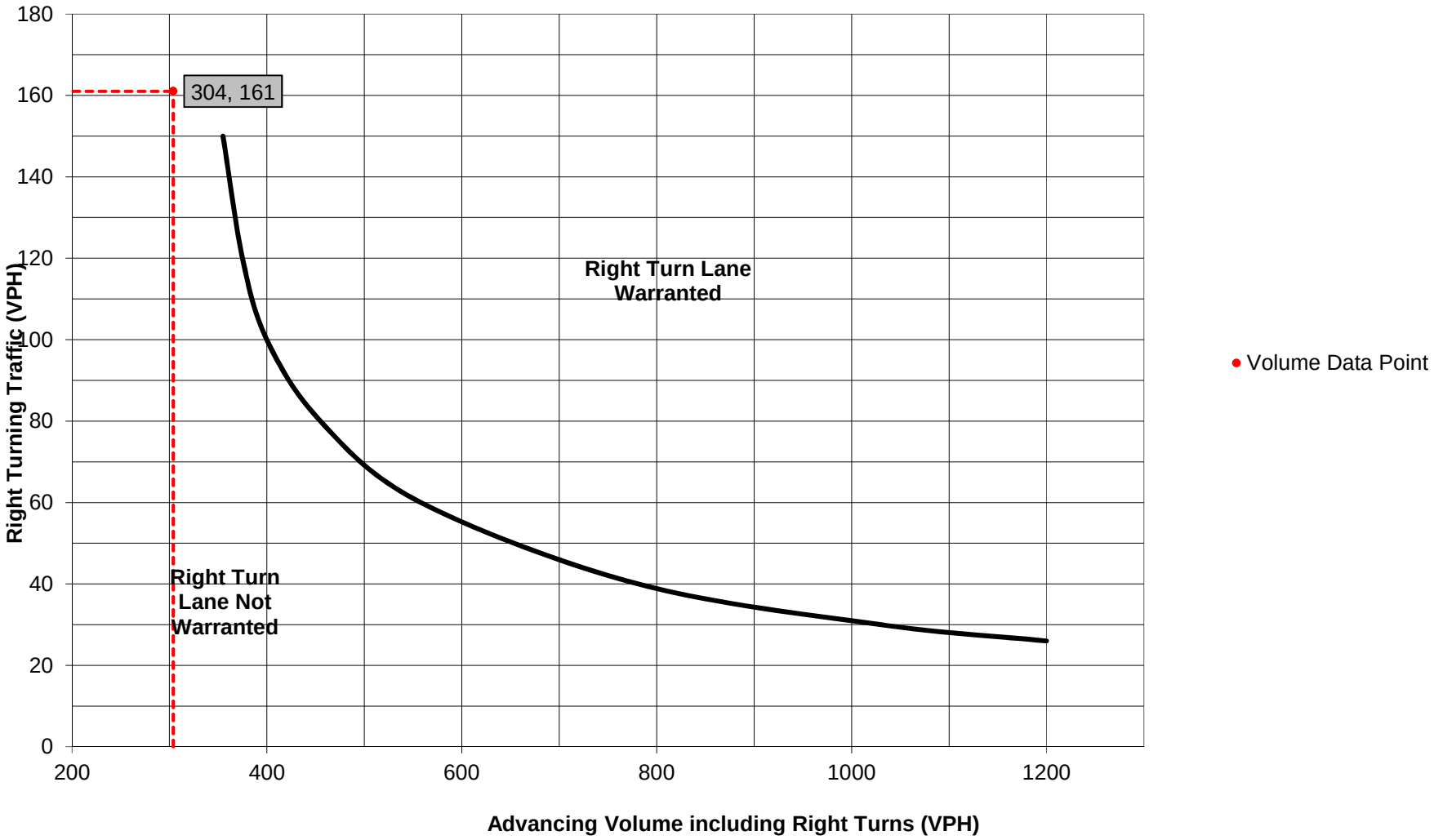
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Southbound New Street Right-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	35		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	52	13.0%	63
	Through	-	178	0.0%	178
	Right	-	104	2.0%	108

Advancing Volume:	349
Right Turn Volume:	108

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 9**

Warrant Met?: **No**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	108
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

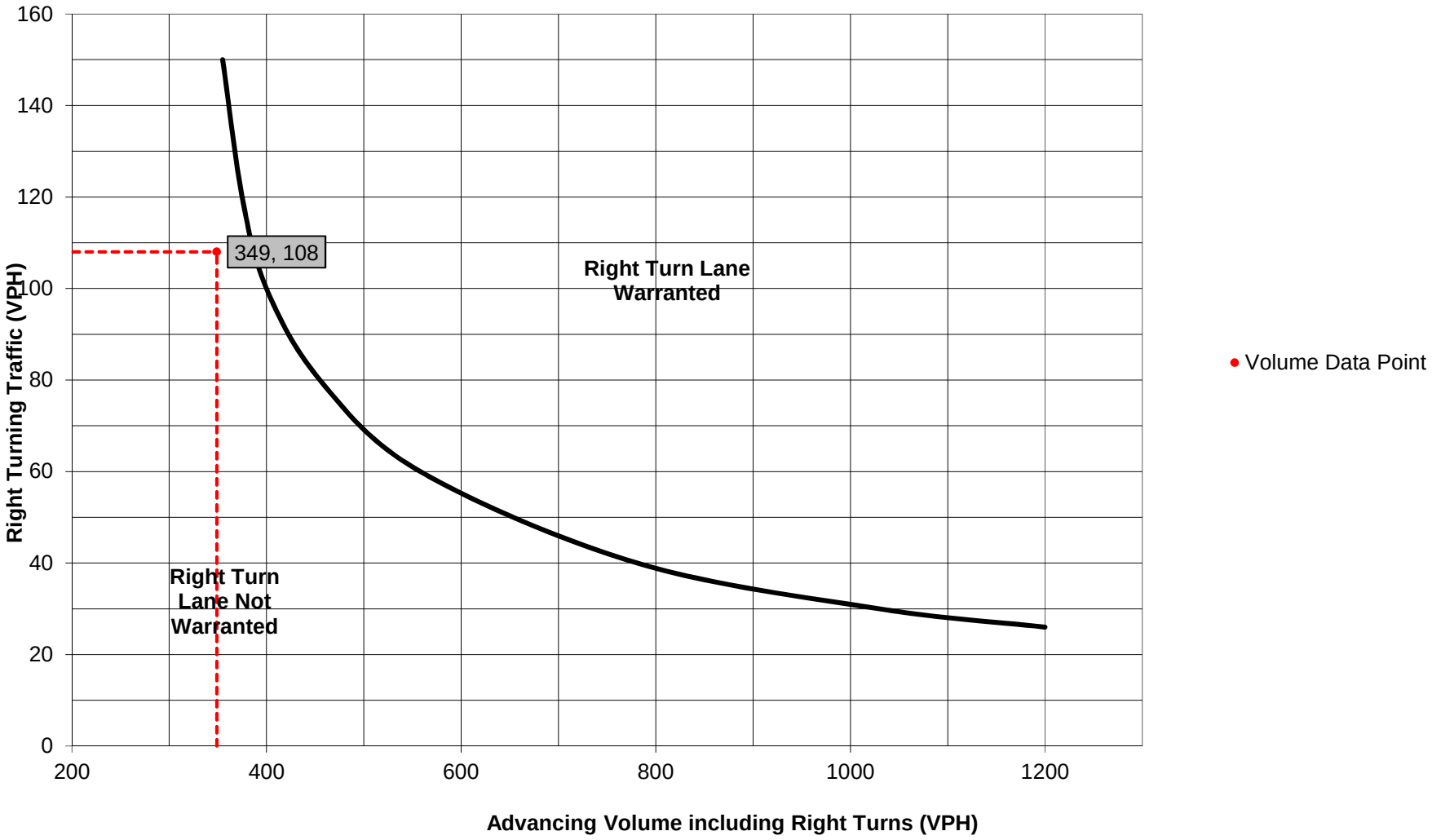
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**N/A**	**Feet**
Condition C:	**N/A**	**Feet**
Required Right Turn Lane Storage Length:	**N/A**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 9. Warrant for right turn lanes on two-lane roadways
(40 mph or lower speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	393	7.0%	435
	Right	Yes	38	3.0%	40
Opposing	Left	Yes	84	2.0%	87
	Through	-	663	4.0%	703
	Right	Yes	5	0.0%	5

Advancing Volume:	487
Opposing Volume:	795
Left Turn Volume:	12
% Left Turns in Advancing Volume:	2.46%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	12
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

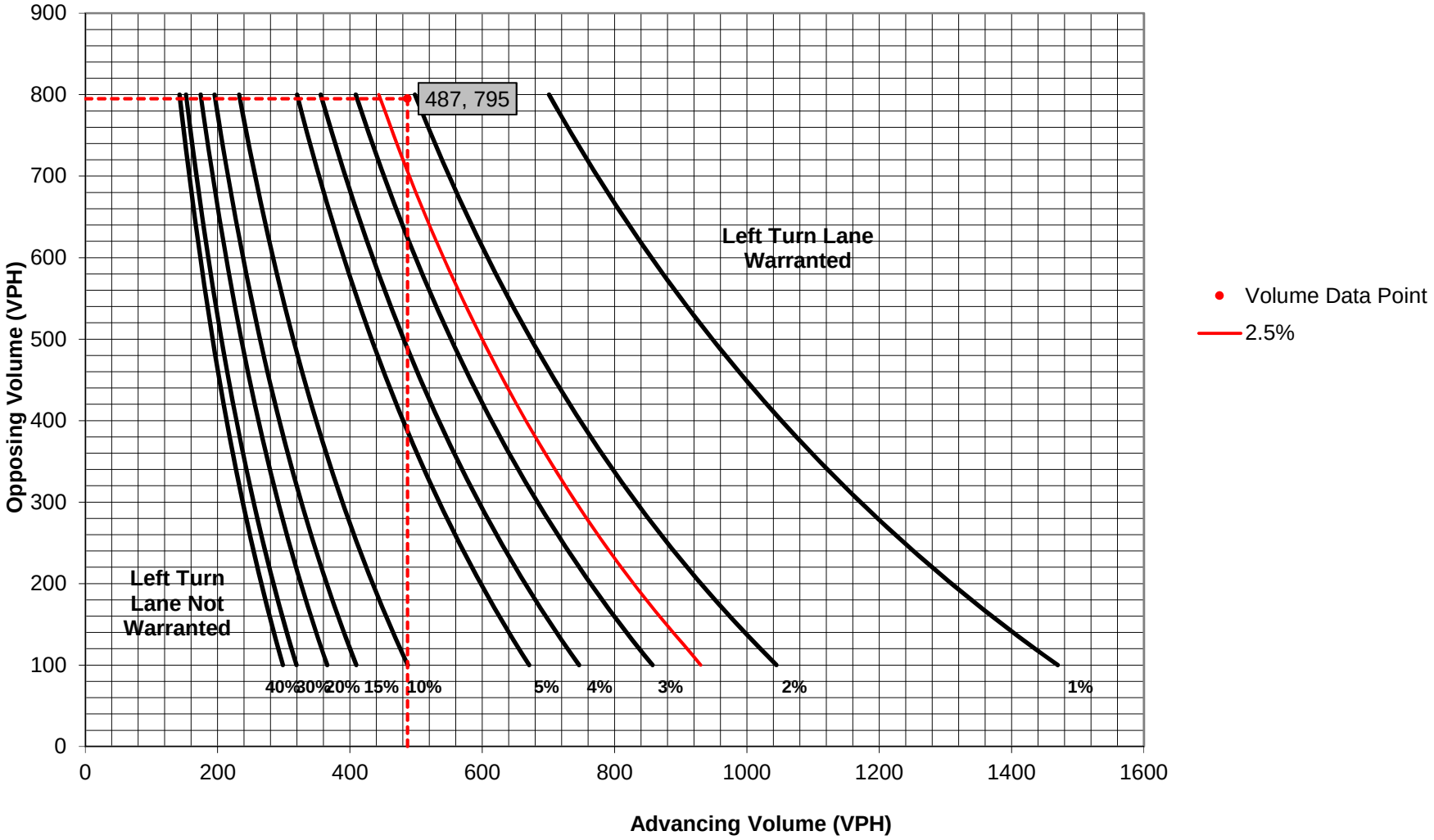
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Left-Turn Lane

Analysis Period:	2030 with Dev	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Left Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	383	7.0%	424
	Right	Yes	32	3.0%	34
Opposing	Left	Yes	66	2.0%	68
	Through	-	686	4.0%	728
	Right	Yes	14	0.0%	14

Advancing Volume:	481
Opposing Volume:	810
Left Turn Volume:	23
% Left Turns in Advancing Volume:	4.78%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No			N/A
	Through	-			N/A
	Right	-			N/A

Advancing Volume:	N/A
Right Turn Volume:	N/A

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 3**

Warrant Met?: **Yes**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	23
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

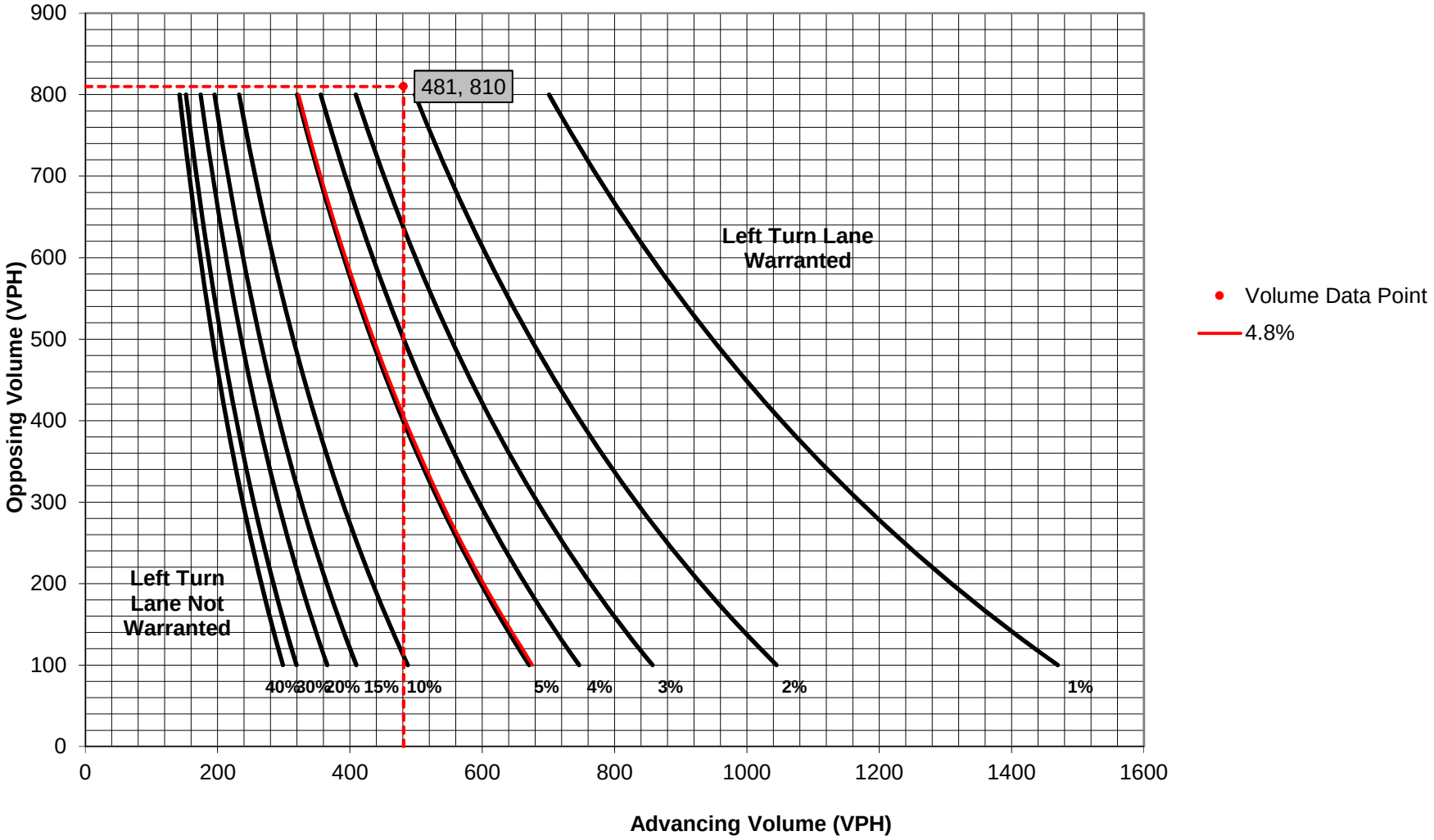
Left Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Left Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:
N/A

Additional Comments / Justifications:

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)

(L = % Left Turns in Advancing Volume)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2030 wth Dev	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	12	0.0%	12
	Through	-	393	7.0%	435
	Right	-	38	3.0%	40

Advancing Volume:	487
Right Turn Volume:	40

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 10**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	40
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	40

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

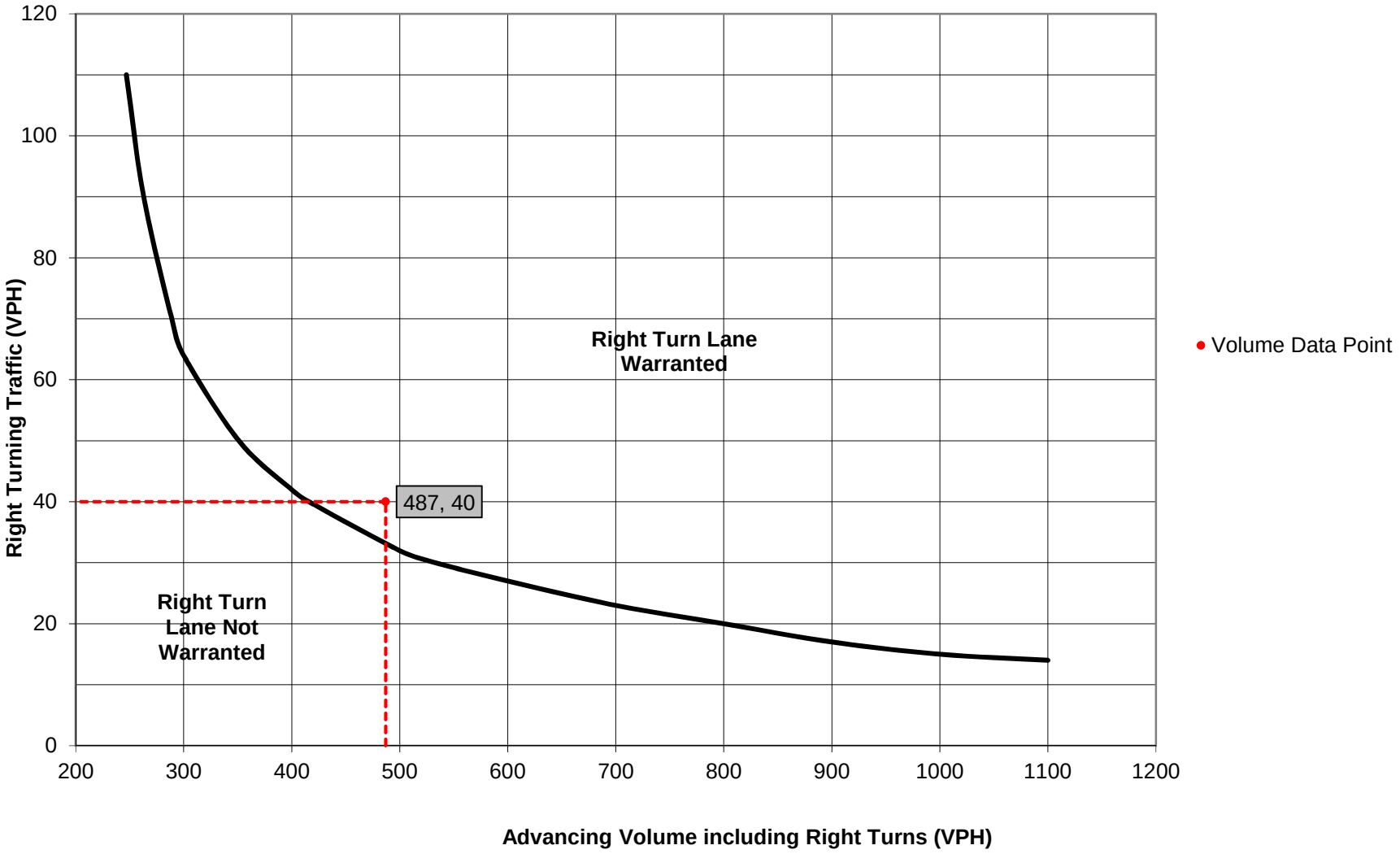
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Right Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)



Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	Westtown Township	**Analysis Date:**	10/23/2019
County:	Chester County	**Conducted By:**	BGG
PennDOT Engineering District:	6	**Checked By:**	JDG
		Agency/Company Name:	McMahon Associates, Inc.

Intersection & Approach Description: Street Road (S.R. 0926) and New Street
Westbound Street Road (S.R. 0926) Right-Turn Lane

Analysis Period:	2019 Existing	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Signalized		
Posted Speed Limit (MPH):	45		**Type of Analysis**
Type of Terrain:	Rolling	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A
Opposing	Left	Yes			N/A
	Through	-			N/A
	Right	Yes			N/A

Advancing Volume:	N/A
Opposing Volume:	N/A
Left Turn Volume:	N/A
% Left Turns in Advancing Volume:	N/A

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	23	0.0%	23
	Through	-	383	7.0%	424
	Right	-	32	3.0%	34

Advancing Volume:	481
Right Turn Volume:	34

TURN LANE WARRANT FINDINGS

Left Turn Lane Warrant Findings

Applicable Warrant Figure: **N/A**

Warrant Met?: **N/A**

Right Turn Lane Warrant Findings

Applicable Warrant Figure: **Figure 10**

Warrant Met?: **Yes**

TURN LANE LENGTH CALCULATIONS

Intersection Control:	Signalized
Design Hour Volume of Turning Lane:	34
Cycles Per Hour (Assumed):	Known
Cycles Per Hour (If Known):	34

Average # of Vehicles/Cycle: 1.0

PennDOT Publication 46, Exhibit 11-6

Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

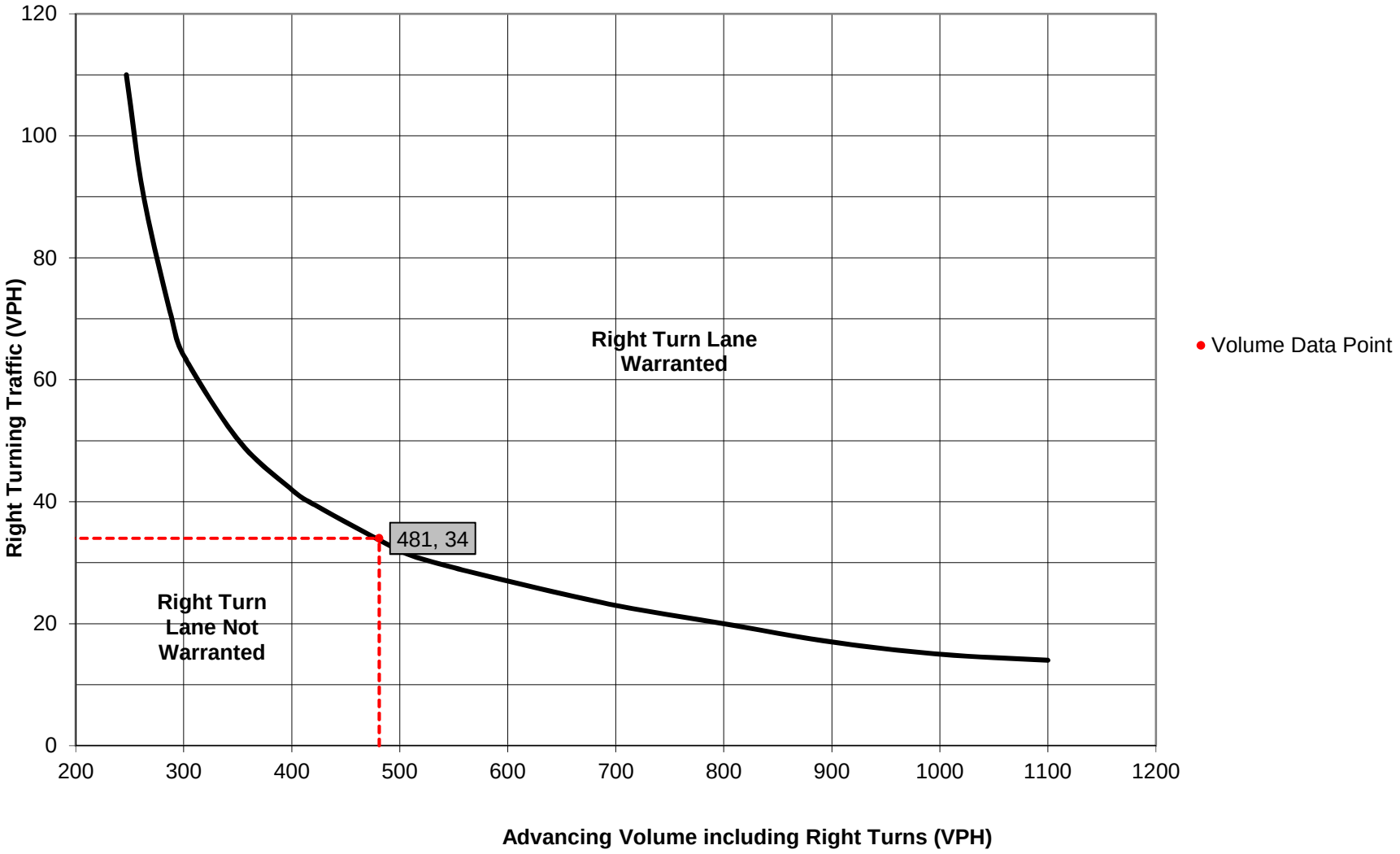
Right Turn Lane Storage Length, Condition A:	**N/A**	**Feet**
Condition B:	**125**	**Feet**
Condition C:	**150**	**Feet**
Required Right Turn Lane Storage Length:	**150**	**Feet**

Additional Findings:

N/A

Additional Comments / Justifications:

Figure 10. Warrant for right turn lanes on two-lane roadways
(45 mph or greater speeds, unsignalized and signalized intersections)

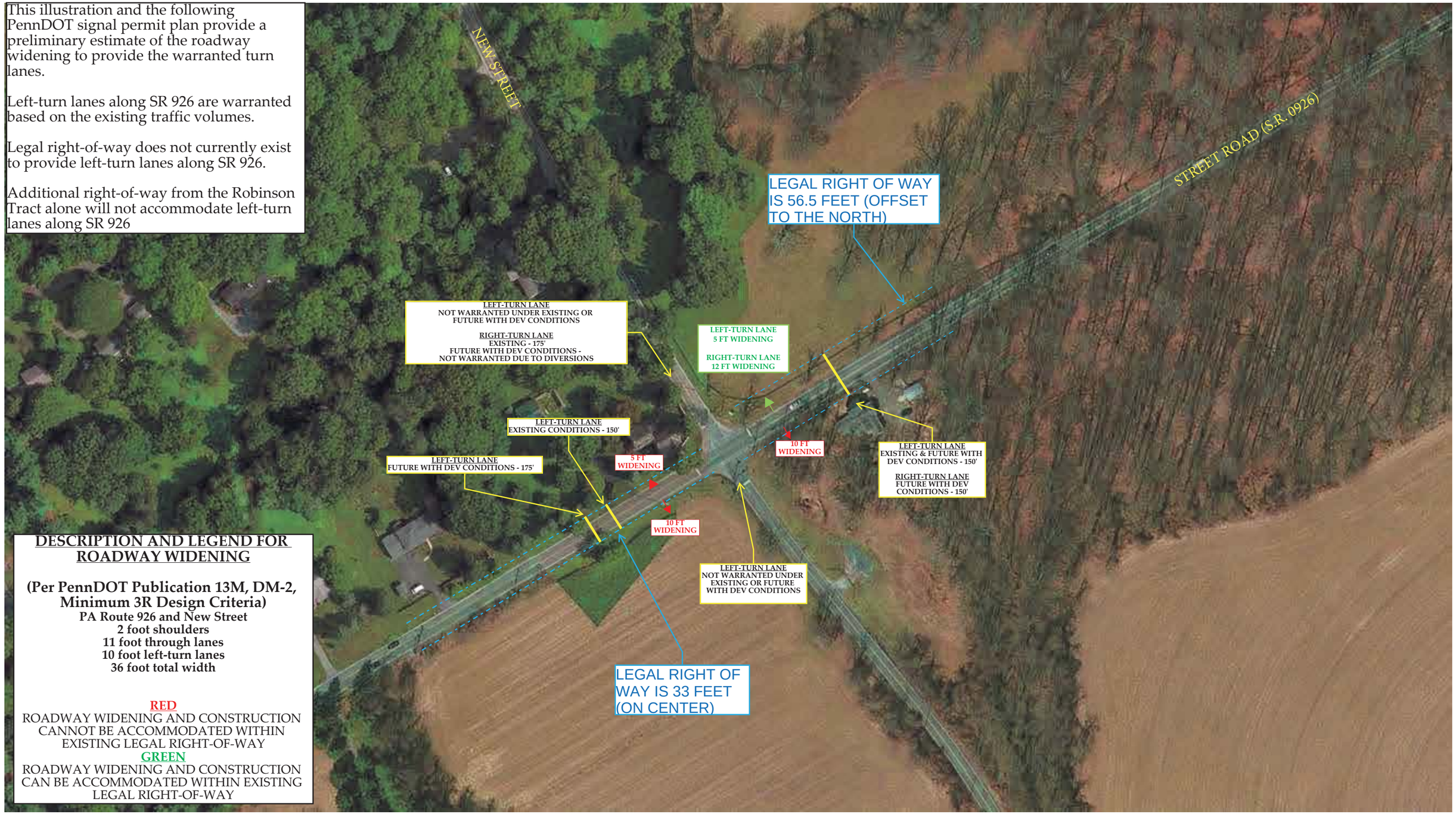


This illustration and the following PennDOT signal permit plan provide a preliminary estimate of the roadway widening to provide the warranted turn lanes.

Left-turn lanes along SR 926 are warranted based on the existing traffic volumes.

Legal right-of-way does not currently exist to provide left-turn lanes along SR 926.

Additional right-of-way from the Robinson Tract alone will not accommodate left-turn lanes along SR 926



DESCRIPTION AND LEGEND FOR ROADWAY WIDENING

(Per PennDOT Publication 13M, DM-2, Minimum 3R Design Criteria)
PA Route 926 and New Street
2 foot shoulders
11 foot through lanes
10 foot left-turn lanes
36 foot total width

RED
ROADWAY WIDENING AND CONSTRUCTION CANNOT BE ACCOMMODATED WITHIN EXISTING LEGAL RIGHT-OF-WAY

GREEN
ROADWAY WIDENING AND CONSTRUCTION CAN BE ACCOMMODATED WITHIN EXISTING LEGAL RIGHT-OF-WAY

Preliminary Roadway Widening Impacts for Left-Turn Lanes at PA Route 926 and New Street

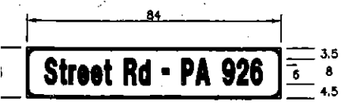
11/14/2019

WESTTOWN TWP. & THORNBURY TWP.

File # 3118

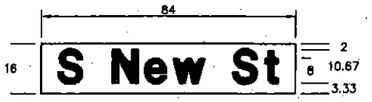
SIGN TABULATION			
PLAN SYMBOL	SERIES NUMBER	SIZE	REMARKS
A	R9-3	18"X18"	NO PEDESTRIAN CROSSING
B	W3-3	36"X36"	SIGNAL AHEAD
C	R10-11	24"X30"	NO TURN ON RED
D	R10-11	30"X36"	NO TURN ON RED
E	D3-4	72"X18"	SINGLE LINE OVERHEAD STREET NAME
F	D3-4	96"X18"	SINGLE LINE OVERHEAD STREET NAME
G	R10-6L	24"x30"	STOP HERE ON RED

SIGN 'E'

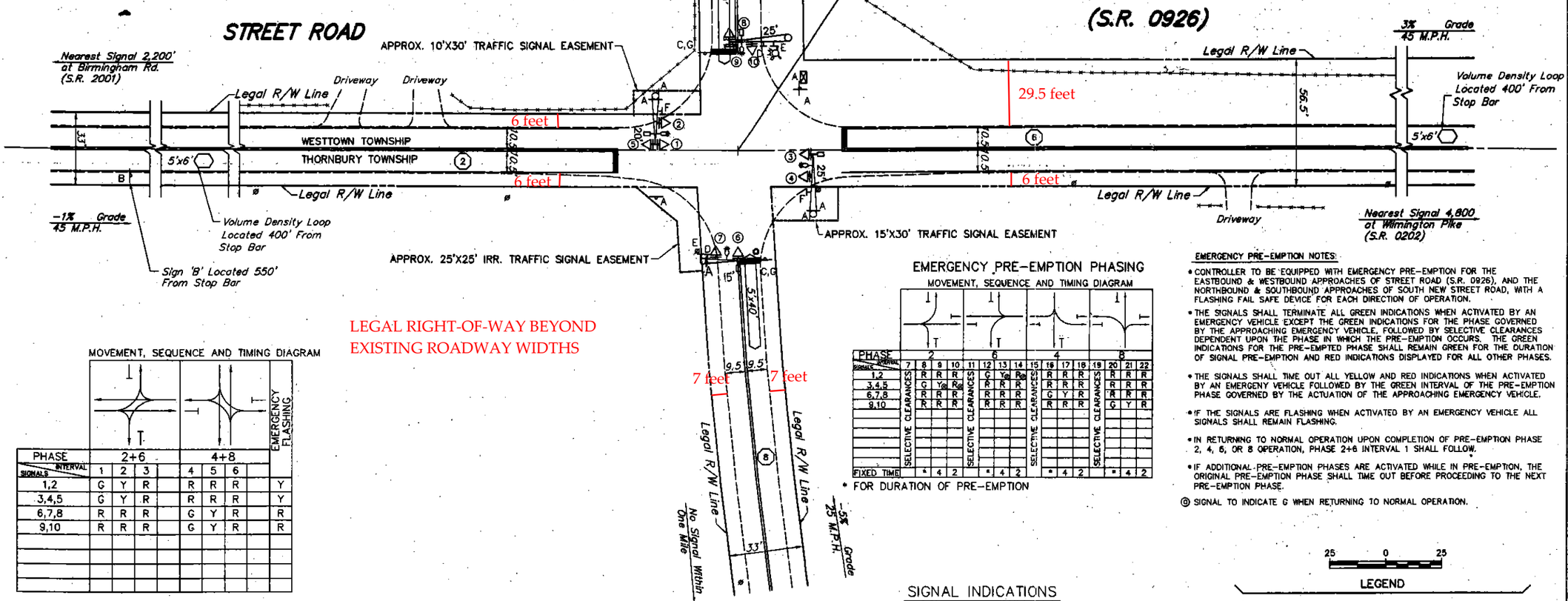


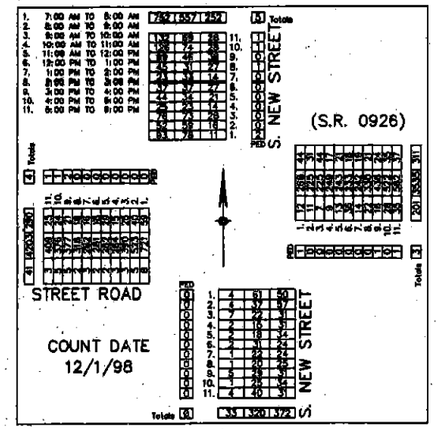
HELVETICA BOLD (20% REDUCTION)
8" U.C.
6" L.C.

SIGN 'F'



HELVETICA BOLD
10.6" U.C.
8" L.C.





MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2+6			4+8			EMERGENCY FLASHING
SIGNALS / INTERVAL	1	2	3	4	5	6	
1,2	G	Y	R	R	R	R	Y
3,4,5	G	Y	R	R	R	R	Y
6,7,8	R	R	R	G	Y	R	R
9,10	R	R	R	G	Y	R	R

FIXED		4	2			4	2	
MINIMUM	22				3			
SEC./ACT.	2							
MAX.INIT.	42							
PASSAGE	5				3			
TBR	42							
TTR	21							
MIN. GAP	2							
MAXIMUM 1	63				15			
MAXIMUM 2	68				25			
PEDESTRIAN								
MEMORY	MR				L			

LEGAL RIGHT-OF-WAY BEYOND EXISTING ROADWAY WIDTHS

OPERATION NOTES:

- SIGNAL TO DWELL IN PHASE 2+6 UNTIL ACTUATED BY PHASE 4+8.
- MAXIMUM 2 TO OPERATE FROM 1500 TO 1900 MONDAY THROUGH FRIDAY
  MAXIMUM 1 TO OPERATE ALL OTHER TIMES.
- VOLUME DENSITY DETECTOR AMPLIFIER TO BE SET ON PRESENCE MODE.

EMERGENCY PRE-EMPTION PHASING

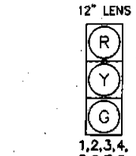
MOVEMENT, SEQUENCE AND TIMING DIAGRAM

PHASE	2				6				4				8			
SIGNALS / INTERVAL	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1,2	SELECTIVE CLEARANCES	R	R	R	SELECTIVE CLEARANCES	G	Ye	Re	SELECTIVE CLEARANCES	R	R	R	SELECTIVE CLEARANCES	R	R	R
3,4,5		G	Ye	Re		R	R	R		R	R	R		R	R	R
6,7,8		R	R	R		R	R	R		G	Y	R		R	R	R
9,10		R	R	R		R	R	R		R	R	R		G	Y	R
FIXED TIME		*	4	2		*	4	2		*	4	2		*	4	2

* FOR DURATION OF PRE-EMPTION

SIGNAL INDICATIONS

12" LENS



1,2,3,4,
5,6,7,8,
9,10

SIGNALS TO BE EQUIPPED WITH RED LED LENSES 1-10
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS
SIGNALS TO BE EQUIPPED WITH TUNNEL VISORS & LOUVERS

EMERGENCY PRE-EMPTION NOTES:

- CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE EASTBOUND & WESTBOUND APPROACHES OF STREET ROAD (S.R. 0926), AND THE NORTHBOUND & SOUTHBOUND APPROACHES OF SOUTH NEW STREET ROAD, WITH A FLASHING FAIL SAFE DEVICE FOR EACH DIRECTION OF OPERATION.
- THE SIGNALS SHALL TERMINATE ALL GREEN INDICATIONS WHEN ACTIVATED BY AN EMERGENCY VEHICLE EXCEPT THE GREEN INDICATIONS FOR THE PHASE GOVERNED BY THE APPROACHING EMERGENCY VEHICLE, FOLLOWED BY SELECTIVE CLEARANCES DEPENDENT UPON THE PHASE IN WHICH THE PRE-EMPTION OCCURS. THE GREEN INDICATIONS FOR THE PRE-EMPTED PHASE SHALL REMAIN GREEN FOR THE DURATION OF SIGNAL PRE-EMPTION AND RED INDICATIONS DISPLAYED FOR ALL OTHER PHASES.
- THE SIGNALS SHALL TIME OUT ALL YELLOW AND RED INDICATIONS WHEN ACTIVATED BY AN EMERGENY VEHICLE FOLLOWED BY THE GREEN INTERVAL OF THE PRE-EMPTION PHASE GOVERNED BY THE ACTUATION OF THE APPROACHING EMERGENCY VEHICLE.
- IF THE SIGNALS ARE FLASHING WHEN ACTIVATED BY AN EMERGENCY VEHICLE ALL SIGNALS SHALL REMAIN FLASHING.
- IN RETURNING TO NORMAL OPERATION UPON COMPLETION OF PRE-EMPTION PHASE 2, 4, 6, OR 8 OPERATION, PHASE 2+6 INTERVAL 1 SHALL FOLLOW.
- IF ADDITIONAL PRE-EMPTION PHASES ARE ACTIVATED WHILE IN PRE-EMPTION, THE ORIGINAL PRE-EMPTION PHASE SHALL TIME OUT BEFORE PROCEEDING TO THE NEXT PRE-EMPTION PHASE.

⓪ SIGNAL TO INDICATE G WHEN RETURNING TO NORMAL OPERATION.

25 0 25

LEGEND

20'	MAST ARM/ IDENTIFYING LENGTH	12'x6'	LOOP SENSOR/SIZE
②	VEHICULAR SIGNAL HEAD/ BACKPLATE/VISORS/ DIRECTIONAL ARROW/ IDENTIFYING NUMBER		MICROWAVE DETECTOR
			EMERGENCY PREEMPTION BEACON
②	PEDESTRIAN SIGNAL HEAD/ IDENTIFYING NUMBER		EMERGENCY PREEMPTION DETECTOR
	PEDESTRIAN PUSHBUTTON/ SIGN		CURB CUT RAMP
			UTILITY POLE
A	SIGN/IDENTIFYING LETTER	②	PHASE NUMBER
	FIRE HYDRANT		INLET
	CONTROLLER CABINET		MAN HOLE

GENERAL NOTES

NO MODIFICATIONS OF THIS INSTALLATION ARE PERMITTED UNLESS PRIOR APPROVAL IS GRANTED IN WRITING BY A REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION.

ALL MAINTENANCE WORK INCLUDING TRIMMING OF TREES, NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH PUBLICATION NO. 68.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF CURB OR THE EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM CLEARANCE HORIZONTALLY OF 2 FEET.

SIGNALS ERECTED OVER THE ROADWAY SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 16 FT. ABOVE THE ROADWAY. POST MOUNTED SIGNALS SHALL BE A MINIMUM OF 8 FT. ABOVE THE SIDEWALK OR PAVEMENT.

ALL OVERHEAD SIGNALS MUST BE RIGIDLY MOUNTED, TOP AND BOTTOM, AND EQUIPPED WITH BACKPLATES.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS MEASURED AT RIGHT ANGLES TO THE APPROACH SHALL BE 8 FEET.

EXACT LOCATION OF DETECTORS SHALL BE DETERMINED PRIOR TO INSTALLATION BY A REPRESENTATIVE OF PENNDOT.

CURBING TO BE INSTALLED BY MUNICIPALITY AND WHERE NOTED, SHALL BE PLAIN CEMENT CONCRETE CURB OR GRANITE CURB, INSTALLED IN ACCORDANCE WITH DEPARTMENT SPECIFICATIONS FORM 408.

PRIOR TO INSTALLATION THE CONTRACTOR SHALL CONSULT WITH THE LOCAL OFFICIALS AND UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES, EFFECTIVE DATE DECEMBER 19, 1996.

WHEN LIQUID FUELS MONEY IS USED, SIGNAL INSTALLATION MUST CONFORM TO FORM 408 AND A COPY OF THE PROPOSED SPECIFICATIONS MUST BE SUBMITTED TO THE DISTRICT TRAFFIC UNIT, FOR REVIEW, PRIOR TO BIDDING.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR ANY CHANGES IN INTERSECTION GEOMETRY REGARDING EXCAVATION.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

PENNSYLVANIA DEPARTMENT OF TRANSPORTATION
ENGINEERING DISTRICT 6-0

COUNTY: CHESTER COUNTY
MUNICIPALITY: WESTTOWN & THORNBURY TOWNSHIP
INTERSECTION: STREET ROAD (S.R. 0926) AND SOUTH NEW STREET

REVIEWED:

DATE

MUNICIPAL OFFICIAL DATE

RECOMMENDED:
MARK L KRAY 5/6/99
DATE
DOUGLAS MAY 5/7/99
DISTRICT TRAFFIC ENGINEER DATE

NO.	REVISION	DES./ REVR.	DATE	REVR.	DATE	RECOM.	DATE
1	Revise OSN Signs	PAI	5/4/99	[illegible]	5/12/99 5/13/99	[illegible]	6/8/99
2	Shorten MA	HJK	12/1/99	[illegible]	12/1/99 12/13/99	[illegible]	12/14/99
3	MINIMUM TIME REVISED	SM	7/8/03	[illegible]	7/8/03	[illegible]	7/10/03
4							
5							
6							
7							
8							

SHEET 2 OF 2 PERMIT # 63-3118 FILE # 3118

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix J

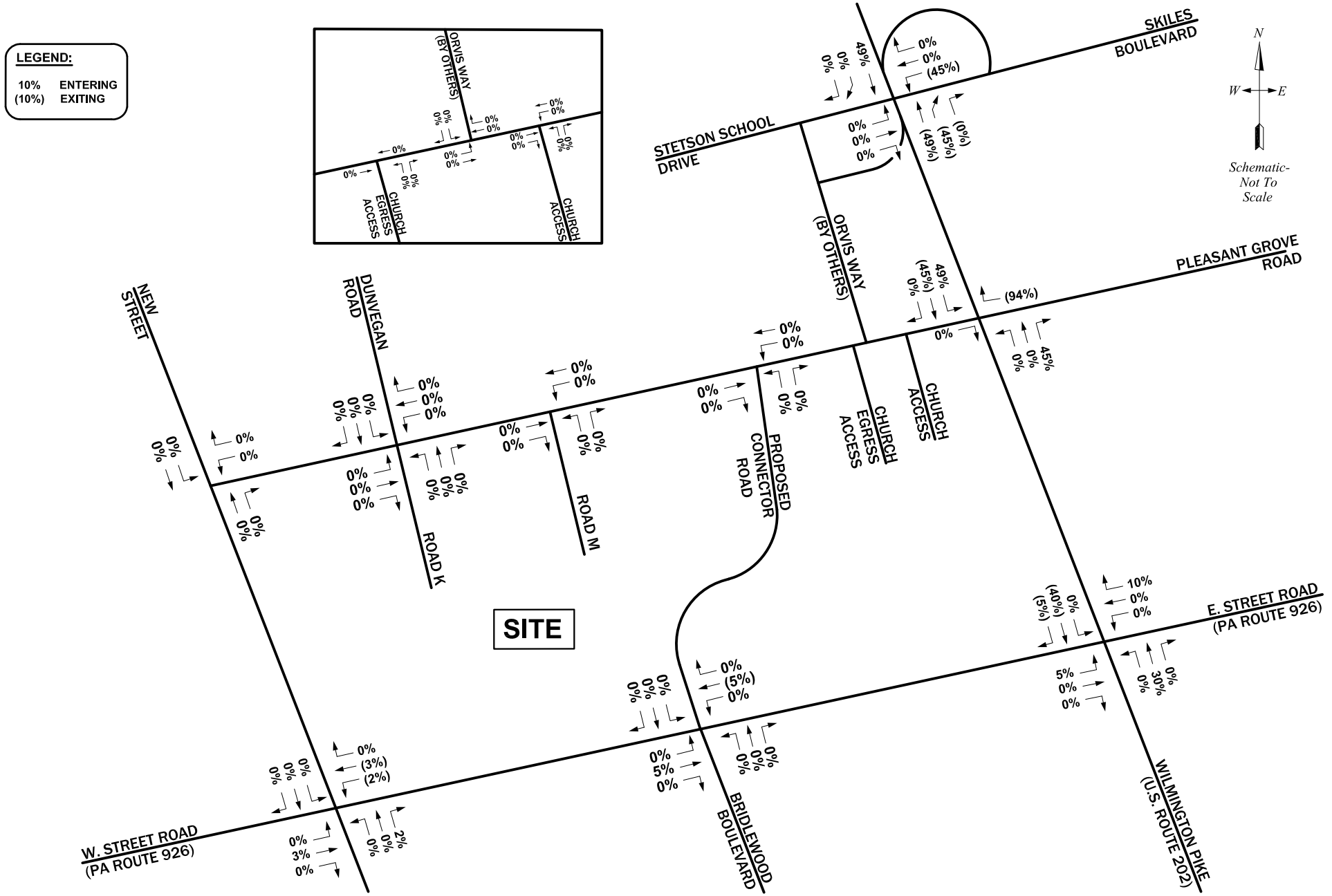
Other Development Trip Generation, Distribution, & Assignment

The Malvern School

Project Information	
Project Name:	Robinson Tract Other Development - Malvern School
McMahon Project No:	816451
Date:	8/6/2019
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 10th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
565 - Day Care Center	5,375 square feet	256	31	28	59	28	32	60
Pass-By Trips [(1)]		-87	-14	-12	-26	-12	-14	-26
"New" Trips		169	17	16	33	16	18	34

(1) Pass-by estimated to be 44 percent during the weekday morning and weekday afternoon peak hours and 34 percent (or 10 percent less than the weekday afternoon peak hour) on a daily basis. This pass-by rate is consistent with the data presented in *Trip Generation for Day Care Centers* , provided in the ITE 1990 Compendium of Technical Papers.

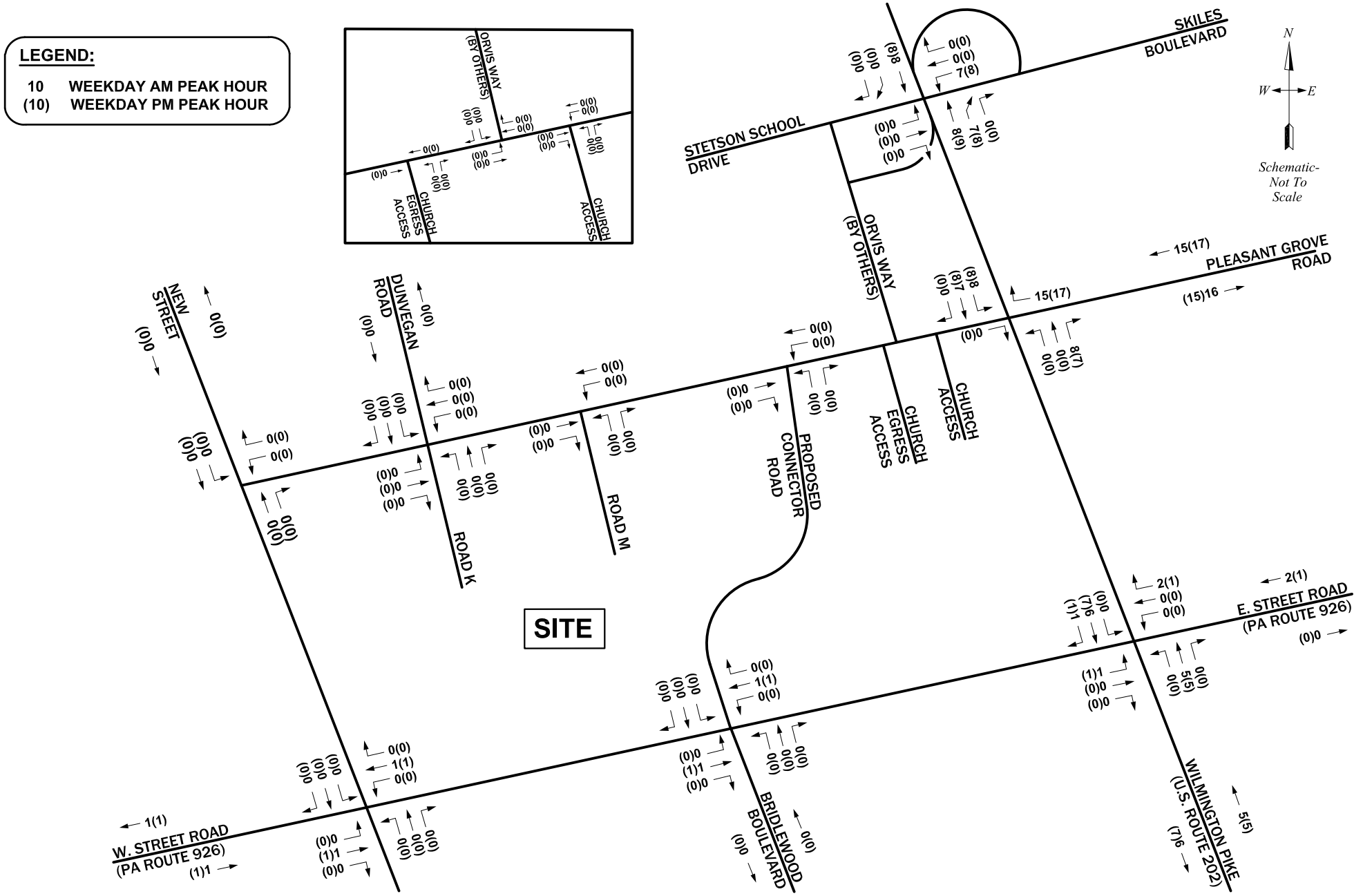


Other Development New Trip Distribution
The Malvern School

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

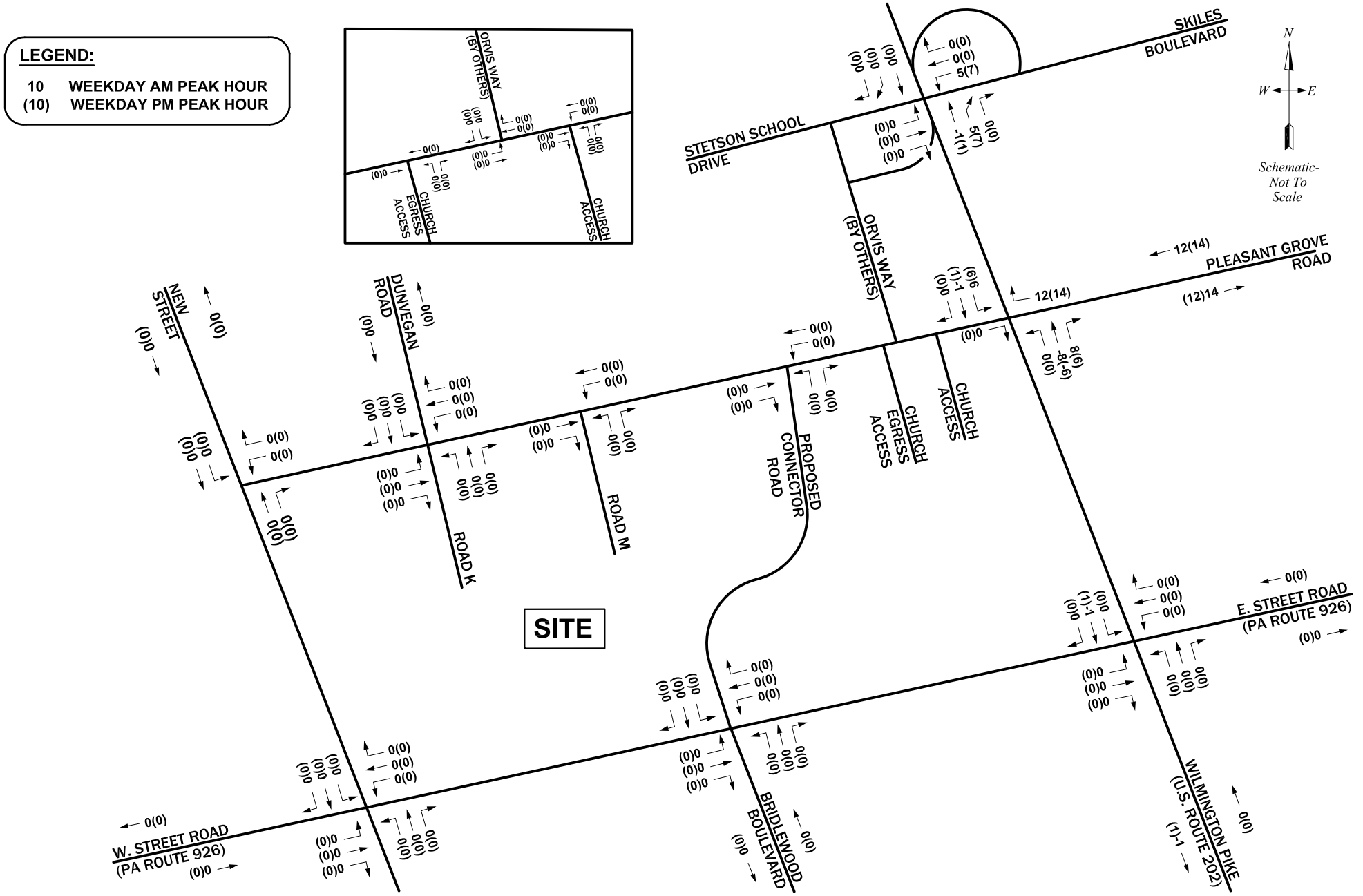


Other Development New Trip Assignment
The Malvern School

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS



Other Development Passby Trip Assignment

The Malvern School

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-10) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure J3.dwg

Arborview (Fair Share Properties)

ARBORVIEW
TRANSPORTATION IMPACT ASSESSMENT

January 26, 2015
TPD # TAG.A.00003

Westtown Township
Chester County, PA

For Submission To:

PennDOT District 6-0
&
Westtown Township

Prepared By:

TRAFFIC PLANNING AND DESIGN, INC.
Est. 1989
WWW.TRAFFICPD.COM

TPD Services:
Roadway Design
Bridge Design & Inspection
Transportation Planning
Traffic Signal System Design
Municipal Services
Environmental Services
Construction Management & Inspection

J:\TAG\00003 (Arborview)\Planning\Figs\Figures.dgn
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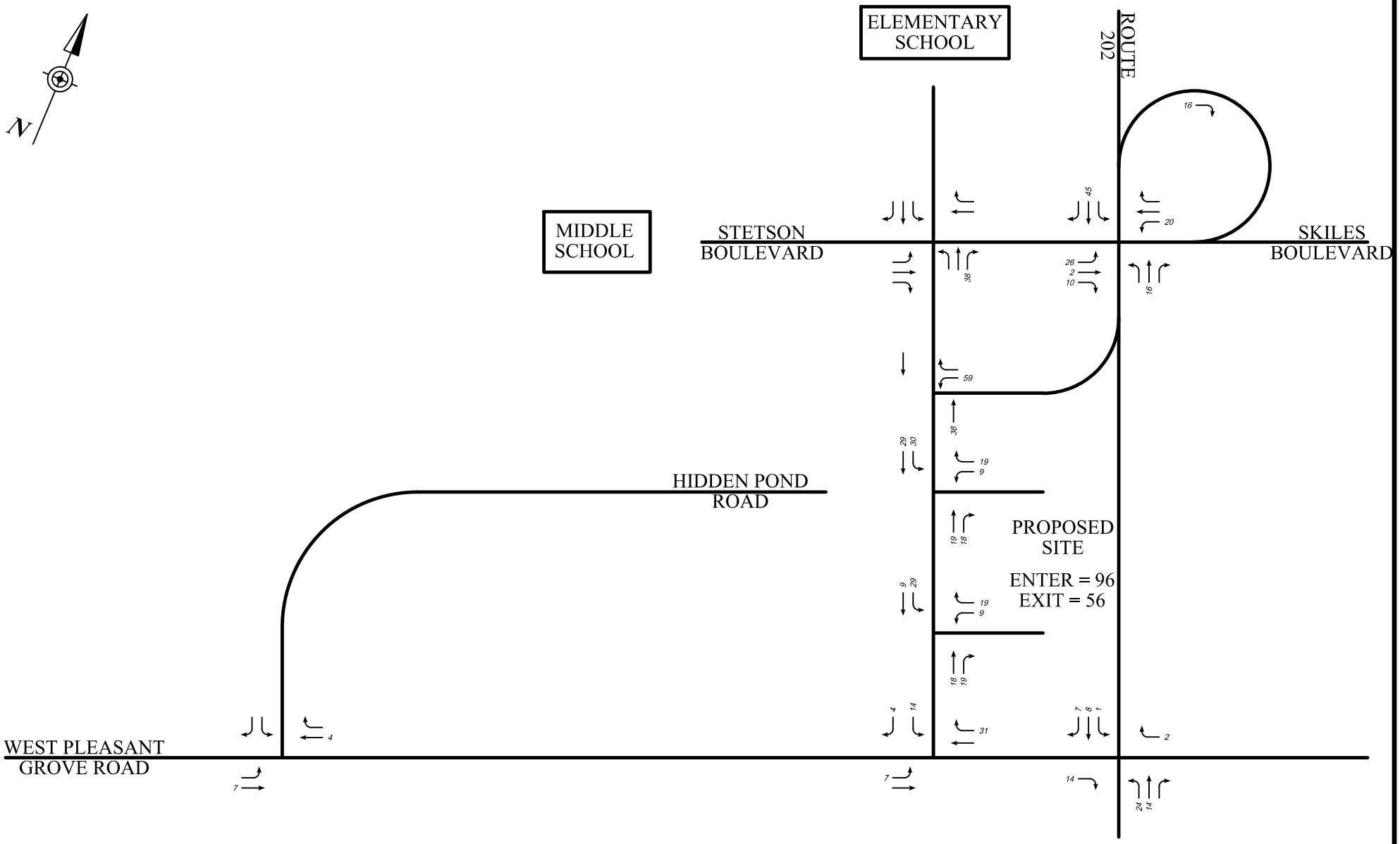

KEY:

SCHEMATIC DRAWING:NOT TO SCALE

TRAFFIC PLANNING AND DESIGN, INC.

PITTSBURGH (412)765-3717

POTTSTOWN (610)326-3100

HARRISBURG (717)234-1430

LEHIGH VALLEY (610)625-4242

SOUTH JERSEY (856)966-4242

WWW.TRAFFICPD.COM

FIGURE 7

WEEKDAY AM PEAK HOUR TRIP DISTRIBUTIONS

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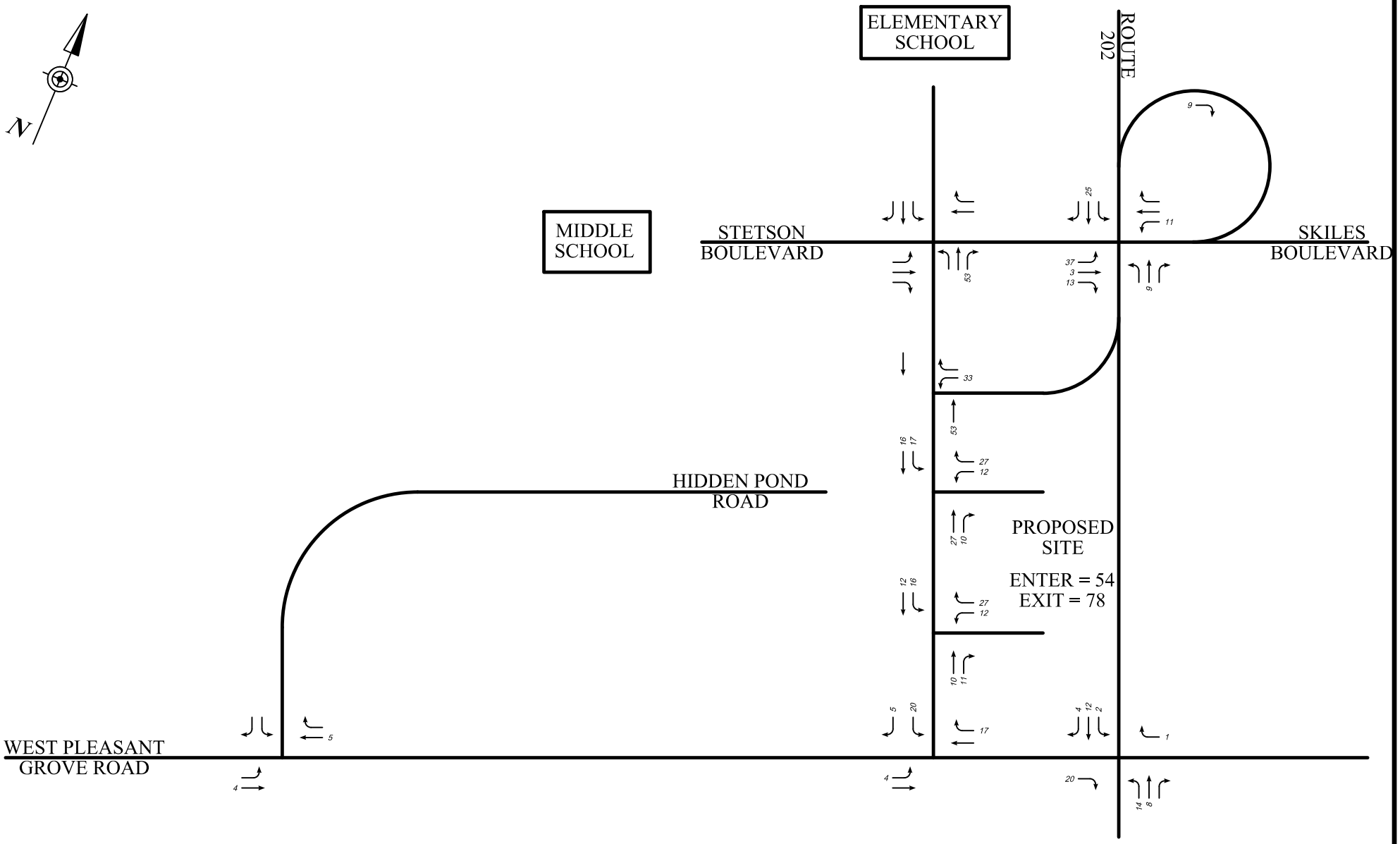

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SOUTH JERSEY (856)966-4242
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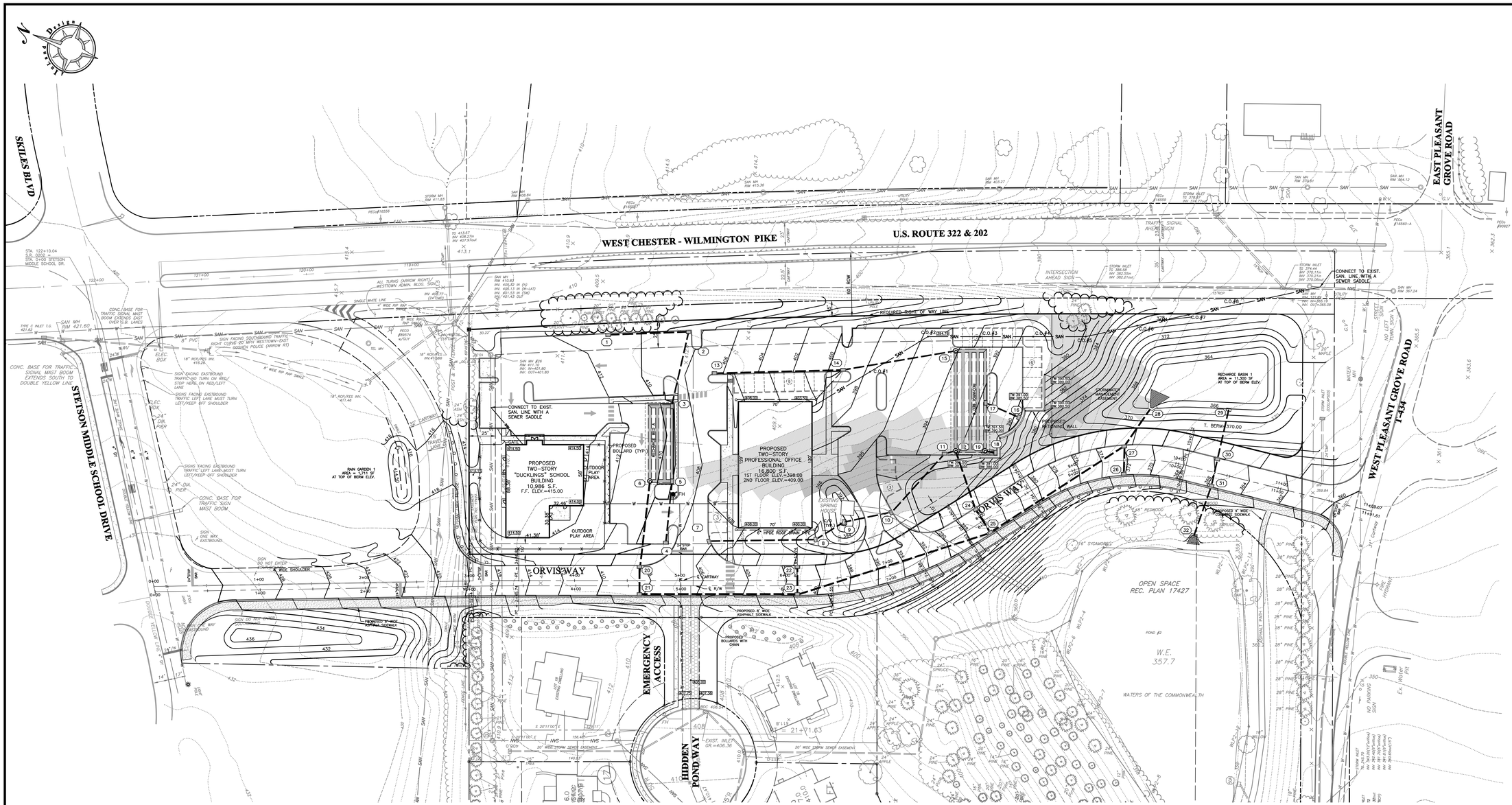
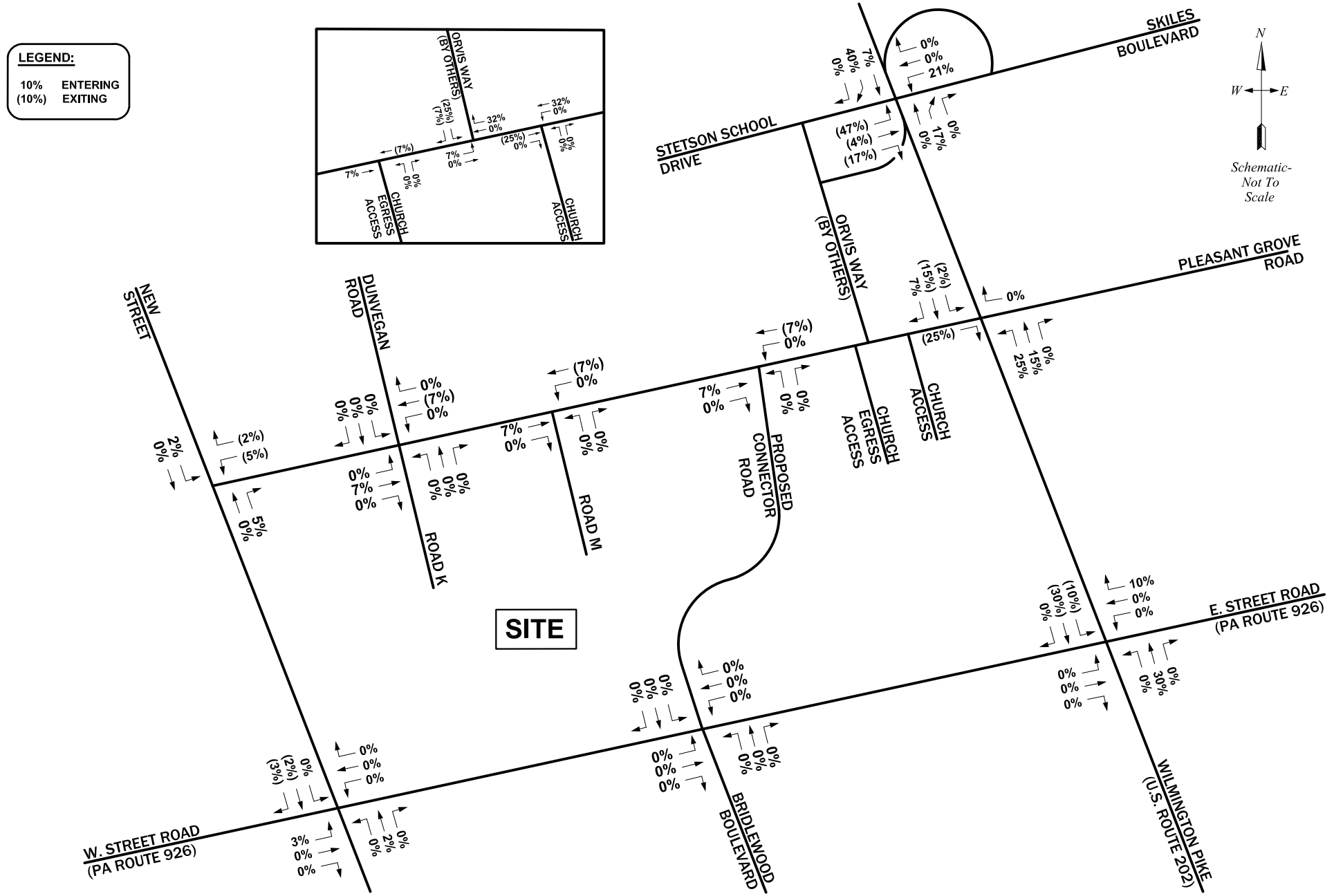
FIGURE 8

WEEKDAY PM PEAK HOUR
TRIP DISTRIBUTIONS


WEST CHESTER - WILMINGTON PIKE
U.S. ROUTE 322 & 202
SKILES BLVD
STETSON MIDDLE SCHOOL DRIVE
EAST PLEASANT GROVE ROAD
WEST PLEASANT GROVE ROAD
T-434
ORVIS WAY
HIDDEN POND WAY
EMERGENCY ACCESS
PROPOSED TWO-STORY "DUCKLINGS" SCHOOL BUILDING 10,986 S.F. F.F. ELEV.=415.00
PROPOSED TWO-STORY PROFESSIONAL OFFICE BUILDING 16,800 S.F. 1ST FLOOR ELEV.=398.00 2ND FLOOR ELEV.=409.00
OUTDOOR PLAY AREA
RAIN GARDEN 1 AREA = 1,711 SF AT TOP OF BERM ELEV.
RECHARGE BASIN 1 AREA = 13,300 SF AT TOP OF BERM ELEV.
T. BERM 370.00
REQUIRED RIGHT OF WAY LINE
CONNECT TO EXIST. SAN. LINE WITH A SEWER SADDLE
PROPOSED RETAINING WALL
EXISTING SPRING HOUSE
OPEN SPACE REC. PLAN 17427
WATERS OF THE COMMONWEALTH
INTERSECTION AHEAD SIGN
TRAFFIC SIGNAL AHEAD SIGN
ONE WAY EASTBOUND
DO NOT ENTER
NO LEFT TURN SIGN
NO PARKING SIGN
SIGN FACING SOUTHBOUND TRAFFIC RIGHT CURVE 20 MPH WESTTOWN-EAST GOSHEN POLICE (ARROW RT)
SIGNS FACING EASTBOUND TRAFFIC LEFT LANE MUST TURN LEFT/KEEP OFF SHOULDER
SIGN FACING EASTBOUND TRAFFIC-NO TURN ON RED/ STOP HERE ON RED/LEFT LANE
SIGNS FACING EASTBOUND TRAFFIC LEFT LANE-MUST TURN LEFT/KEEP OFF SHOULDER
CONC. BASE FOR TRAFFIC SIGNAL MAST BOOM EXTENDS SOUTH TO DOUBLE YELLOW LINE
CONC. BASE FOR TRAFFIC SIGNAL MAST BOOM EXTENDS EAST OVER S.B. LANES
CONC. BASE FOR TRAFFIC SIGN MAST BOOM
ALL TURNS (ARROW RIGHT) WESTTOWN ADMIN. BLDG. SIGN
STA. 122+10.04 S.B. 5202 = STA. 0+00 STETSON MIDDLE SCHOOL DR.
SAN MH RIM 421.60
SAN MH RIM 411.83
SAN MH RIM 415.36
SAN MH RIM 403.27
SAN MH RIM 410.84
SAN MH RIM 410.63
SAN MH RIM 406.92 INV. 405.82 IN (N) INV. 405.13 IN (W-UST) INV. 401.63 IN (SW) INV. 401.43 OUT
SAN MH #26 RIM 411.51 INV. 400.80 INV. OUT=407.80
SAN MH RIM 370.61
SAN MH RIM 364.12
SAN MH RIM 367.24
STORM MH RIM 411.83
STORM INLET TO 413.57 INV. 408.27in INV. 407.97out
STORM INLET TO 386.58 INV. 382.55in INV. 382.31out
STORM INLET TO 378.87 INV. 374.27in
STORM INLET TO 374.61 INV. 370.41in INV. 370.21in INV. 370.06out
INV. 408.27in (24"SMS)
INV. 382.31in (24"SMS)
INV. 374.27in (24"SMS)
INV. 370.21in (24"SMS)
INV. 370.06out (24"SMS)
INV. OUT=365.09
INV. 365.09 (24"SMS)
INV. 364.12 (24"SMS)
INV. 359.84 (24"SMS)
INV. 359.59 (24"SMS)
INV. 359.34 (24"SMS)
INV. 359.09 (24"SMS)
INV. 358.84 (24"SMS)
INV. 358.59 (24"SMS)
INV. 358.34 (24"SMS)
INV. 358.09 (24"SMS)
INV. 357.84 (24"SMS)
INV. 357.59 (24"SMS)
INV. 357.34 (24"SMS)
INV. 357.09 (24"SMS)
INV. 356.84 (24"SMS)
INV.

Project Information	
Project Name:	Robinson Tract Other Development - Arborview
McMahon Project No:	816451.11
Date:	8/6/2019
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 10th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
710 - General Office Building	16,800 SF	164	16	3	19	3	16	19
565 - Day Care Center	10,986 SF	522	64	57	121	57	65	122
Total Trips		***686***	***80***	***60***	***140***	***60***	***81***	***141***



Other Development New Trip Distribution
Arborview

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

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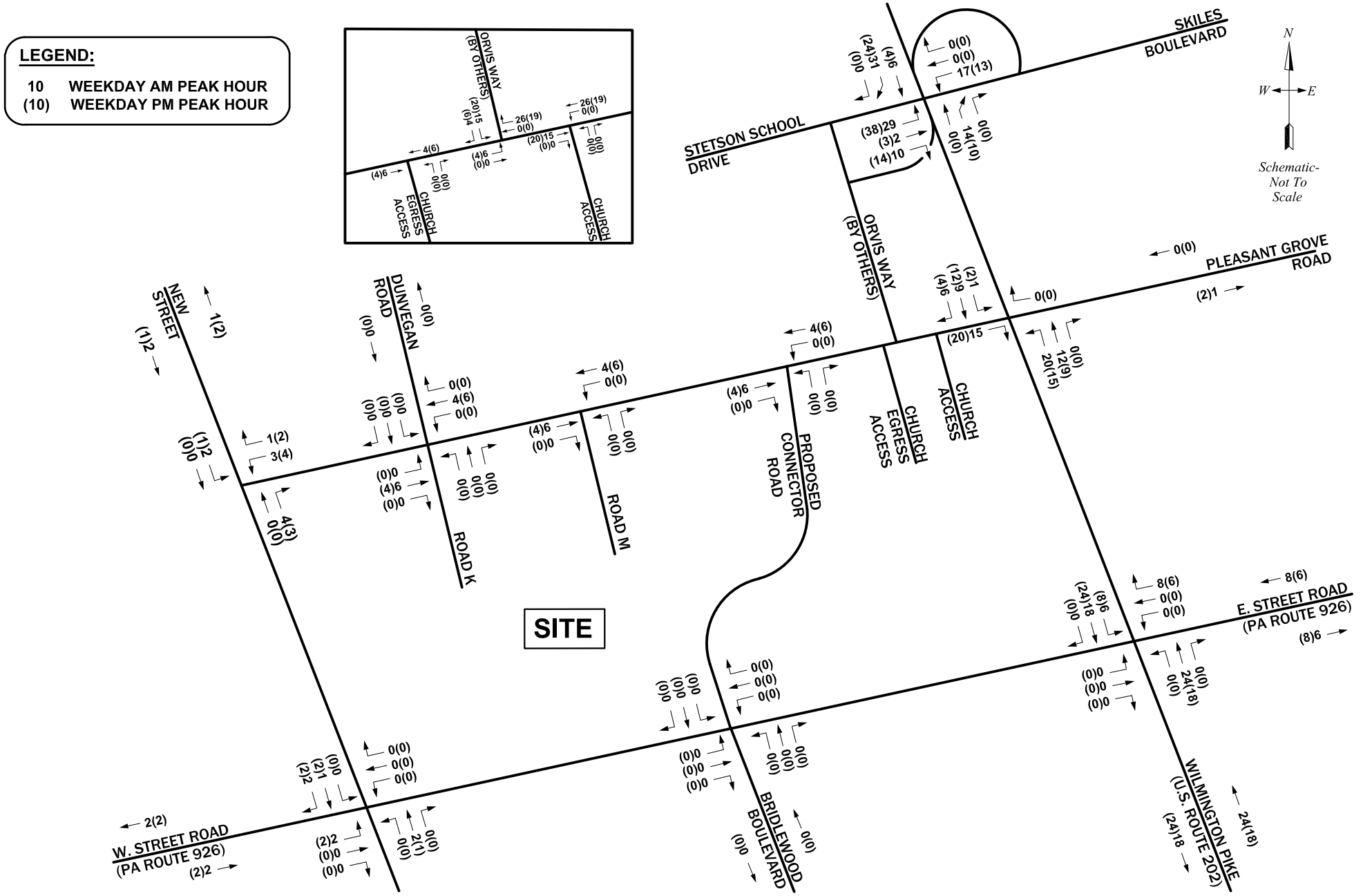


Other Development New Trip Assignment

Arborview

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

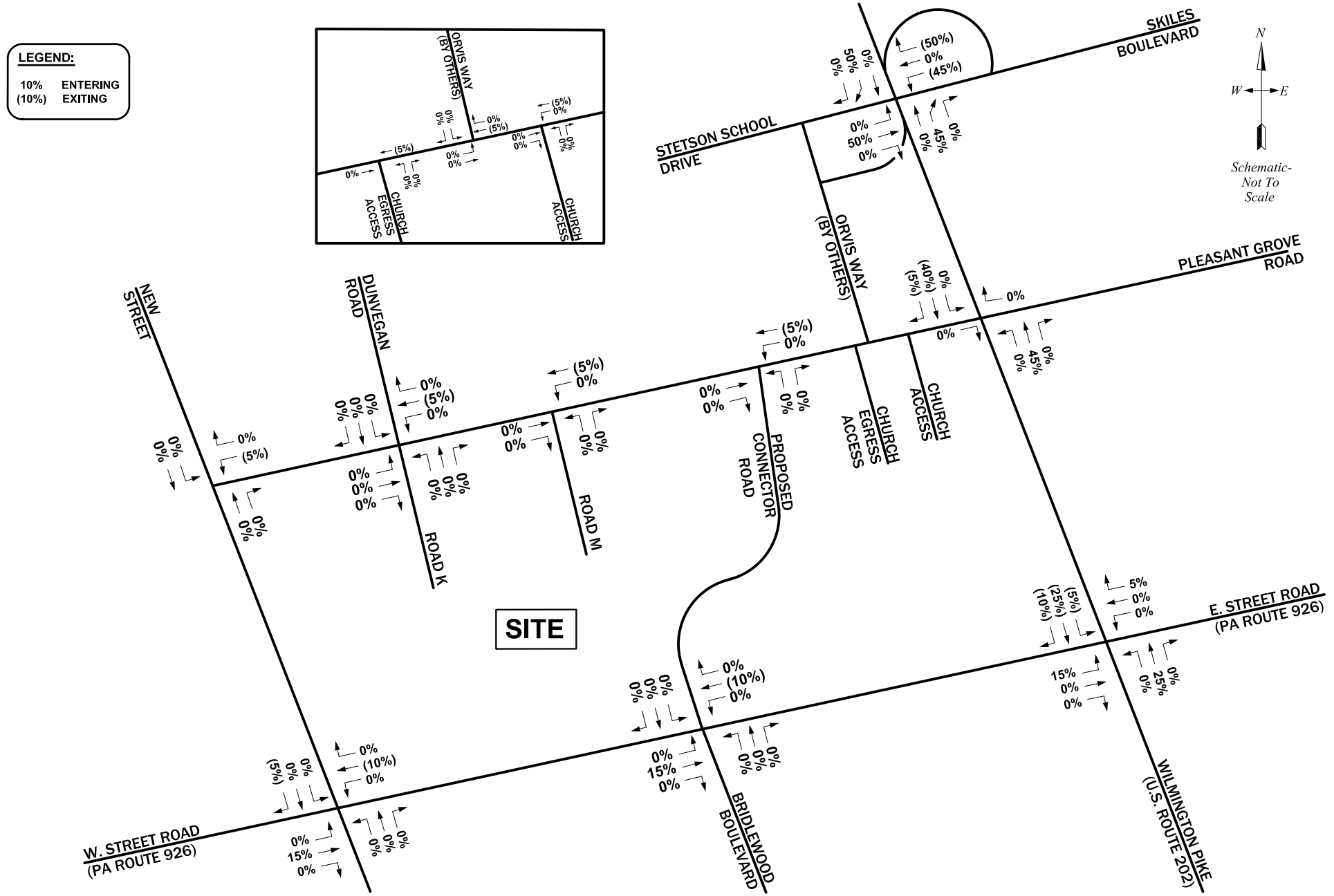
McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-10) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure J5.dwg

Condominium Development

Project Information	
Project Name:	Robinson Tract Other Development - Condominium Development
McMahon Project No:	816451
Date:	8/6/2019
City/Municipality:	Westtown Township
State:	Pennsylvania
Client Name:	Toll Brothers, Inc.
Analyst's Name:	BGG
ITE Edition:	ITE-TGM 10th Edition

Land Use	Size	Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
		Total	In	Out	Total	In	Out	Total
221 - Multifamily Housing (Mid-Rise)	39 units	211	4	10	14	11	7	18



Other Development New Trip Distribution
Condominium Development

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

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TRANSPORTATION ENGINEERS & PLANNERS

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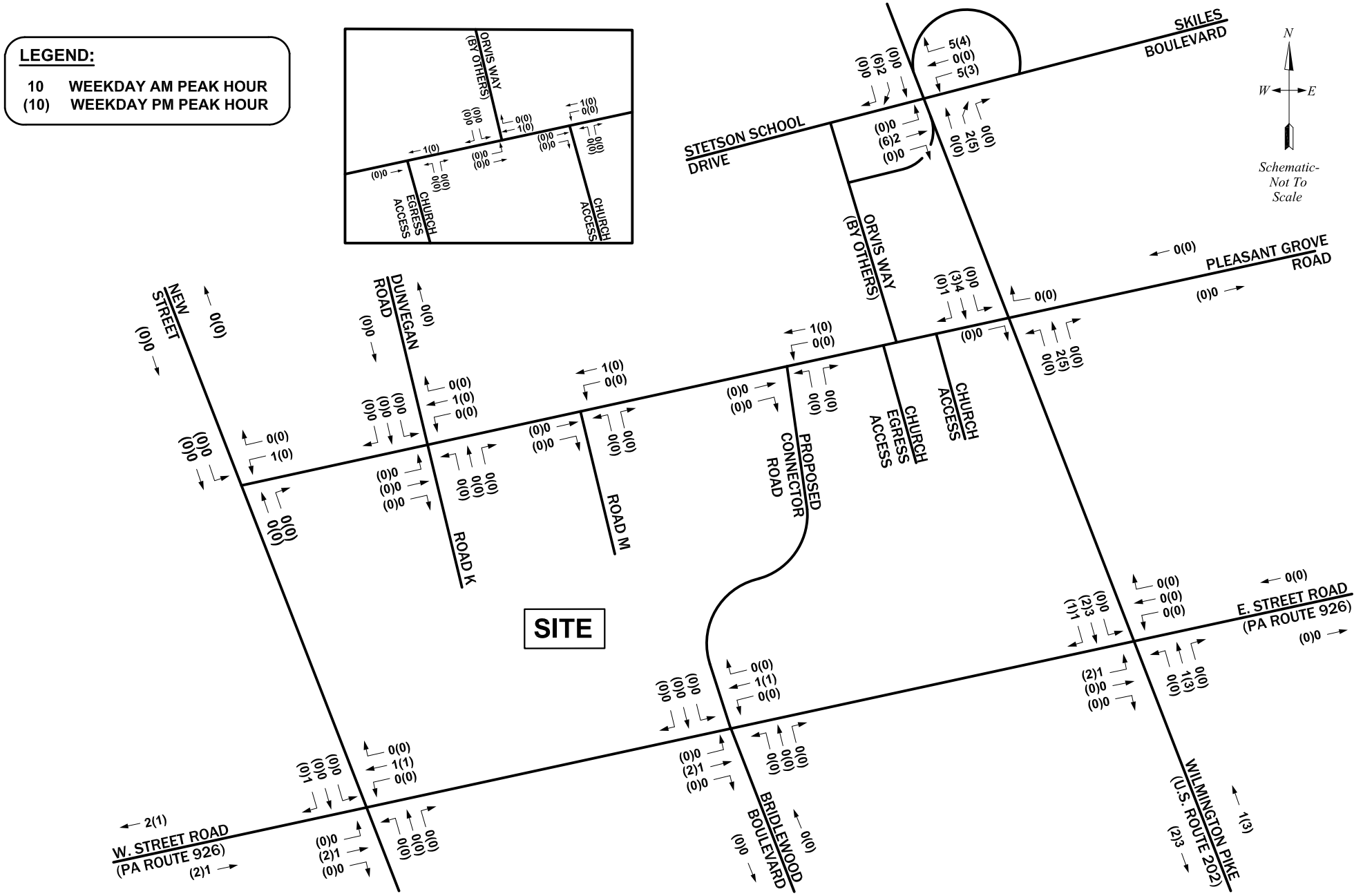

Other Development New Trip Assignment
Condominium Development

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-10) I:\eng\816451 - Crebilly Farm\dwg\2020-01 Robinson Tract Revised TIS\Figure J7.dwg

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix K

Traffic Diversions

Revised February 21, 2020

McMAHON ASSOCIATES, INC.
835 Springdale Drive, Suite 200
Exton, PA 19341
p 610-594-9995 | f 610-594-9565

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Dean A. Carr, P.E.
Jason T. Adams, P.E., PTOE
Christopher K. Bauer, P.E., PTOE

FOUNDER
Joseph W. McMahon, P.E.

February 21, 2020

Mr. Albert Federico, P.E., PTOE
Albert Federico Consulting, LLC
133 Rutgers Avenue
Swarthmore, PA 19081

RE: Robinson Tract Residential Development – Traffic Diversions
Westtown Township, Chester County, PA
McMahon Project No. 816451.11

Dear Mr. Federico:

As requested, this letter provides additional information and clarification regarding the methodology utilized to develop the traffic diversions presented in the *Transportation Impact Study for the Robinson Tract*, last revised December 2, 2019.

Orvis Way: West Pleasant Grove Road to Stetson School Collector Road

In conjunction with the Arborview (Fair Share Properties) development, Orvis Way connects West Pleasant Grove Road to Stetson School. In accordance with the Township approved *Arborview Transportation Impact Assessment*, prepared by Traffic Planning & Design and dated January 26, 2015, and based on our review of those assumptions and traffic data collected in the fall of 2019, traffic in the area is estimated to divert to utilize Orvis Way as follows:

- Diversion A: 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion B: 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way, per the Arborview study.

- Diversion C: 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was decreased from the approved Arborview

study as the majority of traffic currently making this movement during the peak hours is generated by Stetson Middle School, and the school service area ends just to the west of New Street.

Table 1 below provides a comparison of the resulting diverted traffic volumes from the approved Arborview study versus the current Robinson Tract TIS.

Table 1. Orvis Way Diverted Traffic Volume Comparison

	Arborview Study (1)	**Robinson Tract TIS (2)**
Diversion A	AM: 25 PM: 21	AM: 28 PM: 24
Diversion B	AM: 4 PM: 2	AM: 2 PM: 2
Diversion C	AM: 30 PM: 23	AM: 8 PM: 16
Total	***AM: 59 PM: 46***	***AM: 38 PM: 42***

(1) As shown in Figures 9 and 10 of the *Arborview Transportation Impact Assessment*, prepared by Traffic Planning and Design, Inc., and dated January 26, 2015.
(2) As shown in Appendix K of the Transportation Impact Assessment for the Robinson Tract, prepared by McMahon Associates, Inc., and last revised December 2, 2019.

Robinson Tract: Street Road (S.R. 0926) to West Pleasant Grove Road Collector Road

Based on the vision for this Collector Road by Westtown Township, the submitted Transportation Impact Study incorporates diversions for several existing movements, as detailed below, as an alternative to the congested Wilmington Pike (U.S. Route 202) and Street Road (PA 926) intersection for local traffic. Travel time comparisons were completed for each peak hour and for each diversion route individually in order to determine an appropriate percentage of vehicles, beyond site traffic, to utilize the Collector Road that would result in more balanced travel times along the route options. This was completed in an iterative process, resulting in the percentage diversions listed below.

As shown in the travel time calculations provided in Appendix K, the travel times are not perfectly balanced, in favor of the existing base route, in order to provide a conservative estimate of traffic operations at the off-site study intersections. The travel time comparisons alone support diverting more traffic from the existing base routes to the Collector Road. Diverting more traffic would further reduce development traffic impact at the Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) intersection. Regardless of travel times, some drivers will not deviate from their existing route for various reasons.

Additionally, it is noted that existing travel patterns were considered when evaluating the Collector Road traffic diversion potential. Specifically, traffic currently traveling south along U.S. Route 202 (Wilmington Pike) has two route options within the study area to travel westbound along Street Road (S.R. 0926). During the weekday morning peak hour, 45 percent utilizes West Pleasant Grove Road and 55 percent utilizes Street Road (S.R. 0926) directly. In the weekday afternoon peak hour when

congestion is greater, 62 percent utilizes West Pleasant Grove Road and 38 percent utilizes Street Road (S.R. 0926) directly. As delay and travel times increase, drivers are more likely to utilize alternate route options, but some continue on their primary course regardless.

- Diversion D: This diversion further increases Diversion A (above under Orvis Way discussion), by diverting an additional 5 percent of the weekday morning and an additional 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) which will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.

- Diversion E: 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.

- Diversion F: 66 percent (two-thirds) of the northbound Bridlewood Boulevard right-turns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).

- Diversion G: 50 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to westbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).

- Diversion H: 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

Table 2 below provides a summary of the approximate travel distances, between the base route and the diverted route. Additional details regarding travel distance is provided in Appendix K of the submitted TIS, which is also attached.

Table 2. Approximate Travel Distance

Diversion	Base Route	Diverted Route
Diversion D	6,800′	6,200′
Diversion E	7,200′	6,700′
Diversion F	6,800′	6,200′
Diversion G	6,800′	6,200′
Diversion H	7,700′	10,300′

If there are any questions or if additional information is needed, please feel free to contact me at nkline@mcmahonassociates.com or (610) 594-9995.

Sincerely,

Nicole R. Kline-Elsier

Nicole R. Kline-Elsier, P.E., PTOE
Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township
Will Ethridge, Westtown Township
Andrew Semon, Toll Brothers
Michael Downs, P.E., Toll Brothers
Gregg Adelman, Esq., Kaplin Stewart
Jeff Madden, Eastern States Engineering

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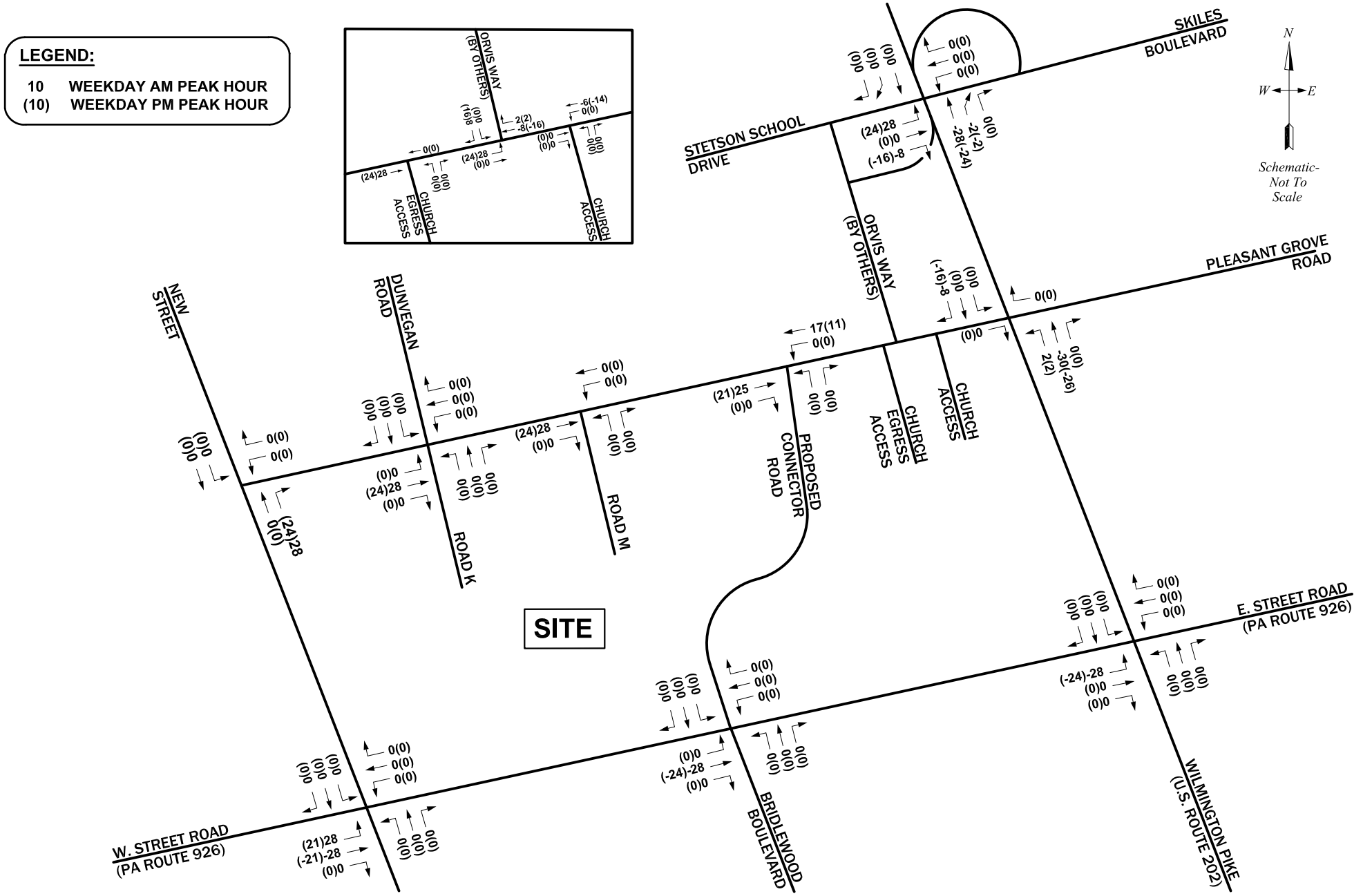
Without Development Diversions



Diversions A, B, and C

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

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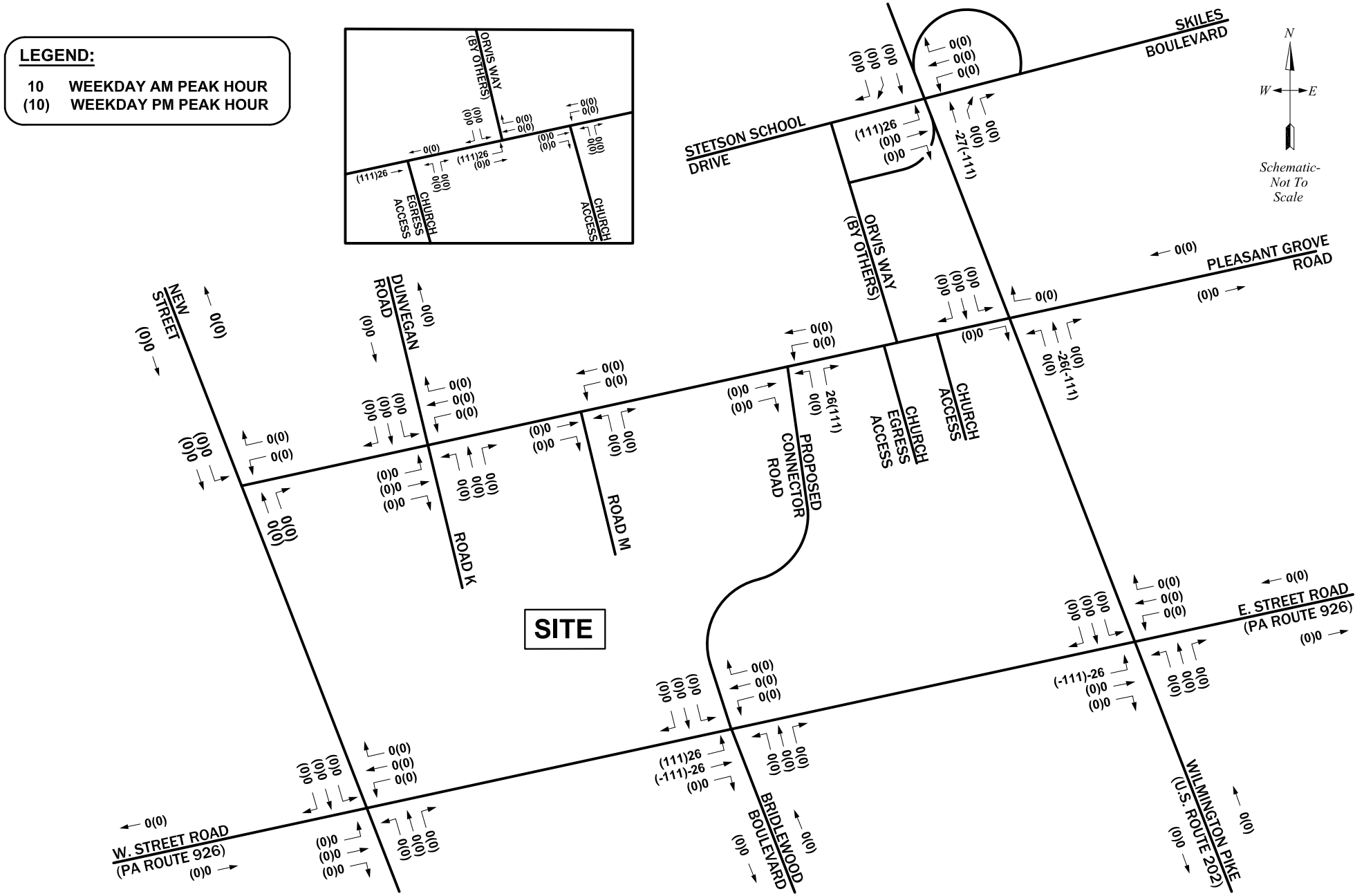
(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K3.dwg

With Development Diversions



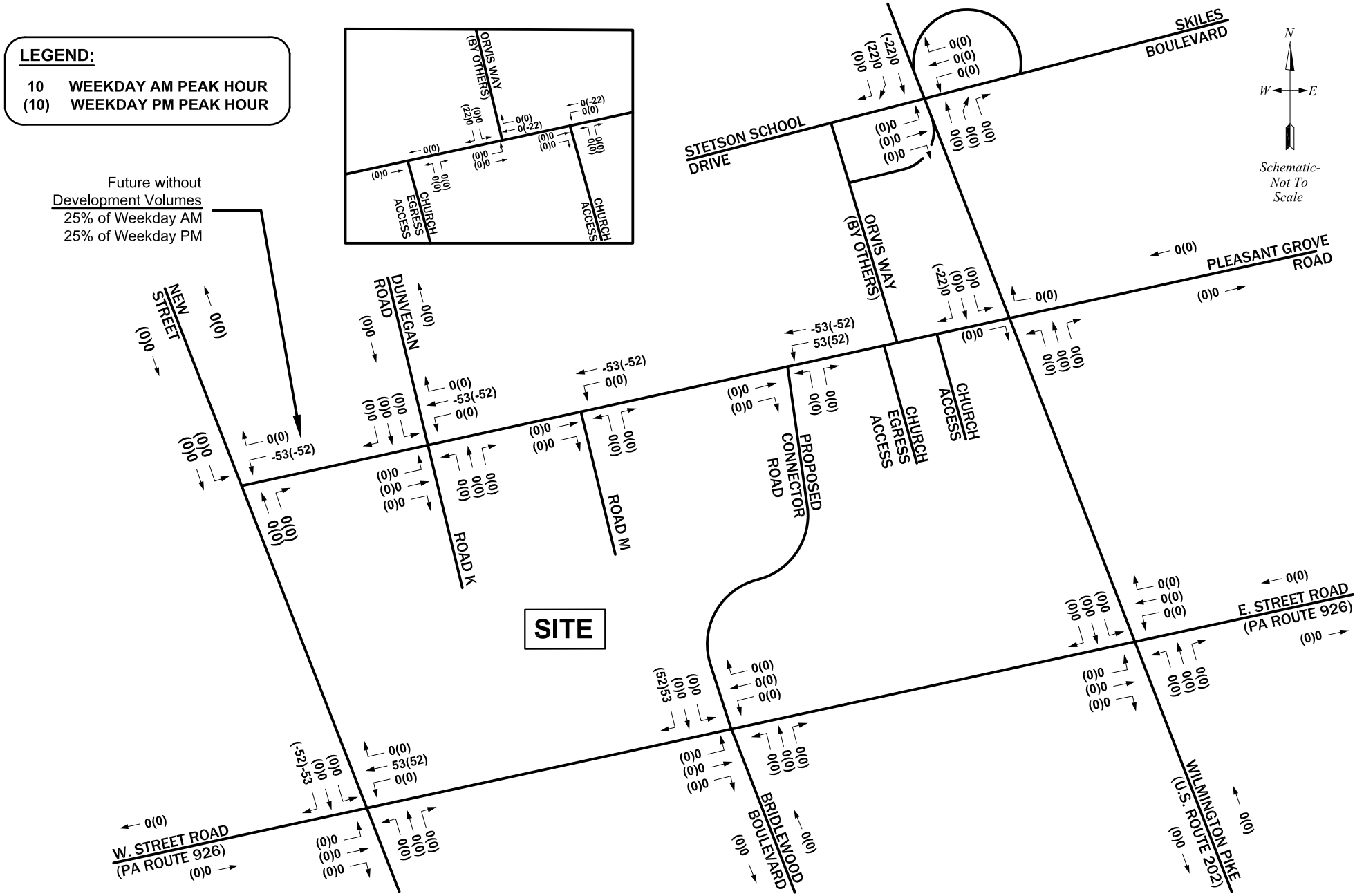
2025 with Development Diversions
Diversion D - SR 926 EBL to NB US 202

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K1.dwg



2025 with Development Diversions

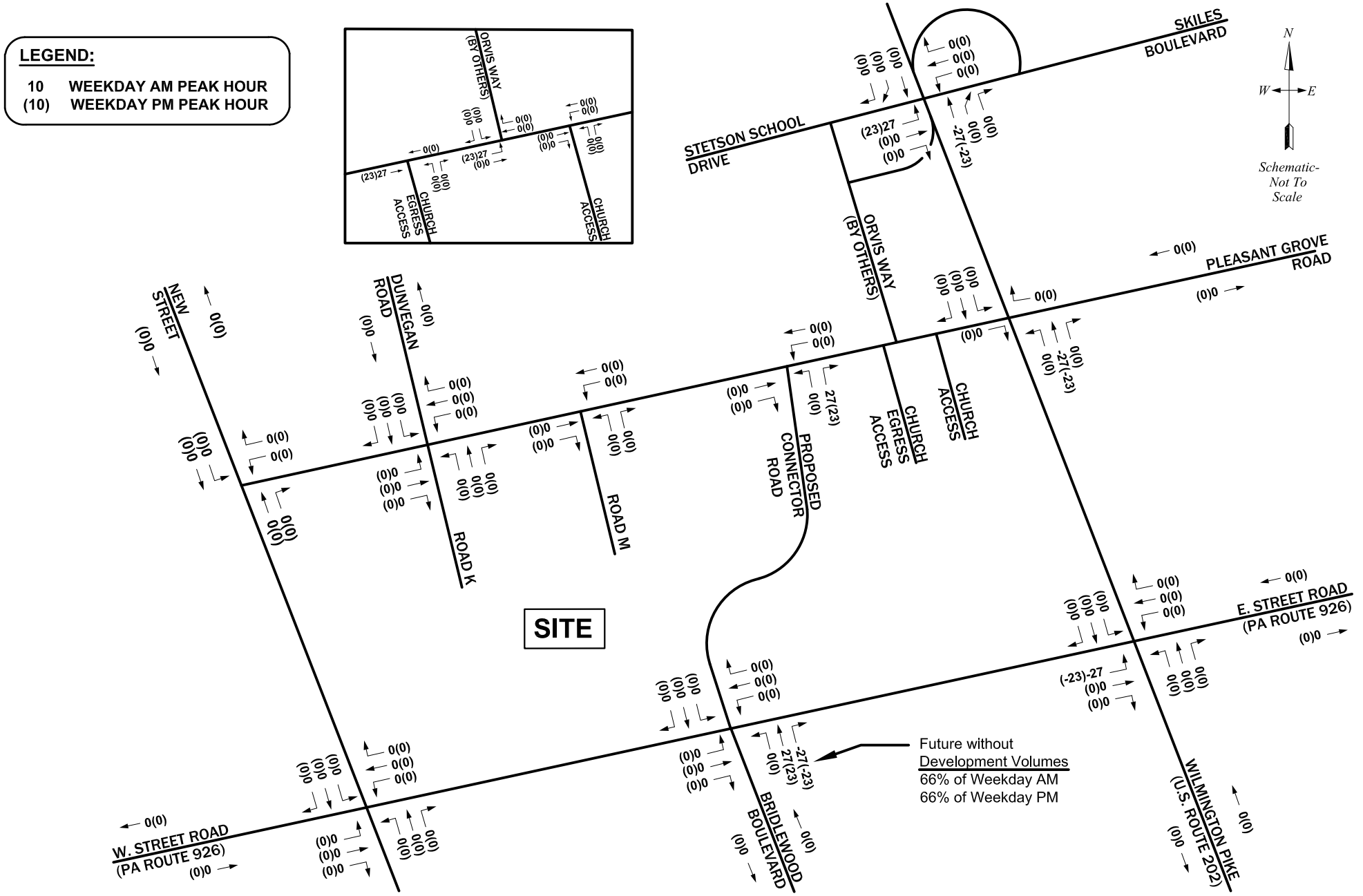
Diversion E - SBR US 202 to W. Pleasant Grove Road / New Street

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-01-09) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K2.dwg



2025 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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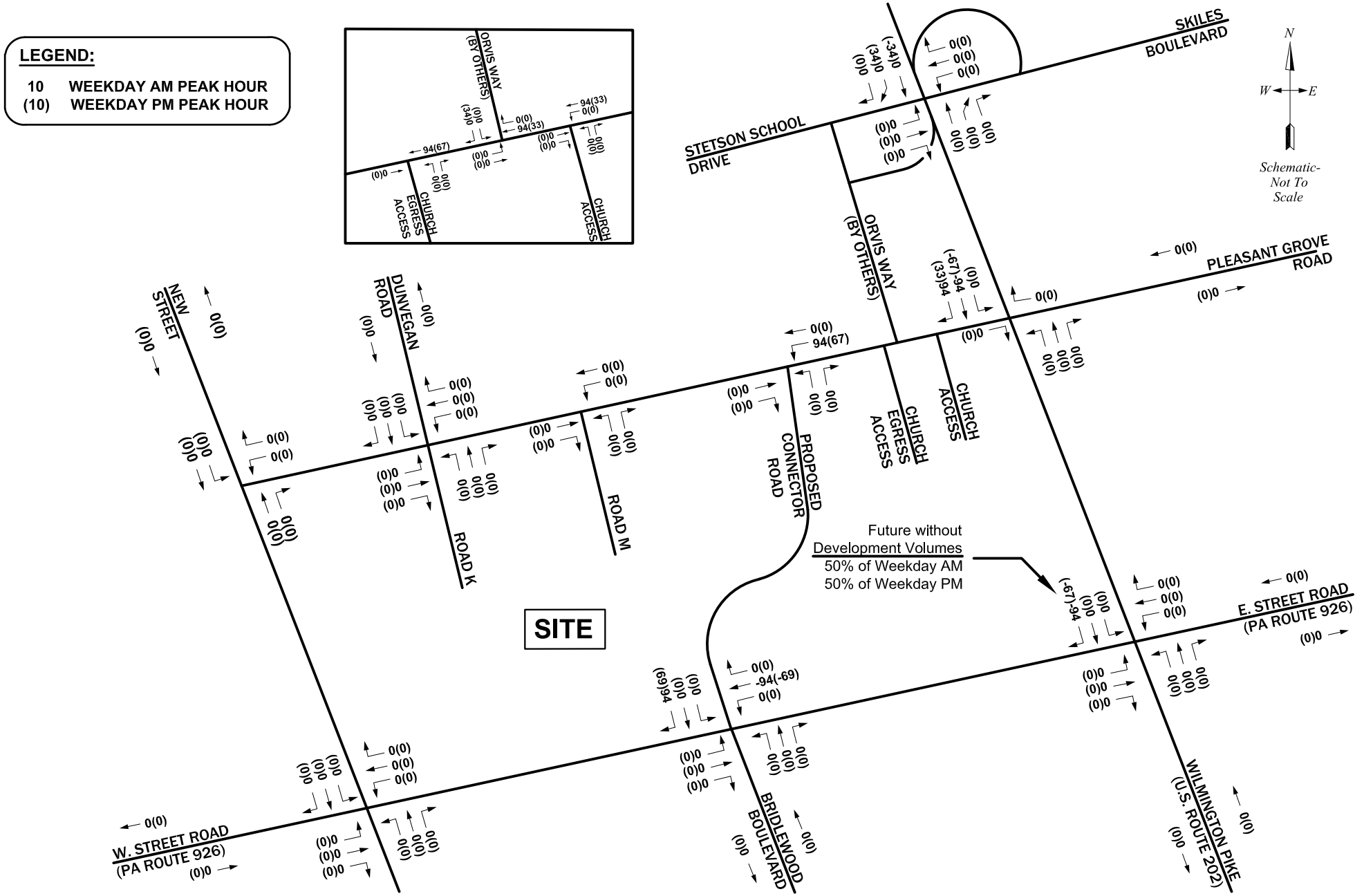

2025 with Development Diversions
Diversion G - SBR US 202 to WB SR 926

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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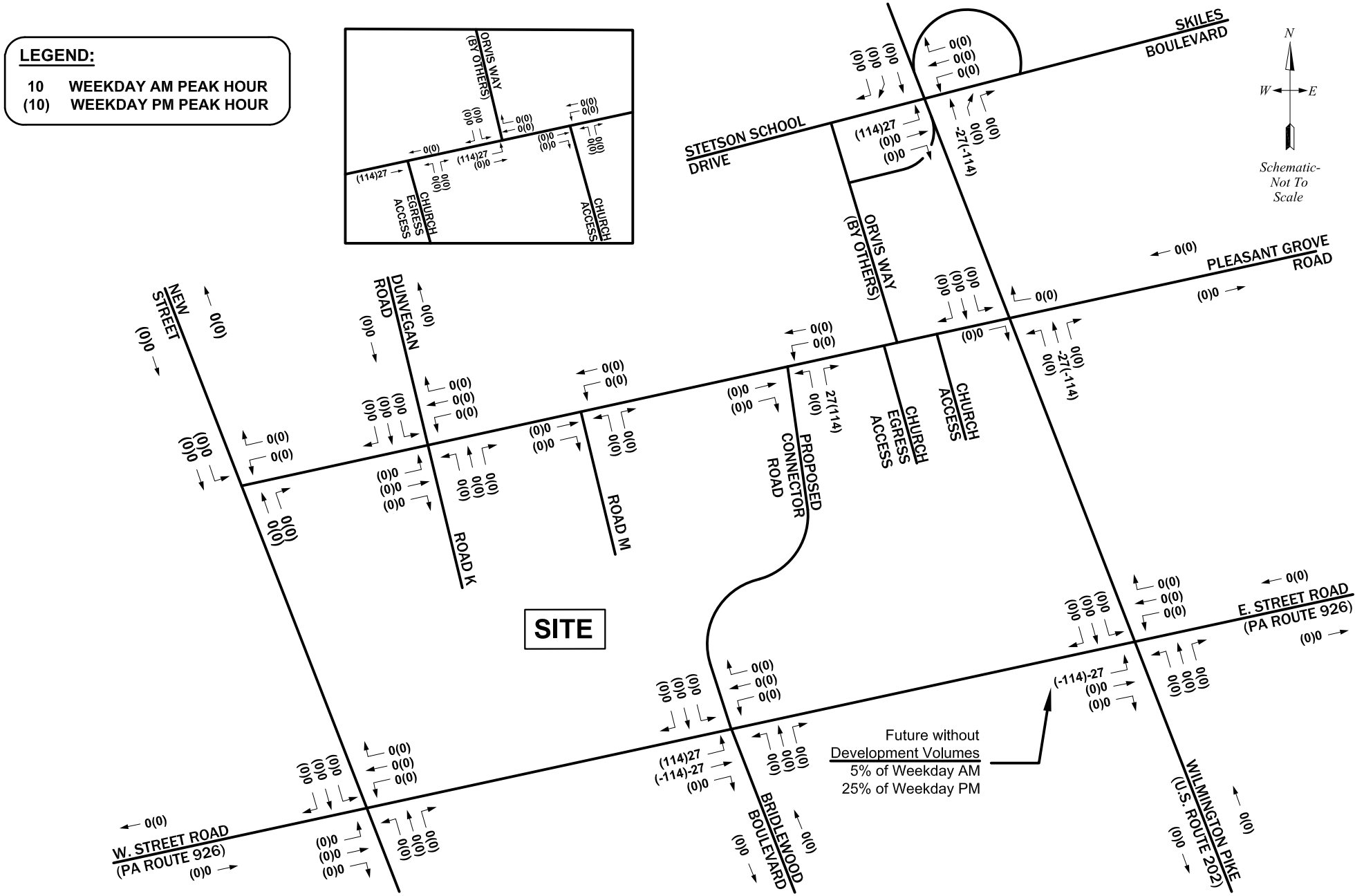

2030 with Development Diversions
Diversion D - SR 926 EBL to NB US 202

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

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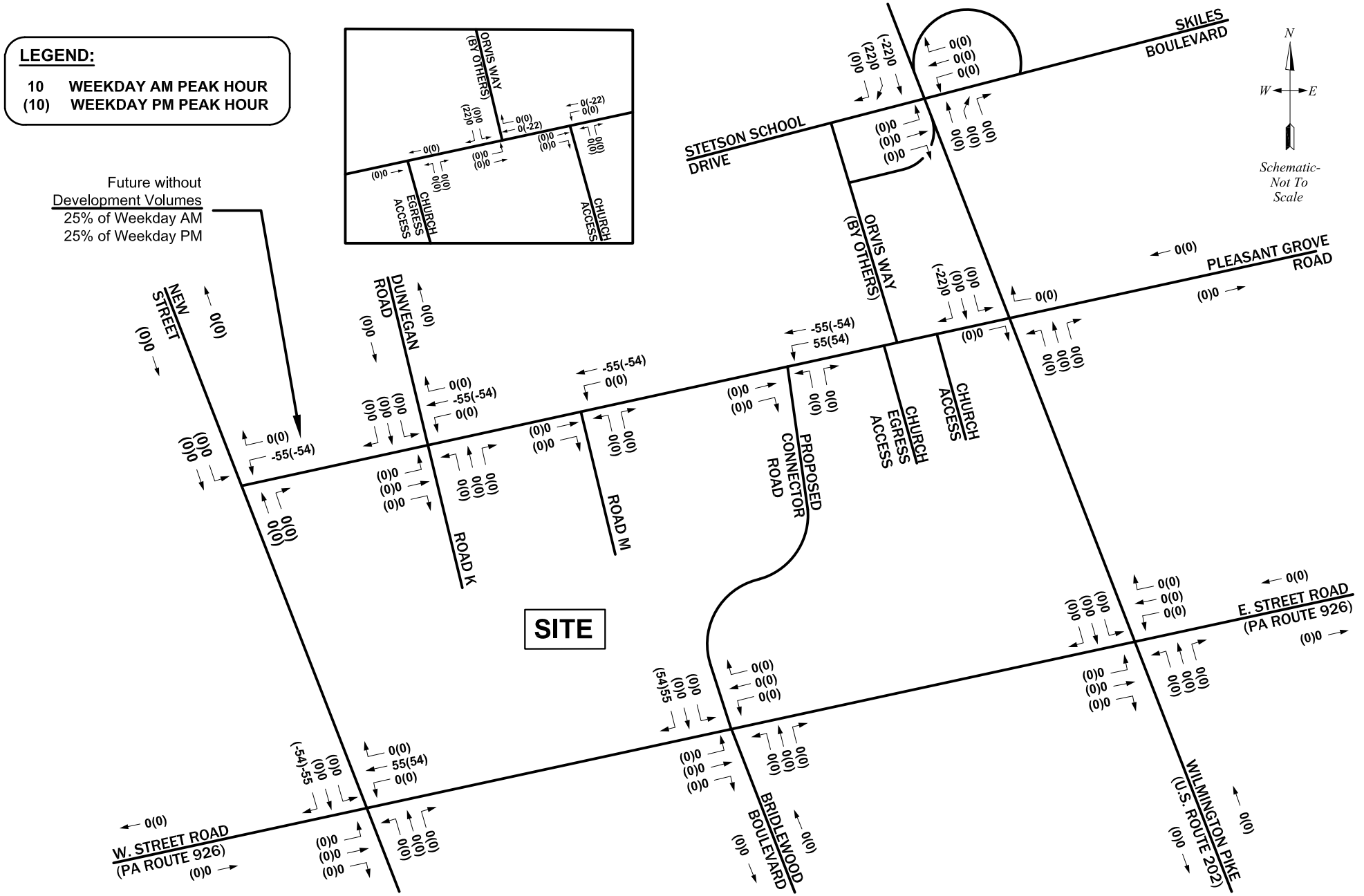


2030 with Development Diversions

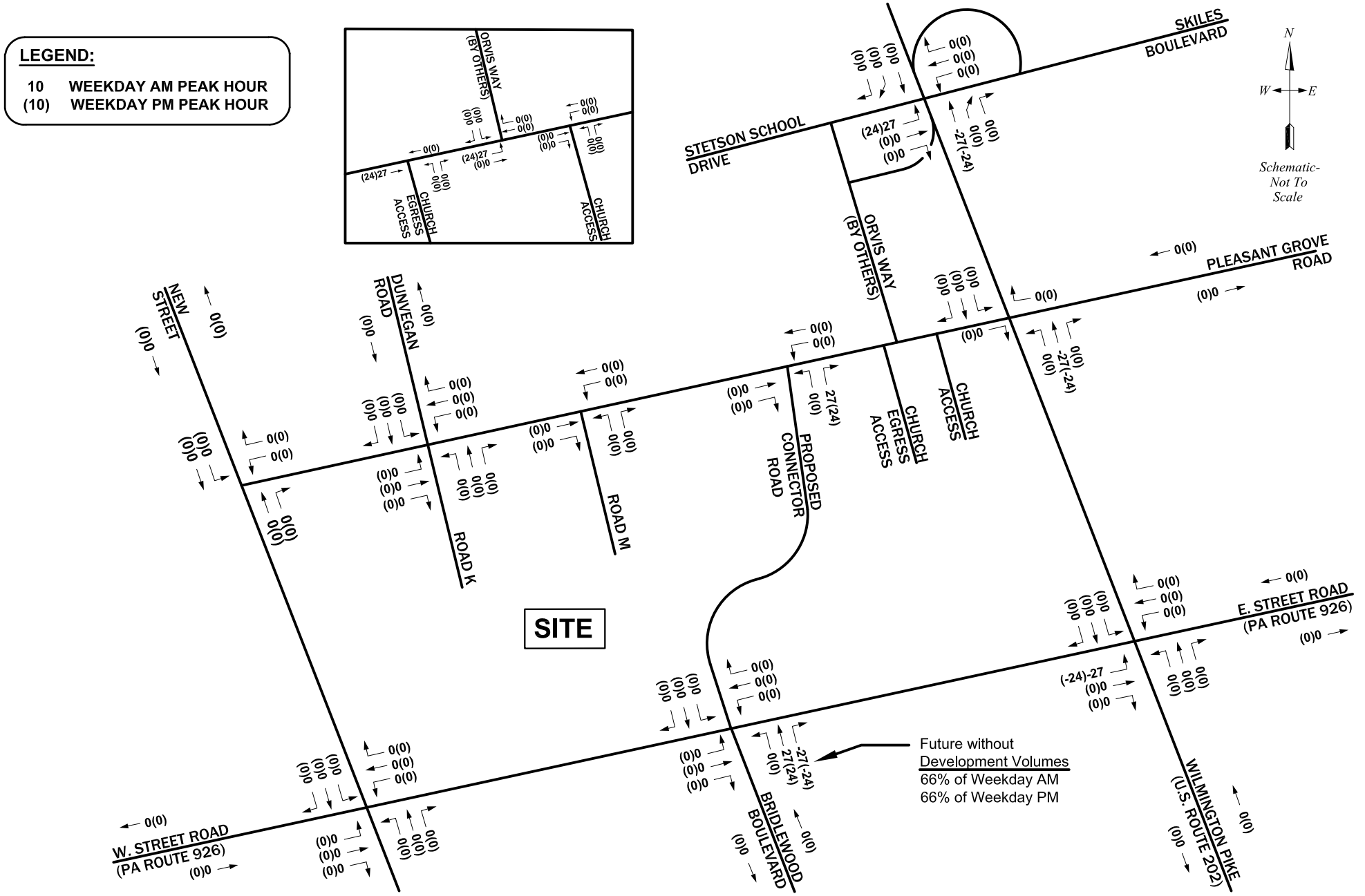
Diversion E - SBR US 202 to W. Pleasant Grove Road / New Street

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K8.dwg



2030 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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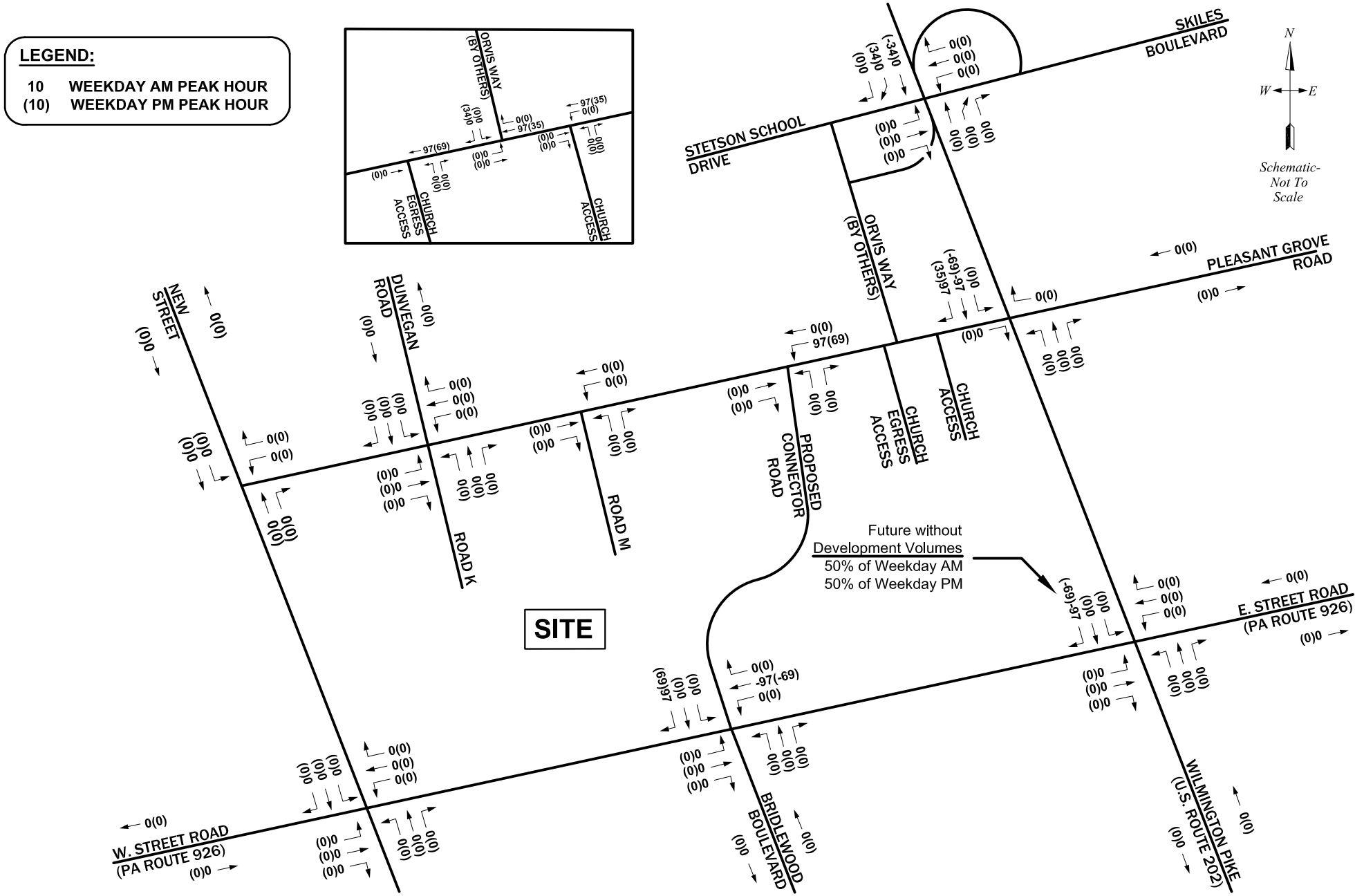

2030 with Development Diversions
Diversion G - SBR US 202 to WB SR 926

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

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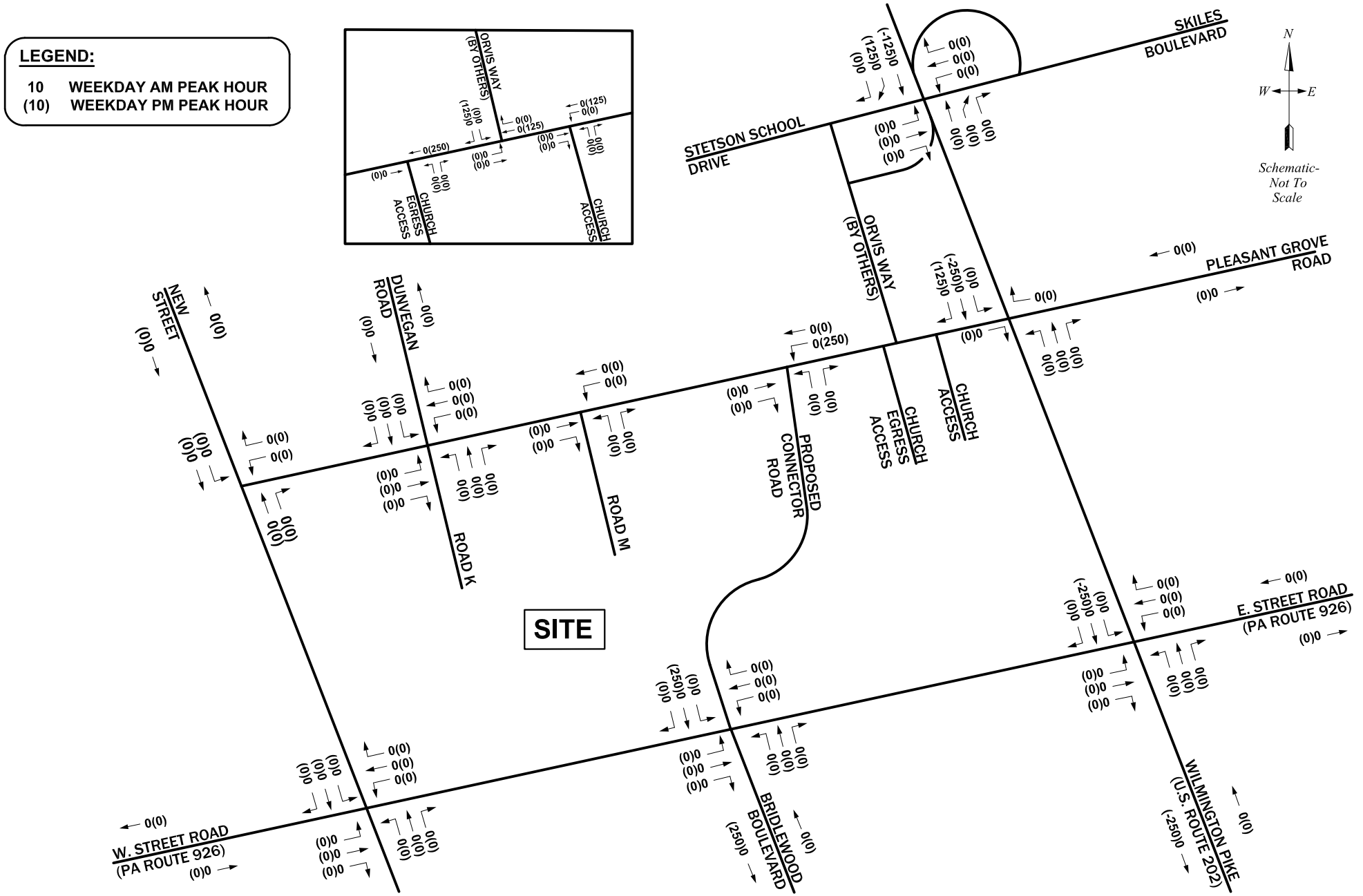

2025 & 2030 with Development Diversions
Diversion H - US 202 Southbound Through Traffic

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

McMAHON TRANSPORTATION ENGINEERS & PLANNERS

(2020-02-21) I:\eng\816451 - Crebilly Farm\dwg\2020-03 Robinson Tract Revised TIS\Figure K13.dwg

TRAVEL TIME COMPARISON
2030 Future without Development Conditions
With ORVIS WAY DIVERSIONS

DIVERSION A

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	EBT @ New / PA 926			14.6	15.3
	PA 926 | Newto US 202	4750	45	72	72
	EBL @ US 202/PA 926			195.4	194.2
	US 202 | PA 926 TO SKILES	4300	45	65	65
	NBT @ US 202 / SKILES			50.3	25.5
			TOTAL	***397.5***	***372.2***
DIVERTED ROUTE	EBL @ PA 926 / New			14.6	15.3
	New | PA 926 to Pleasant Grove	3400	35	66	66
	NBR @ Pleasant Grove / New			0	0
	Pleasant Grove | New to Orvis	4100	35	80	80
	EBL @ Pleasant Grove / Orvis			8.9	9.1
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	Skiles | Orvis to US 202	200	25	6	6
	EBL @ US 202 / Skiles			68.9	55
			TOTAL	***274.0***	***261.0***

DIVERSION B

NB US 202 JUGHANDLE WILL DIVERT TO ORVIS WAY VIA WEST PLEASANT GROVE ROAD

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	NBT @ US 202 / Pleasant Grove			0.0	0.0
	US 202 | Pleasant Grove to Skiles	1200	45	18.2	18.2
	NBR @ US 202 / Skiles			7.0	5.8
	Jughandle | US 202 to US 202	900	30	20.5	20.5
	WBT @ US 202 / Skiles			44.0	40.8
	Skiles | US 202 to Orvis	200	25	5.5	5.5
			TOTAL	***95.2***	***90.8***
DIVERTED ROUTE	NBL @ US 202 / Pleasant Grove			14.5	13.8
	Pleasant Grove | US 202 to Orvis	200	35	3.9	3.9
	WBR @ Pleasant Grove / Orvis			0.0	0.0
	Orvis | Pleasant Grove to Skiles	1100	25	30.0	30.0
			TOTAL	***48.4***	***47.7***

DIVERSION C

EB RIGHT-TURN EXITING STETSON SCHOOL DESTINED TO WEST PLEASANT GROVE ROAD WILL DIVERT TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	Skiles | Orvis to US 202	200	25	5.5	5.5
	EBR @ US 202 / Skiles			37.8	37.6
	US 202 | Skiles to Pleasant Grove	1200	45	18.2	18.2
	SBR @ US 202 / Pleasant Grove			0.0	0.0
	Pleasant Grove | US 202 to Orvis	200	35	3.9	3.9
			TOTAL	***65.4***	***65.2***
DIVERTED ROUTE	Orvis | Skiles to Pleasant Grove	1100	25	30.0	30.0
	SBR @ Orvis / Pleasant Grove			10.0	10.6
			TOTAL	***40.0***	***40.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITHOUT COLLECTOR ROAD DIVERSIONS

DIVERSION D

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET
TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	EBT @ Collector / PA 926			1.0	0.8
	PA 926 | Collector to US 202	2300	45	34.8	34.8
	EBL @ US 202/PA 926			213.4	267.8
NO DIVERSIONS	US 202 | PA 926 TO SKILES	4300	45	65.2	65.2
	NBT @ US 202 / SKILES			61.7	30.9
			TOTAL	***376.1***	***399.5***

DIVERSION E

SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	Pleasant Grove | Collector to New	3700	35	72.1	72.1
	WBL @ New / Pleasant Grove			14.4	15.6
	New | Pleasant Grove to PA 926	3400	35	66.2	66.2
NO DIVERSIONS	SBR @ PA 926 / New			37.0	38.9
			TOTAL	***189.7***	***192.8***

DIVERSION F

NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	NBR @ PA 926 / Bridlewood			39.8	45.9
	PA 926 | Bridlewood to US 202	2300	35	44.8	44.8
	EBL @ US 202 / PA 926			213.4	267.8
NO DIVERSIONS	US 202 | PA 926 to Skiles	4300	45	65.2	65.2
	NBT @ US 202 / Skiles			61.7	30.9
			TOTAL	***424.9***	***454.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITHOUT COLLECTOR ROAD DIVERSIONS

DIVERSION G

SB US ROUTE 202 RIGHT-TURN TO WB PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	SBT @ US 202 / Pleasant Grove			0.0	0.0
	US 202 | Pleasant Grove to PA 926	3100	45	47.0	47.0
	SBR @ US 202 / PA 926			137.5	459.7
NO DIVERSIONS	PA 926 | US 202 to Collector	2300	45	34.8	34.8
	WBT @ PA 926 / Collector			2.4	2.1
			TOTAL	***221.7***	***543.6***

DIVERSION H

US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	SBT @ US 202 / Skiles			29.2	20.2
	US 202 | PA 926 to Skiles	4320	45	65.5	65.5
	SBT @ US 202 / PA 926			123.3	472.4
NO DIVERSIONS	US 202 | Bridlewood to PA 926	2770	45	42.0	42.0
			TOTAL	***260***	***600.1***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITH COLLECTOR ROAD DIVERSIONS

DIVERSION D

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	EBT @ Collector / PA 926			1.8	7.0
	PA 926 | Collector to US 202	2300	45	35	35
BASE	EBL @ US 202/PA 926			187.2	167.0
ROUTE	US 202 | PA 926 TO SKILES	4300	45	65	65
	NBT @ US 202 / SKILES			52.2	30.6
			TOTAL	***341.2***	***304.6***
	EBL @ PA 926 / Collector			0.2	6.1
	Collector | PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
DIVERTED	Pleasant Grove | Collector to Orvis	400	35	8	8
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***218.1***	***201.7***

DIVERSION E

SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	Pleasant Grove | Collector to New	3700	35	72	72
BASE	WBL @ New / Pleasant Grove			13	13.8
ROUTE	New | Pleasant Grove to PA 926	3400	35	66	66
	SBR @ PA 926 / New			37.1	39
			TOTAL	***188.4***	***191.1***
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
DIVERTED	SBR @ PA 926 / Collector			52.1	49.9
ROUTE	PA 926 | Collector to New	2400	45	36	36
	WBT @ PA 926 / New			2.9	0.9
			TOTAL	***182.3***	***180.3***

DIVERSION F

NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	NBR @ PA 926 / Bridlewood			33.4	27.0
	PA 926 | Bridlewood to US 202	2300	35	45	45
BASE	EBL @ US 202 / PA 926			187.2	167.0
ROUTE	US 202 | PA 926 to Skiles	4300	45	65	65
	NBT @ US 202 / Skiles			52.2	30.6
			TOTAL	***382.8***	***334.6***
	NBT @ PA 926 / Bridlewood			33.4	27
	Collector |PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
DIVERTED	Pleasant Grove | Collector to Orvis	400	35	7.8	7.8
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***251.3***	***222.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITH COLLECTOR ROAD DIVERSIONS

DIVERSION G

SB US ROUTE 202 RIGHT-TURN TO WB PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	SBT @ US 202 / Pleasant Grove			0	0
	US 202 | Pleasant Grove to PA 926	3100	45	47	47
BASE	SBR @ US 202 / PA 926			103.1	359.3
ROUTE	PA 926 | US 202 to Collector	2300	45	35	35
	WBT @ PA 926 / Collector			3.0	8.6
			TOTAL	***187.9***	***449.7***
	SBR @ US 202 / Pleasant Grove			0	0
	Pleasant Grove | US 202 to Collector	600	35	12	12
DIVERTED	WBL @ Pleasant Grove / Collector			9.1	11.3
ROUTE	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
			TOTAL	***154.7***	***154.7***

DIVERSION H

US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	SBT @ US 202 / Skiles			29.2	20.5
	US 202 | PA 926 to Skiles	4320	45	66	66
BASE	SBT @ US 202 / PA 926			98.3	379.4
ROUTE	US 202 | Bridlewood to PA 926	2770	45	42	42
			TOTAL	***235***	***507.4***
	SBR @ US 202 / Skiles			9.9	10.6
	Orvis | Pleasant to Skiles	1100	25	30	30
	SBR @ Pleasant Grove / Orvis			14.0	17.6
DIVERTED	Pleasant Grove | Orvis to Collector	400	35	8	7.8
ROUTE	WBL @ Pleasant Grove / Collector			9.1	11.3
(PM ONLY)	Collector | Pleasant Grove to PA 926	4200	35	82	81.8
	SBT @ PA 926 / Collector			52.1	49.9
	Bridlewood | US 202 to PA 926	4150	25	113	113.2
			TOTAL	***317.9***	***322.2***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITH COLLECTOR ROAD DIVERSIONS

DIVERSION D

EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	EBT @ Collector / PA 926			1.8	7.0
	PA 926 | Collector to US 202	2300	45	35	35
BASE	EBL @ US 202/PA 926			63.6	61.2
ROUTE	US 202 | PA 926 TO SKILES	4300	45	65	65
	NBT @ US 202 / SKILES			52.2	30.6
			TOTAL	***217.6***	***198.8***
	EBL @ PA 926 / Collector			0.2	6.1
	Collector | PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
DIVERTED	Pleasant Grove | Collector to Orvis	400	35	8	8
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***218.1***	***201.7***

DIVERSION E

SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	Pleasant Grove | Collector to New	3700	35	72	72
BASE	WBL @ New / Pleasant Grove			13	13.8
ROUTE	New | Pleasant Grove to PA 926	3400	35	66	66
	SBR @ PA 926 / New			37.1	39
			TOTAL	***188.4***	***191.1***
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
DIVERTED	SBR @ PA 926 / Collector			52.1	49.9
ROUTE	PA 926 | Collector to New	2400	45	36	36
	WBT @ PA 926 / New			2.9	0.9
			TOTAL	***182.3***	***180.3***

DIVERSION F

NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	NBR @ PA 926 / Bridlewood			33.4	27.0
	PA 926 | Bridlewood to US 202	2300	35	45	45
BASE	EBL @ US 202 / PA 926			63.6	61.2
ROUTE	US 202 | PA 926 to Skiles	4300	45	65	65
	NBT @ US 202 / Skiles			52.2	30.6
			TOTAL	***259.2***	***228.8***
	NBT @ PA 926 / Bridlewood			33.4	27
	Collector |PA 926 to Pleasant Grove	4200	35	82	82
	NBR @ Pleasant Grove / Collector			9.5	11.2
DIVERTED	Pleasant Grove | Collector to Orvis	400	35	7.8	7.8
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9
	Orvis | Pleasant Grove to Skiles	1100	25	30	30
	EBL @ US 202 / Skiles			78.5	53.9
			TOTAL	***251.3***	***222.6***

TRAVEL TIME COMPARISON
2030 Future with Development Conditions | With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926)
WITH COLLECTOR ROAD DIVERSIONS

DIVERSION G

SB US ROUTE 202 RIGHT-TURN TO WB PA 926

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	SBT @ US 202 / Pleasant Grove			0	0
	US 202 | Pleasant Grove to PA 926	3100	45	47	47
	SBR @ US 202 / PA 926 (1)			56.3	301.8
	PA 926 | US 202 to Collector	2300	45	35	35
	WBT @ PA 926 / Collector			3.0	8.6
			TOTAL	***141.1***	***392.2***
DIVERTED ROUTE	SBR @ US 202 / Pleasant Grove			0	0
	Pleasant Grove | US 202 to Collector	600	35	12	12
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	82
	SBR @ PA 926 / Collector			52.1	49.9
			TOTAL	***154.7***	***154.7***

(1) US 202 southbound through delay utilized for trave time calculation as HCM methodology does not account for delay caused by blockage of right-turn lane by through queue.

DIVERSION H

US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202

	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE ROUTE	SBT @ US 202 / Skiles			29.2	20.5
	US 202 | PA 926 to Skiles	4320	45	66	66
	SBT @ US 202 / PA 926			56.3	301.8
	US 202 | Bridlewood to PA 926	2770	45	42	42
			TOTAL	***193***	***429.8***
DIVERTED ROUTE (PM ONLY)	SBR @ US 202 / Skiles			9.9	10.6
	Orvis | Pleasant to Skiles	1100	25	30	30
	SBR @ Pleasant Grove / Orvis			14.0	17.6
	Pleasant Grove | Orvis to Collector	400	35	8	7.8
	WBL @ Pleasant Grove / Collector			9.1	11.3
	Collector | Pleasant Grove to PA 926	4200	35	82	81.8
	SBT @ PA 926 / Collector			52.1	49.9
	Bridlewood | US 202 to PA 926	4150	25	113	113.2
			TOTAL	***317.9***	***322.2***

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix L

Future 2025
Detailed Traffic Volume Worksheets

INTERSECTION VOLUME SUMMARY
New Street/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component	EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC	48	648	5	9	97	41	8	310	36	8	122	190
Seasonal Adjustment Factor 1.000	48	648	5	9	97	41	8	310	36	8	122	190
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**48**	**648**	**5**	**9**	**97**	**41**	**8**	**310**	**36**	**8**	**122**	**190**
Background Growth 3.16 %	2	20	0	0	3	1	0	10	1	0	4	6
EXISTING W/ BACKGROUND	50	668	5	9	100	42	8	320	37	8	126	196
TOTAL "OTHER" DEVELOPMENTS	30	-26	0	0	2	0	0	2	0	0	1	3
Condominium Development	0	1	0	0	0	0	0	1	0	0	0	1
Malvern School (NEW)	0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development	2	0	0	0	2	0	0	0	0	0	1	2
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	-28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**80**	**642**	**5**	**9**	**102**	**42**	**8**	**322**	**37**	**8**	**127**	**199**
TOTAL "NEW" SITE TRAFFIC	**3**	**3**	**0**	**0**	**1**	**1**	**4**	**61**	**0**	**0**	**3**	**-46**
Single Family Homes	2	2	0	0	1	1	3	5	0	0	2	5
Carriage Homes	1	1	0	0	0	0	1	2	0	0	1	2
Site Balancing	0	0	0	0	0	0	0	1	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	53	0	0	0	-53
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**83**	**645**	**5**	**9**	**103**	**43**	**12**	**383**	**37**	**8**	**130**	**153**
"New" Site Traffic % of Total *0.0%*	3.6	0.5	0.0	0.0	1.0	2.3	33.3	15.9	0.0	0.0	2.3	-30.1

INTERSECTION VOLUME SUMMARY
New Street/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC		30	659	13	9	83	37	19	305	30	49	164	143
Seasonal Adjustment Factor	1.000	30	659	13	9	83	37	19	305	30	49	164	143
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**30**	**659**	**13**	**9**	**83**	**37**	**19**	**305**	**30**	**49**	**164**	**143**
Background Growth	3.16 %	1	21	0	0	3	1	1	10	1	2	5	5
EXISTING W/ BACKGROUND		31	680	13	9	86	38	20	315	31	51	169	148
TOTAL "OTHER" DEVELOPMENTS		26	-21	0	0	1	0	0	2	0	0	2	2
Condominium Development		0	2	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		2	0	0	0	1	0	0	0	0	0	2	2
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		24	-24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**57**	**659**	**13**	**9**	**87**	**38**	**20**	**317**	**31**	**51**	**171**	**150**
TOTAL "NEW" SITE TRAFFIC		**8**	**9**	**0**	**0**	**3**	**4**	**3**	**56**	**0**	**0**	**2**	**-47**
Single Family Homes		6	6	0	0	2	3	2	3	0	0	1	3
Carriage Homes		2	2	0	0	1	1	1	1	0	0	1	1
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	1
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	52	0	0	0	-52
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**65**	**668**	**13**	**9**	**90**	**42**	**23**	**373**	**31**	**51**	**173**	**103**
"New" Site Traffic % of Total	*0.0%*	12.3	1.3	0.0	0.0	3.3	9.5	13.0	15.0	0.0	0.0	1.2	-45.6

INTERSECTION VOLUME SUMMARY
Bridlewood Blvd/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND Bridlewood Blvd L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND Bridlewood Blvd L	S	R
EXISTING TRAFFIC		0	682	31	25	0	39	13	325	0	0	0	0
Seasonal Adjustment Factor	1.000	0	682	31	25	0	39	13	325	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**682**	**31**	**25**	**0**	**39**	**13**	**325**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	22	1	1	0	1	0	10	0	0	0	0
EXISTING W/ BACKGROUND		0	704	32	26	0	40	13	335	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	-26	0	0	0	0	0	2	0	0	0	0
Condominium Development		0	1	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	-28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**678**	**32**	**26**	**0**	**40**	**13**	**337**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**30**	**-26**	**0**	**0**	**31**	**-27**	**0**	**-94**	**14**	**46**	**15**	**159**
Single Family Homes		3	0	0	0	3	0	0	0	10	31	10	8
Carriage Homes		1	0	0	0	1	0	0	0	4	15	5	4
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		26	-26	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	53
Diversion D - NBR Bridlewood to 202		0	0	0	0	27	-27	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	-94	0	0	0	94
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**30**	**652**	**32**	**26**	**31**	**13**	**13**	**243**	**14**	**46**	**15**	**159**
"New" Site Traffic % of Total	####	100.0	-4.0	0.0	0.0	100.0	-207.7	0.0	-38.7	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Bridlewood Blvd/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND Bridlewood Blvd L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND Bridlewood Blvd L	S	R
EXISTING TRAFFIC		0	692	37	16	0	34	20	357	0	0	0	0
Seasonal Adjustment Factor	1.000	0	692	37	16	0	34	20	357	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**692**	**37**	**16**	**0**	**34**	**20**	**357**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	22	1	1	0	1	1	11	0	0	0	0
EXISTING W/ BACKGROUND		0	714	38	17	0	35	21	368	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	-21	0	0	0	0	0	2	0	0	0	0
Condominium Development		0	2	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	-24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**693**	**38**	**17**	**0**	**35**	**21**	**370**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**124**	**-111**	**0**	**0**	**40**	**-23**	**0**	**-69**	**49**	**29**	**260**	**128**
Single Family Homes		9	0	0	0	12	0	0	0	35	20	7	5
Carriage Homes		4	0	0	0	5	0	0	0	14	9	3	2
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		111	-111	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	52
Diversion D - NBR Bridlewood to 202		0	0	0	0	23	-23	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	-69	0	0	0	69
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**124**	**582**	**38**	**17**	**40**	**12**	**21**	**301**	**49**	**29**	**260**	**128**
"New" Site Traffic % of Total	####	100.0	-19.1	0.0	0.0	100.0	-191.7	0.0	-22.9	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component	EASTBOUND Street Road (PA 926)			NORTHBOUND Wilmington Pike (US 202)			WESTBOUND Street Road (PA 926)			SOUTHBOUND Wilmington Pike (US 202)		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	531	221	8	12	1551	151	142	158	45	48	1465	181
Seasonal Adjustment Factor 1.000	531	221	8	12	1551	151	142	158	45	48	1465	181
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**531**	**221**	**8**	**12**	**1551**	**151**	**142**	**158**	**45**	**48**	**1465**	**181**
Background Growth 3.16 %	17	7	0	0	49	5	4	5	1	2	46	6
EXISTING W/ BACKGROUND	548	228	8	12	1600	156	146	163	46	50	1511	187
TOTAL "OTHER" DEVELOPMENTS	-26	0	0	0	30	0	0	0	10	6	26	2
Condominium Development	1	0	0	0	1	0	0	0	0	0	3	1
Malvern School (NEW)	1	0	0	0	5	0	0	0	2	0	6	1
Arborview Development	0	0	0	0	24	0	0	0	8	6	18	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	-28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**522**	**228**	**8**	**12**	**1630**	**156**	**146**	**163**	**56**	**56**	**1537**	**189**
TOTAL "NEW" SITE TRAFFIC	**-38**	**8**	**23**	**10**	**0**	**0**	**0**	**4**	**0**	**8**	**8**	**-94**
Single Family Homes	10	5	15	7	0	0	0	3	0	5	5	0
Carriage Homes	5	2	7	3	0	0	0	1	0	2	2	0
Site Balancing	0	1	1	0	0	0	0	0	0	1	1	0
Diversion A - EBL 926 to NB 202	-26	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	-27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	-94
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**484**	**236**	**31**	**22**	**1630**	**156**	**146**	**167**	**56**	**64**	**1545**	**95**
"New" Site Traffic % of Total *0.0%*	-7.9	3.4	74.2	45.5	0.0	0.0	0.0	2.4	0.0	12.5	0.5	-98.9

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Street Road (PA 926)			NORTHBOUND Wilmington Pike (US 202)			WESTBOUND Street Road (PA 926)			SOUTHBOUND Wilmington Pike (US 202)		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		451	204	27	29	1551	121	199	221	57	79	1451	128
Seasonal Adjustment Factor	1.000	451	204	27	29	1551	121	199	221	57	79	1451	128
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**451**	**204**	**27**	**29**	**1551**	**121**	**199**	**221**	**57**	**79**	**1451**	**128**
Background Growth	3.16 %	14	6	1	1	49	4	6	7	2	2	46	4
EXISTING W/ BACKGROUND		465	210	28	30	1600	125	205	228	59	81	1497	132
TOTAL "OTHER" DEVELOPMENTS		-21	0	0	0	26	0	0	0	7	8	34	2
Condominium Development		2	0	0	0	3	0	0	0	0	0	2	1
Malvern School (NEW)		1	0	0	0	5	0	0	0	1	0	7	1
Arborview Development		0	0	0	0	18	0	0	0	6	8	24	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	1	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		-24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**444**	**210**	**28**	**30**	**1626**	**125**	**205**	**228**	**66**	**89**	**1531**	**134**
TOTAL "NEW" SITE TRAFFIC		**-124**	**4**	**15**	**32**	**0**	**0**	**0**	**17**	**0**	**6**	**-245**	**-67**
Single Family Homes		7	3	10	23	0	0	0	12	0	3	3	0
Carriage Homes		3	1	4	10	0	0	0	5	0	1	1	0
Site Balancing		0	0	1	-1	0	0	0	0	0	2	1	0
Diversion A - EBL 926 to NB 202		-111	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		-23	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	-67
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**320**	**214**	**43**	**62**	**1626**	**125**	**205**	**245**	**66**	**95**	**1286**	**67**
"New" Site Traffic % of Total	####	-38.8	1.9	34.9	51.6	0.0	0.0	0.0	6.9	0.0	6.3	-19.1	-100.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component	EASTBOUND Pleasant Grove Road			NORTHBOUND Wilmington Pike (US 202)			WESTBOUND Pleasant Grove Road			SOUTHBOUND Wilmington Pike (US 202)		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Seasonal Adjustment Factor 1.000	0	0	12	10	2082	52	0	0	7	37	1753	150
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**12**	**10**	**2082**	**52**	**0**	**0**	**7**	**37**	**1753**	**150**
Background Growth 3.16 %	0	0	0	0	66	2	0	0	0	1	55	5
EXISTING W/ BACKGROUND	0	0	12	10	2148	54	0	0	7	38	1808	155
TOTAL "OTHER" DEVELOPMENTS	0	0	15	22	-24	16	0	0	27	15	19	-1
Condominium Development	0	0	0	0	2	0	0	0	0	0	4	1
Malvern School (NEW)	0	0	0	0	0	8	0	0	15	8	7	0
Arborview Development	0	0	15	20	12	0	0	0	0	1	9	6
Malvern School (PB AM)	0	0	0	0	-8	8	0	0	12	6	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-28	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**27**	**32**	**2124**	**70**	**0**	**0**	**34**	**53**	**1827**	**154**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**16**	**0**	**-38**	**0**	**0**	**0**	**0**	**0**	**-94**	**104**
Single Family Homes	0	0	10	0	10	0	0	0	0	0	0	7
Carriage Homes	0	0	5	0	5	0	0	0	0	0	0	3
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	-26	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	-27	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-94	94
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**43**	**32**	**2086**	**70**	**0**	**0**	**34**	**53**	**1733**	**258**
"New" Site Traffic % of Total *0.0%*	0.0	0.0	37.2	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	-5.4	40.3

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Pleasant Grove Road L	S	R	NORTHBOUND Wilmington Pike (US 202) L	S	R	WESTBOUND Pleasant Grove Road L	S	R	SOUTHBOUND Wilmington Pike (US 202) L	S	R
EXISTING TRAFFIC		0	0	24	32	2004	46	0	0	11	89	1701	202
Seasonal Adjustment Factor	1.000	0	0	24	32	2004	46	0	0	11	89	1701	202
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**24**	**32**	**2004**	**46**	**0**	**0**	**11**	**89**	**1701**	**202**
Background Growth	3.16 %	0	0	1	1	63	1	0	0	0	3	54	6
EXISTING W/ BACKGROUND		0	0	25	33	2067	47	0	0	11	92	1755	208
TOTAL "OTHER" DEVELOPMENTS		0	0	20	17	-18	13	0	0	31	16	24	-12
Condominium Development		0	0	0	0	5	0	0	0	0	0	3	0
Malvern School (NEW)		0	0	0	0	0	7	0	0	17	8	8	0
Arborview Development		0	0	20	15	9	0	0	0	0	2	12	4
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	-6	6	0	0	14	6	1	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	-16
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**45**	**50**	**2049**	**60**	**0**	**0**	**42**	**108**	**1779**	**196**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**11**	**0**	**-124**	**0**	**0**	**0**	**0**	**0**	**-317**	**169**
Single Family Homes		0	0	7	0	7	0	0	0	0	0	0	23
Carriage Homes		0	0	3	0	3	0	0	0	0	0	0	10
Site Balancing		0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	-111	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	-22
Diversion D - NBR Bridlewood to 202		0	0	0	0	-23	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-250	125
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	-67	33
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**56**	**50**	**1925**	**60**	**0**	**0**	**42**	**108**	**1462**	**365**
"New" Site Traffic % of Total	####	0.0	0.0	19.6	0.0	-6.4	0.0	0.0	0.0	0.0	0.0	-21.7	46.3

INTERSECTION VOLUME SUMMARY
Church Full-Movement/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component	EASTBOUND W. Pleasant Grove Road			NORTHBOUND Church Full-Movement			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Church Full-Movement		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Seasonal Adjustment Factor 1.000	0	12	1	1	0	0	8	152	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**12**	**1**	**1**	**0**	**0**	**8**	**152**	**0**	**0**	**0**	**0**
Background Growth 3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND	0	12	1	1	0	0	8	157	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	15	0	0	0	0	0	21	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	15	0	0	0	0	0	26	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**27**	**1**	**1**	**0**	**0**	**8**	**178**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**104**	**0**	**0**	**0**	**0**
Single Family Homes	0	10	0	0	0	0	0	7	0	0	0	0
Carriage Homes	0	5	0	0	0	0	0	3	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	94	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**43**	**1**	**1**	**0**	**0**	**8**	**282**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	37.2	0.0	0.0	0.0	0.0	0.0	36.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Church Full-Movement/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Church Full-Movement L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Church Full-Movement L	S	R
EXISTING TRAFFIC		0	20	0	1	0	4	5	229	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	1	0	4	5	229	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**1**	**0**	**4**	**5**	**229**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	1	0	4	5	236	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	20	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	20	0	0	0	0	0	19	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	-16	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**41**	**0**	**1**	**0**	**4**	**5**	**241**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**11**	**0**	**0**	**0**	**0**	**0**	**169**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	0	0	0	0	0	23	0	0	0	0
Carriage Homes		0	3	0	0	0	0	0	10	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-22	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	125	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	33	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**52**	**0**	**1**	**0**	**4**	**5**	**410**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	21.2	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Orvis Way/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component	EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Orvis Way L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Orvis Way L	S	R
EXISTING TRAFFIC	0	12	0	0	0	0	0	153	0	0	0	0
Seasonal Adjustment Factor 1.000	0	12	0	0	0	0	0	153	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**153**	**0**	**0**	**0**	**0**
Background Growth 3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND	0	12	0	0	0	0	0	158	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	34	0	0	0	0	0	0	-7	28	15	0	12
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	6	0	0	0	0	0	0	0	26	15	0	4
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**34**	**12**	**0**	**0**	**0**	**0**	**0**	**151**	**28**	**15**	**0**	**12**
TOTAL "NEW" SITE TRAFFIC	**99**	**16**	**0**	**0**	**0**	**0**	**0**	**104**	**0**	**0**	**0**	**10**
Single Family Homes	31	10	0	0	0	0	0	7	0	0	0	7
Carriage Homes	15	5	0	0	0	0	0	3	0	0	0	3
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	26	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	94	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**133**	**28**	**0**	**0**	**0**	**0**	**0**	**255**	**28**	**15**	**0**	**22**
"New" Site Traffic % of Total ####	74.4	57.1	0.0	0.0	0.0	0.0	0.0	40.8	0.0	0.0	0.0	45.5

INTERSECTION VOLUME SUMMARY
Orvis Way/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component	EASTBOUND W. Pleasant Grove Road			NORTHBOUND Orvis Way			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Orvis Way		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	24	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000	0	24	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**24**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	25	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	28	0	0	0	0	0	0	-16	21	20	0	22
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	4	0	0	0	0	0	0	0	19	20	0	6
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-16	0	0	0	16
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**28**	**25**	**0**	**0**	**0**	**0**	**0**	**221**	**21**	**20**	**0**	**22**
TOTAL "NEW" SITE TRAFFIC	**163**	**11**	**0**	**0**	**0**	**0**	**0**	**169**	**0**	**0**	**0**	**213**
Single Family Homes	20	7	0	0	0	0	0	23	0	0	0	23
Carriage Homes	9	3	0	0	0	0	0	10	0	0	0	10
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202	111	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-22	0	0	0	22
Diversion D - NBR Bridlewood to 202	23	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	125	0	0	0	125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	33	0	0	0	34
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**191**	**36**	**0**	**0**	**0**	**0**	**0**	**390**	**21**	**20**	**0**	**235**
"New" Site Traffic % of Total ####	85.3	30.6	0.0	0.0	0.0	0.0	0.0	43.3	0.0	0.0	0.0	90.6

INTERSECTION VOLUME SUMMARY
Church Egress Only /W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Church Egress Only L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Church Egress Only L	S	R
EXISTING TRAFFIC		0	13	0	0	0	0	0	153	0	0	0	0
Seasonal Adjustment Factor	1.000	0	13	0	0	0	0	0	153	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**13**	**0**	**0**	**0**	**0**	**0**	**153**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	13	0	0	0	0	0	158	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**47**	**0**	**0**	**0**	**0**	**0**	**163**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**115**	**0**	**0**	**0**	**0**	**0**	**114**	**0**	**0**	**0**	**0**
Single Family Homes		0	41	0	0	0	0	0	13	0	0	0	0
Carriage Homes		0	20	0	0	0	0	0	6	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	1	0	0	0	0
Diversion A - EBL 926 to NB 202		0	26	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	27	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	94	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**162**	**0**	**0**	**0**	**0**	**0**	**277**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	71.0	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Church Egress Only /W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Church Egress Only L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Church Egress Only L	S	R
EXISTING TRAFFIC		0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**49**	**0**	**0**	**0**	**0**	**0**	**243**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**174**	**0**	**0**	**0**	**0**	**0**	**382**	**0**	**0**	**0**	**0**
Single Family Homes		0	27	0	0	0	0	0	46	0	0	0	0
Carriage Homes		0	12	0	0	0	0	0	19	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	111	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	23	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	250	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	67	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**223**	**0**	**0**	**0**	**0**	**0**	**625**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	78.0	0.0	0.0	0.0	0.0	0.0	61.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Collector Road/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Collector Road L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Collector Road L	S	R
EXISTING TRAFFIC		0	13	0	0	0	0	0	152	0	0	0	0
Seasonal Adjustment Factor	1.000	0	13	0	0	0	0	0	152	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**13**	**0**	**0**	**0**	**0**	**0**	**152**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND		0	13	0	0	0	0	0	157	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**47**	**0**	**0**	**0**	**0**	**0**	**162**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**23**	**1**	**4**	**0**	**92**	**160**	**-46**	**0**	**0**	**0**	**0**
Single Family Homes		0	15	1	3	0	26	8	5	0	0	0	0
Carriage Homes		0	7	0	1	0	12	4	2	0	0	0	0
Site Balancing		0	1	0	0	0	1	1	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	26	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	53	-53	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	27	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	94	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**70**	**1**	**4**	**0**	**92**	**160**	**116**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	32.9	100.0	100.0	0.0	100.0	100.0	-39.7	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Collector Road/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Collector Road L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Collector Road L	S	R
EXISTING TRAFFIC		0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**49**	**0**	**0**	**0**	**0**	**0**	**243**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**16**	**4**	**3**	**0**	**158**	**410**	**-28**	**0**	**0**	**0**	**0**
Single Family Homes		0	10	3	2	0	17	29	17	0	0	0	0
Carriage Homes		0	4	1	1	0	7	12	7	0	0	0	0
Site Balancing		0	2	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	111	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	52	-52	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	23	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	250	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	67	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**65**	**4**	**3**	**0**	**158**	**410**	**215**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	24.6	100.0	100.0	0.0	100.0	100.0	-13.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Road M (Site Access) L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Road M (Site Access) L	S	R
EXISTING TRAFFIC		0	24	0	0	0	0	0	225	0	0	0	0
Seasonal Adjustment Factor	1.000	0	24	0	0	0	0	0	225	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**24**	**0**	**0**	**0**	**0**	**0**	**225**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND		0	25	0	0	0	0	0	232	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**59**	**0**	**0**	**0**	**0**	**0**	**237**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**10**	**0**	**1**	**0**	**13**	**4**	**-46**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	0	1	0	9	3	5	0	0	0	0
Carriage Homes		0	3	0	0	0	4	1	2	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-53	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**69**	**0**	**1**	**0**	**13**	**4**	**191**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	14.5	0.0	100.0	0.0	100.0	100.0	-24.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Road M (Site Access) L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Road M (Site Access) L	S	R
EXISTING TRAFFIC		0	33	0	0	0	0	0	254	0	0	0	0
Seasonal Adjustment Factor	1.000	0	33	0	0	0	0	0	254	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**33**	**0**	**0**	**0**	**0**	**0**	**254**	**0**	**0**	**0**	**0**
Background Growth	3.16 %	0	1	0	0	0	0	0	8	0	0	0	0
EXISTING W/ BACKGROUND		0	34	0	0	0	0	0	262	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**62**	**0**	**0**	**0**	**0**	**0**	**268**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**11**	**2**	**1**	**0**	**9**	**14**	**-39**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	1	1	0	6	10	9	0	0	0	0
Carriage Homes		0	3	0	0	0	3	4	4	0	0	0	0
Site Balancing		0	1	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-52	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**73**	**2**	**1**	**0**	**9**	**14**	**229**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	15.1	100.0	100.0	0.0	100.0	100.0	-17.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

		EASTBOUND			NORTHBOUND			WESTBOUND			SOUTHBOUND		
		W. Pleasant Grove Road			Road K (Site Access) / Dunvegan			W. Pleasant Grove Road			Road K (Site Access) / Dunvega		
Traffic Component		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	19	0	0	0	0	0	222	3	5	0	2
Seasonal Adjustment Factor	1.000	0	19	0	0	0	0	0	222	3	5	0	2
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**19**	**0**	**0**	**0**	**0**	**0**	**222**	**3**	**5**	**0**	**2**
Background Growth	3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND		0	20	0	0	0	0	0	229	3	5	0	2
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**54**	**0**	**0**	**0**	**0**	**0**	**234**	**3**	**5**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC		**0**	**2**	**4**	**12**	**0**	**9**	**3**	**-48**	**0**	**0**	**0**	**0**
Single Family Homes		0	1	3	8	0	6	2	4	0	0	0	0
Carriage Homes		0	1	1	4	0	3	1	2	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	-1	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-53	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**56**	**4**	**12**	**0**	**9**	**3**	**186**	**3**	**5**	**0**	**2**
"New" Site Traffic % of Total	####	0.0	3.6	100.0	100.0	0.0	100.0	100.0	-25.8	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road			NORTHBOUND Road K (Site Access) / Dunvegan			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Road K (Site Access) / Dunvega		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		3	32	0	0	0	0	0	243	11	1	0	2
Seasonal Adjustment Factor	1.000	3	32	0	0	0	0	0	243	11	1	0	2
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**3**	**32**	**0**	**0**	**0**	**0**	**0**	**243**	**11**	**1**	**0**	**2**
Background Growth	3.16 %	0	1	0	0	0	0	0	8	0	0	0	0
EXISTING W/ BACKGROUND		3	33	0	0	0	0	0	251	11	1	0	2
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT		**3**	**61**	**0**	**0**	**0**	**0**	**0**	**257**	**11**	**1**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC		**0**	**7**	**13**	**7**	**0**	**6**	**10**	**-48**	**0**	**0**	**0**	**0**
Single Family Homes		0	5	9	5	0	4	7	3	0	0	0	0
Carriage Homes		0	2	4	2	0	2	3	1	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-52	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**3**	**68**	**13**	**7**	**0**	**6**	**10**	**209**	**11**	**1**	**0**	**2**
"New" Site Traffic % of Total	*0.0%*	0.0	10.3	100.0	100.0	0.0	100.0	100.0	-23.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
New Street/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC		0	0	0	0	173	6	203	0	21	13	127	0
Seasonal Adjustment Factor	1.000	0	0	0	0	173	6	203	0	21	13	127	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**173**	**6**	**203**	**0**	**21**	**13**	**127**	**0**
Background Growth	3.16 %	0	0	0	0	5	0	6	0	1	0	4	0
EXISTING W/ BACKGROUND		0	0	0	0	178	6	209	0	22	13	131	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	32	4	0	1	2	0	0
Condominium Development		0	0	0	0	0	0	1	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	0	0	0	0	4	3	0	1	2	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	0	28	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT		**0**	**0**	**0**	**0**	**178**	**38**	**213**	**0**	**23**	**15**	**131**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**3**	**-43**	**0**	**7**	**3**	**0**	**0**
Single Family Homes		0	0	0	0	0	2	7	0	5	2	0	0
Carriage Homes		0	0	0	0	0	1	3	0	2	1	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	-53	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**178**	**41**	**170**	**0**	**30**	**18**	**131**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	0.0	0.0	0.0	7.3	-25.3	0.0	23.3	16.7	0.0	0.0

INTERSECTION VOLUME SUMMARY
New Street/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component	EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC	0	0	0	0	143	17	198	0	47	18	168	0
Seasonal Adjustment Factor 1.000	0	0	0	0	143	17	198	0	47	18	168	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**143**	**17**	**198**	**0**	**47**	**18**	**168**	**0**
Background Growth 3.16 %	0	0	0	0	5	1	6	0	1	1	5	0
EXISTING W/ BACKGROUND	0	0	0	0	148	18	204	0	48	19	173	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	27	4	0	2	1	0	0
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	0	0	0	0	3	4	0	2	1	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	24	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**148**	**45**	**208**	**0**	**50**	**20**	**173**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**0**	**11**	**-45**	**0**	**4**	**9**	**0**	**0**
Single Family Homes	0	0	0	0	0	8	5	0	3	6	0	0
Carriage Homes	0	0	0	0	0	3	2	0	1	2	0	0
Site Balancing	0	0	0	0	0	0	0	0	0	1	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	-52	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**0**	**0**	**148**	**56**	**163**	**0**	**54**	**29**	**173**	**0**
"New" Site Traffic % of Total *0.0%*	0.0	0.0	0.0	0.0	0.0	19.6	-27.6	0.0	7.4	31.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Build-Out Year (2025)

	EASTBOUND			NORTHBOUND			WESTBOUND			SOUTHBOUND		
	Stetson Blvd / Skiles Blvd			Wilmington Pike (US 202)			Stetson Blvd / Skiles Blvd			Wilmington Pike (US 202)		
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	81	141	31	0	2036	29	50	134	54	0	1874	256
Seasonal Adjustment Factor 1.000	81	141	31	0	2036	29	50	134	54	0	1874	256
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**81**	**141**	**31**	**0**	**2036**	**29**	**50**	**134**	**54**	**0**	**1874**	**256**
Background Growth 3.16 %	3	4	1	0	64	1	2	4	2	0	59	8
EXISTING W/ BACKGROUND	84	145	32	0	2100	30	52	138	56	0	1933	264
TOTAL "OTHER" DEVELOPMENTS	57	4	2	0	-21	26	34	0	5	0	14	33
Condominium Development	0	2	0	0	0	2	5	0	5	0	0	2
Malvern School (NEW)	0	0	0	0	8	7	7	0	0	0	8	0
Arborview Development	29	2	10	0	0	14	17	0	0	0	6	31
Malvern School (PB AM)	0	0	0	0	-1	5	5	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	0	0	0	-28	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	-2	0	0	0	0	0	0
Orvis Way Diversion C	0	0	-8	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**141**	**149**	**34**	**0**	**2079**	**56**	**86**	**138**	**61**	**0**	**1947**	**297**
TOTAL "NEW" SITE TRAFFIC	**99**	**0**	**0**	**0**	**-39**	**0**	**0**	**0**	**0**	**0**	**10**	**10**
Single Family Homes	31	0	0	0	10	0	0	0	0	0	7	7
Carriage Homes	15	0	0	0	5	0	0	0	0	0	3	3
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	26	0	0	0	-27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	27	0	0	0	-27	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**240**	**149**	**34**	**0**	**2040**	**56**	**86**	**138**	**61**	**0**	**1957**	**307**
"New" Site Traffic % of Total *0.0%*	41.3	0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.5	3.3

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\SDS\ **Weekday 4-6 PM**
Build-Out Year (2025)

Traffic Component		EASTBOUND Stetson Blvd / Skiles Blvd			NORTHBOUND Wilmington Pike (US 202			WESTBOUND Stetson Blvd / Skiles Blvd			SOUTHBOUND Wilmington Pike (US 202		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		120	129	61	0	1993	46	27	43	59	0	1925	131
Seasonal Adjustment Factor	1.000	120	129	61	0	1993	46	27	43	59	0	1925	131
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**120**	**129**	**61**	**0**	**1993**	**46**	**27**	**43**	**59**	**0**	**1925**	**131**
Background Growth	3.16 %	4	4	2	0	63	1	1	1	2	0	61	4
EXISTING W/ BACKGROUND		124	133	63	0	2056	47	28	44	61	0	1986	135
TOTAL "OTHER" DEVELOPMENTS		62	9	-2	0	-14	28	31	0	4	0	12	30
Condominium Development		0	6	0	0	0	5	3	0	4	0	0	6
Malvern School (NEW)		0	0	0	0	9	8	8	0	0	0	8	0
Arborview Development		38	3	14	0	0	10	13	0	0	0	4	24
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	1	7	7	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		24	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	-2	0	0	0	0	0	0
Orvis Way Diversion C		0	0	-16	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**186**	**142**	**61**	**0**	**2042**	**75**	**59**	**44**	**65**	**0**	**1998**	**165**
TOTAL "NEW" SITE TRAFFIC		**163**	**0**	**0**	**0**	**-124**	**0**	**0**	**0**	**0**	**0**	**-148**	**213**
Single Family Homes		20	0	0	0	7	0	0	0	0	0	23	23
Carriage Homes		9	0	0	0	3	0	0	0	0	0	10	10
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202		111	0	0	0	-111	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	-22	22
Diversion D - NBR Bridlewood to 202		23	0	0	0	-23	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-125	125
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	-34	34
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**349**	**142**	**61**	**0**	**1918**	**75**	**59**	**44**	**65**	**0**	**1850**	**378**
"New" Site Traffic % of Total	*0.0%*	46.7	0.0	0.0	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-8.0	56.3

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix M

Future 2030
Detailed Traffic Volume Worksheets

INTERSECTION VOLUME SUMMARY
New Street/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC	48	648	5	9	97	41	8	310	36	8	122	190
Seasonal Adjustment Factor 1.000	48	648	5	9	97	41	8	310	36	8	122	190
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**48**	**648**	**5**	**9**	**97**	**41**	**8**	**310**	**36**	**8**	**122**	**190**
Background Growth 5.87 %	3	38	0	1	6	2	0	18	2	0	7	11
EXISTING W/ BACKGROUND	51	686	5	10	103	43	8	328	38	8	129	201
TOTAL "OTHER" DEVELOPMENTS	30	-26	0	0	2	0	0	2	0	0	1	3
Condominium Development	0	1	0	0	0	0	0	1	0	0	0	1
Malvern School (NEW)	0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development	2	0	0	0	2	0	0	0	0	0	1	2
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	-28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**81**	**660**	**5**	**10**	**105**	**43**	**8**	**330**	**38**	**8**	**130**	**204**
TOTAL "NEW" SITE TRAFFIC	**3**	**3**	**0**	**0**	**1**	**1**	**4**	**63**	**0**	**0**	**3**	**-48**
Single Family Homes	2	2	0	0	1	1	3	5	0	0	2	5
Carriage Homes	1	1	0	0	0	0	1	2	0	0	1	2
Site Balancing	0	0	0	0	0	0	0	1	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	55	0	0	0	-55
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**84**	**663**	**5**	**10**	**106**	**44**	**12**	**393**	**38**	**8**	**133**	**156**
"New" Site Traffic % of Total *0.0%*	3.6	0.5	0.0	0.0	0.9	2.3	33.3	16.0	0.0	0.0	2.3	-30.8

INTERSECTION VOLUME SUMMARY
New Street/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC		30	659	13	9	83	37	19	305	30	49	164	143
Seasonal Adjustment Factor	1.000	30	659	13	9	83	37	19	305	30	49	164	143
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**30**	**659**	**13**	**9**	**83**	**37**	**19**	**305**	**30**	**49**	**164**	**143**
Background Growth	5.87 %	2	39	1	1	5	2	1	18	2	3	10	8
EXISTING W/ BACKGROUND		32	698	14	10	88	39	20	323	32	52	174	151
TOTAL "OTHER" DEVELOPMENTS		26	-21	0	0	1	0	0	2	0	0	2	2
Condominium Development		0	2	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		2	0	0	0	1	0	0	0	0	0	2	2
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		24	-24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**58**	**677**	**14**	**10**	**89**	**39**	**20**	**325**	**32**	**52**	**176**	**153**
TOTAL "NEW" SITE TRAFFIC		**8**	**9**	**0**	**0**	**3**	**4**	**3**	**58**	**0**	**0**	**2**	**-49**
Single Family Homes		6	6	0	0	2	3	2	3	0	0	1	3
Carriage Homes		2	2	0	0	1	1	1	1	0	0	1	1
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	1
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	54	0	0	0	-54
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**66**	**686**	**14**	**10**	**92**	**43**	**23**	**383**	**32**	**52**	**178**	**104**
"New" Site Traffic % of Total	*0.0%*	12.1	1.3	0.0	0.0	3.3	9.3	13.0	15.1	0.0	0.0	1.1	-47.1

INTERSECTION VOLUME SUMMARY
Bridlewood Blvd/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND Bridlewood Blvd L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND Bridlewood Blvd L	S	R
EXISTING TRAFFIC		0	682	31	25	0	39	13	325	0	0	0	0
Seasonal Adjustment Factor	1.000	0	682	31	25	0	39	13	325	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**682**	**31**	**25**	**0**	**39**	**13**	**325**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	40	2	1	0	2	1	19	0	0	0	0
EXISTING W/ BACKGROUND		0	722	33	26	0	41	14	344	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	-26	0	0	0	0	0	2	0	0	0	0
Condominium Development		0	1	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	-28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**696**	**33**	**26**	**0**	**41**	**14**	**346**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**31**	**-27**	**0**	**0**	**31**	**-27**	**0**	**-97**	**14**	**46**	**15**	**164**
Single Family Homes		3	0	0	0	3	0	0	0	10	31	10	8
Carriage Homes		1	0	0	0	1	0	0	0	4	15	5	4
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		27	-27	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	55
Diversion D - NBR Bridlewood to 202		0	0	0	0	27	-27	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	-97	0	0	0	97
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**31**	**669**	**33**	**26**	**31**	**14**	**14**	**249**	**14**	**46**	**15**	**164**
"New" Site Traffic % of Total	####	100.0	-4.0	0.0	0.0	100.0	-192.9	0.0	-39.0	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Bridlewood Blvd/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND Bridlewood Blvd L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND Bridlewood Blvd L	S	R
EXISTING TRAFFIC		0	692	37	16	0	34	20	357	0	0	0	0
Seasonal Adjustment Factor	1.000	0	692	37	16	0	34	20	357	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**692**	**37**	**16**	**0**	**34**	**20**	**357**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	41	2	1	0	2	1	21	0	0	0	0
EXISTING W/ BACKGROUND		0	733	39	17	0	36	21	378	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	-21	0	0	0	0	0	2	0	0	0	0
Condominium Development		0	2	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	1	0	0	0	0	0	1	0	0	0	0
Arborview Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	-24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**712**	**39**	**17**	**0**	**36**	**21**	**380**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**127**	**-114**	**0**	**0**	**41**	**-24**	**0**	**-69**	**49**	**29**	**260**	**130**
Single Family Homes		9	0	0	0	12	0	0	0	35	20	7	5
Carriage Homes		4	0	0	0	5	0	0	0	14	9	3	2
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		114	-114	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	54
Diversion D - NBR Bridlewood to 202		0	0	0	0	24	-24	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	-69	0	0	0	69
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**127**	**598**	**39**	**17**	**41**	**12**	**21**	**311**	**49**	**29**	**260**	**130**
"New" Site Traffic % of Total	####	100.0	-19.1	0.0	0.0	100.0	-200.0	0.0	-22.2	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Street Road (PA 926)			NORTHBOUND Wilmington Pike (US 202)			WESTBOUND Street Road (PA 926)			SOUTHBOUND Wilmington Pike (US 202)		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	531	221	8	12	1551	151	142	158	45	48	1465	181
Seasonal Adjustment Factor 1.000	531	221	8	12	1551	151	142	158	45	48	1465	181
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**531**	**221**	**8**	**12**	**1551**	**151**	**142**	**158**	**45**	**48**	**1465**	**181**
Background Growth 5.87 %	31	13	0	1	91	9	8	9	3	3	86	11
EXISTING W/ BACKGROUND	562	234	8	13	1642	160	150	167	48	51	1551	192
TOTAL "OTHER" DEVELOPMENTS	-26	0	0	0	30	0	0	0	10	6	26	2
Condominium Development	1	0	0	0	1	0	0	0	0	0	3	1
Malvern School (NEW)	1	0	0	0	5	0	0	0	2	0	6	1
Arborview Development	0	0	0	0	24	0	0	0	8	6	18	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	-28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**536**	**234**	**8**	**13**	**1672**	**160**	**150**	**167**	**58**	**57**	**1577**	**194**
TOTAL "NEW" SITE TRAFFIC	**-39**	**8**	**23**	**10**	**0**	**0**	**0**	**4**	**0**	**8**	**8**	**-97**
Single Family Homes	10	5	15	7	0	0	0	3	0	5	5	0
Carriage Homes	5	2	7	3	0	0	0	1	0	2	2	0
Site Balancing	0	1	1	0	0	0	0	0	0	1	1	0
Diversion A - EBL 926 to NB 202	-27	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	-27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	-97
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**497**	**242**	**31**	**23**	**1672**	**160**	**150**	**171**	**58**	**65**	**1585**	**97**
"New" Site Traffic % of Total *0.0%*	-7.8	3.3	74.2	43.5	0.0	0.0	0.0	2.3	0.0	12.3	0.5	-100.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Street Road (PA 926)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Street Road (PA 926) L	S	R	NORTHBOUND Wilmington Pike (US 202) L	S	R	WESTBOUND Street Road (PA 926) L	S	R	SOUTHBOUND Wilmington Pike (US 202) L	S	R
EXISTING TRAFFIC		451	204	27	29	1551	121	199	221	57	79	1451	128
Seasonal Adjustment Factor	1.000	451	204	27	29	1551	121	199	221	57	79	1451	128
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**451**	**204**	**27**	**29**	**1551**	**121**	**199**	**221**	**57**	**79**	**1451**	**128**
Background Growth	5.87 %	26	12	2	2	91	7	12	13	3	5	85	8
EXISTING W/ BACKGROUND		477	216	29	31	1642	128	211	234	60	84	1536	136
TOTAL "OTHER" DEVELOPMENTS		-21	0	0	0	26	0	0	0	7	8	34	2
Condominium Development		2	0	0	0	3	0	0	0	0	0	2	1
Malvern School (NEW)		1	0	0	0	5	0	0	0	1	0	7	1
Arborview Development		0	0	0	0	18	0	0	0	6	8	24	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	1	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		-24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**456**	**216**	**29**	**31**	**1668**	**128**	**211**	**234**	**67**	**92**	**1570**	**138**
TOTAL "NEW" SITE TRAFFIC		**-128**	**4**	**15**	**32**	**0**	**0**	**0**	**17**	**0**	**6**	**-245**	**-69**
Single Family Homes		7	3	10	23	0	0	0	12	0	3	3	0
Carriage Homes		3	1	4	10	0	0	0	5	0	1	1	0
Site Balancing		0	0	1	-1	0	0	0	0	0	2	1	0
Diversion A - EBL 926 to NB 202		-114	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		-24	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	-69
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**328**	**220**	**44**	**63**	**1668**	**128**	**211**	**251**	**67**	**98**	**1325**	**69**
"New" Site Traffic % of Total	####	-39.0	1.8	34.1	50.8	0.0	0.0	0.0	6.8	0.0	6.1	-18.5	-100.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Pleasant Grove Road L	S	R	NORTHBOUND Wilmington Pike (US 202) L	S	R	WESTBOUND Pleasant Grove Road L	S	R	SOUTHBOUND Wilmington Pike (US 202) L	S	R
EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Seasonal Adjustment Factor 1.000	0	0	12	10	2082	52	0	0	7	37	1753	150
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**12**	**10**	**2082**	**52**	**0**	**0**	**7**	**37**	**1753**	**150**
Background Growth 5.87 %	0	0	1	1	122	3	0	0	0	2	103	9
EXISTING W/ BACKGROUND	0	0	13	11	2204	55	0	0	7	39	1856	159
TOTAL "OTHER" DEVELOPMENTS	0	0	15	22	-24	16	0	0	27	15	19	-1
Condominium Development	0	0	0	0	2	0	0	0	0	0	4	1
Malvern School (NEW)	0	0	0	0	0	8	0	0	15	8	7	0
Arborview Development	0	0	15	20	12	0	0	0	0	1	9	6
Malvern School (PB AM)	0	0	0	0	-8	8	0	0	12	6	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-28	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**28**	**33**	**2180**	**71**	**0**	**0**	**34**	**54**	**1875**	**158**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**16**	**0**	**-39**	**0**	**0**	**0**	**0**	**0**	**-97**	**107**
Single Family Homes	0	0	10	0	10	0	0	0	0	0	0	7
Carriage Homes	0	0	5	0	5	0	0	0	0	0	0	3
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	-27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	-27	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-97	97
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**44**	**33**	**2141**	**71**	**0**	**0**	**34**	**54**	**1778**	**265**
"New" Site Traffic % of Total *0.0%*	0.0	0.0	36.4	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	-5.5	40.4

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Pleasant Grove Road L	S	R	NORTHBOUND Wilmington Pike (US 202) L	S	R	WESTBOUND Pleasant Grove Road L	S	R	SOUTHBOUND Wilmington Pike (US 202) L	S	R
EXISTING TRAFFIC		0	0	24	32	2004	46	0	0	11	89	1701	202
Seasonal Adjustment Factor	1.000	0	0	24	32	2004	46	0	0	11	89	1701	202
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**24**	**32**	**2004**	**46**	**0**	**0**	**11**	**89**	**1701**	**202**
Background Growth	5.87 %	0	0	1	2	118	3	0	0	1	5	100	12
EXISTING W/ BACKGROUND		0	0	25	34	2122	49	0	0	12	94	1801	214
TOTAL "OTHER" DEVELOPMENTS		0	0	20	17	-18	13	0	0	31	16	24	-12
Condominium Development		0	0	0	0	5	0	0	0	0	0	3	0
Malvern School (NEW)		0	0	0	0	0	7	0	0	17	8	8	0
Arborview Development		0	0	20	15	9	0	0	0	0	2	12	4
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	-6	6	0	0	14	6	1	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	-16
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**45**	**51**	**2104**	**62**	**0**	**0**	**43**	**110**	**1825**	**202**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**11**	**0**	**-128**	**0**	**0**	**0**	**0**	**0**	**-319**	**171**
Single Family Homes		0	0	7	0	7	0	0	0	0	0	0	23
Carriage Homes		0	0	3	0	3	0	0	0	0	0	0	10
Site Balancing		0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	-114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	-22
Diversion D - NBR Bridlewood to 202		0	0	0	0	-24	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-250	125
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	-69	35
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**56**	**51**	**1976**	**62**	**0**	**0**	**43**	**110**	**1506**	**373**
"New" Site Traffic % of Total	####	0.0	0.0	19.6	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-21.2	45.8

INTERSECTION VOLUME SUMMARY
Church Full-Movement/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND W. Pleasant Grove Road			NORTHBOUND Church Full-Movement			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Church Full-Movement		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Seasonal Adjustment Factor 1.000	0	12	1	1	0	0	8	152	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**12**	**1**	**1**	**0**	**0**	**8**	**152**	**0**	**0**	**0**	**0**
Background Growth 5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND	0	13	1	1	0	0	8	161	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	15	0	0	0	0	0	21	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	15	0	0	0	0	0	26	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**28**	**1**	**1**	**0**	**0**	**8**	**182**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**107**	**0**	**0**	**0**	**0**
Single Family Homes	0	10	0	0	0	0	0	7	0	0	0	0
Carriage Homes	0	5	0	0	0	0	0	3	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	97	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**44**	**1**	**1**	**0**	**0**	**8**	**289**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total ####	0.0	36.4	0.0	0.0	0.0	0.0	0.0	37.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Church Full-Movement/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road			NORTHBOUND Church Full-Movement			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Church Full-Movement		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	20	0	1	0	4	5	229	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	1	0	4	5	229	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**1**	**0**	**4**	**5**	**229**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	13	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	1	0	4	5	242	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	20	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	20	0	0	0	0	0	19	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	-16	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**41**	**0**	**1**	**0**	**4**	**5**	**247**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**11**	**0**	**0**	**0**	**0**	**0**	**171**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	0	0	0	0	0	23	0	0	0	0
Carriage Homes		0	3	0	0	0	0	0	10	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-22	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	125	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	35	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**52**	**0**	**1**	**0**	**4**	**5**	**418**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	21.2	0.0	0.0	0.0	0.0	0.0	40.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Orvis Way/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Orvis Way L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Orvis Way L	S	R
EXISTING TRAFFIC	0	12	0	0	0	0	0	153	0	0	0	0
Seasonal Adjustment Factor 1.000	0	12	0	0	0	0	0	153	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**153**	**0**	**0**	**0**	**0**
Background Growth 5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND	0	13	0	0	0	0	0	162	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	34	0	0	0	0	0	0	-7	28	15	0	12
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	6	0	0	0	0	0	0	0	26	15	0	4
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**34**	**13**	**0**	**0**	**0**	**0**	**0**	**155**	**28**	**15**	**0**	**12**
TOTAL "NEW" SITE TRAFFIC	**100**	**16**	**0**	**0**	**0**	**0**	**0**	**107**	**0**	**0**	**0**	**10**
Single Family Homes	31	10	0	0	0	0	0	7	0	0	0	7
Carriage Homes	15	5	0	0	0	0	0	3	0	0	0	3
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	27	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	97	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**134**	**29**	**0**	**0**	**0**	**0**	**0**	**262**	**28**	**15**	**0**	**22**
"New" Site Traffic % of Total ####	74.6	55.2	0.0	0.0	0.0	0.0	0.0	40.8	0.0	0.0	0.0	45.5

INTERSECTION VOLUME SUMMARY
Orvis Way/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Orvis Way L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Orvis Way L	S	R
EXISTING TRAFFIC		0	24	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor	1.000	0	24	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**24**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	25	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		28	0	0	0	0	0	0	-16	21	20	0	22
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		4	0	0	0	0	0	0	0	19	20	0	6
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	-16	0	0	0	16
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**28**	**25**	**0**	**0**	**0**	**0**	**0**	**228**	**21**	**20**	**0**	**22**
TOTAL "NEW" SITE TRAFFIC		**167**	**11**	**0**	**0**	**0**	**0**	**0**	**171**	**0**	**0**	**0**	**213**
Single Family Homes		20	7	0	0	0	0	0	23	0	0	0	23
Carriage Homes		9	3	0	0	0	0	0	10	0	0	0	10
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202		114	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-22	0	0	0	22
Diversion D - NBR Bridlewood to 202		24	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	125	0	0	0	125
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	35	0	0	0	34
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**195**	**36**	**0**	**0**	**0**	**0**	**0**	**399**	**21**	**20**	**0**	**235**
"New" Site Traffic % of Total	####	85.6	30.6	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0	90.6

INTERSECTION VOLUME SUMMARY
Church Egress Only /W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Church Egress Only L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Church Egress Only L	S	R
EXISTING TRAFFIC		0	13	0	0	0	0	0	153	0	0	0	0
Seasonal Adjustment Factor	1.000	0	13	0	0	0	0	0	153	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**13**	**0**	**0**	**0**	**0**	**0**	**153**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND		0	14	0	0	0	0	0	162	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**48**	**0**	**0**	**0**	**0**	**0**	**167**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**116**	**0**	**0**	**0**	**0**	**0**	**117**	**0**	**0**	**0**	**0**
Single Family Homes		0	41	0	0	0	0	0	13	0	0	0	0
Carriage Homes		0	20	0	0	0	0	0	6	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	1	0	0	0	0
Diversion A - EBL 926 to NB 202		0	27	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	27	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	97	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**164**	**0**	**0**	**0**	**0**	**0**	**284**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	70.7	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Church Egress Only /W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Church Egress Only L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Church Egress Only L	S	R
EXISTING TRAFFIC		0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**49**	**0**	**0**	**0**	**0**	**0**	**250**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**178**	**0**	**0**	**0**	**0**	**0**	**384**	**0**	**0**	**0**	**0**
Single Family Homes		0	27	0	0	0	0	0	46	0	0	0	0
Carriage Homes		0	12	0	0	0	0	0	19	0	0	0	0
Site Balancing		0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	114	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	24	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	250	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	69	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**227**	**0**	**0**	**0**	**0**	**0**	**634**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	78.4	0.0	0.0	0.0	0.0	0.0	60.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Collector Road/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road			NORTHBOUND Collector Road			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Collector Road		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	13	0	0	0	0	0	152	0	0	0	0
Seasonal Adjustment Factor	1.000	0	13	0	0	0	0	0	152	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**13**	**0**	**0**	**0**	**0**	**0**	**152**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND		0	14	0	0	0	0	0	161	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**48**	**0**	**0**	**0**	**0**	**0**	**166**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**23**	**1**	**4**	**0**	**93**	**165**	**-48**	**0**	**0**	**0**	**0**
Single Family Homes		0	15	1	3	0	26	8	5	0	0	0	0
Carriage Homes		0	7	0	1	0	12	4	2	0	0	0	0
Site Balancing		0	1	0	0	0	1	1	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	27	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	55	-55	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	27	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	97	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**71**	**1**	**4**	**0**	**93**	**165**	**118**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	32.4	100.0	100.0	0.0	100.0	100.0	-40.7	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Collector Road/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Collector Road L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Collector Road L	S	R
EXISTING TRAFFIC		0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor	1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**20**	**0**	**0**	**0**	**0**	**0**	**230**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND		0	21	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**49**	**0**	**0**	**0**	**0**	**0**	**250**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**16**	**4**	**3**	**0**	**162**	**414**	**-30**	**0**	**0**	**0**	**0**
Single Family Homes		0	10	3	2	0	17	29	17	0	0	0	0
Carriage Homes		0	4	1	1	0	7	12	7	0	0	0	0
Site Balancing		0	2	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	114	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	54	-54	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	24	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	250	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	69	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**65**	**4**	**3**	**0**	**162**	**414**	**220**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	24.6	100.0	100.0	0.0	100.0	100.0	-13.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Road M (Site Access) L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Road M (Site Access) L	S	R
EXISTING TRAFFIC		0	24	0	0	0	0	0	225	0	0	0	0
Seasonal Adjustment Factor	1.000	0	24	0	0	0	0	0	225	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**24**	**0**	**0**	**0**	**0**	**0**	**225**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	1	0	0	0	0	0	13	0	0	0	0
EXISTING W/ BACKGROUND		0	25	0	0	0	0	0	238	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**59**	**0**	**0**	**0**	**0**	**0**	**243**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**10**	**0**	**1**	**0**	**13**	**4**	**-48**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	0	1	0	9	3	5	0	0	0	0
Carriage Homes		0	3	0	0	0	4	1	2	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-55	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**69**	**0**	**1**	**0**	**13**	**4**	**195**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	####	0.0	14.5	0.0	100.0	0.0	100.0	100.0	-24.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND Road M (Site Access) L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND Road M (Site Access) L	S	R
EXISTING TRAFFIC		0	33	0	0	0	0	0	254	0	0	0	0
Seasonal Adjustment Factor	1.000	0	33	0	0	0	0	0	254	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**33**	**0**	**0**	**0**	**0**	**0**	**254**	**0**	**0**	**0**	**0**
Background Growth	5.87 %	0	2	0	0	0	0	0	15	0	0	0	0
EXISTING W/ BACKGROUND		0	35	0	0	0	0	0	269	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**63**	**0**	**0**	**0**	**0**	**0**	**275**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**11**	**2**	**1**	**0**	**9**	**14**	**-41**	**0**	**0**	**0**	**0**
Single Family Homes		0	7	1	1	0	6	10	9	0	0	0	0
Carriage Homes		0	3	0	0	0	3	4	4	0	0	0	0
Site Balancing		0	1	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-54	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**74**	**2**	**1**	**0**	**9**	**14**	**234**	**0**	**0**	**0**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	14.9	100.0	100.0	0.0	100.0	100.0	-17.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road			NORTHBOUND Road K (Site Access) / Dunvegan			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Road K (Site Access) / Dunvega		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		0	19	0	0	0	0	0	222	3	5	0	2
Seasonal Adjustment Factor	1.000	0	19	0	0	0	0	0	222	3	5	0	2
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**19**	**0**	**0**	**0**	**0**	**0**	**222**	**3**	**5**	**0**	**2**
Background Growth	5.87 %	0	1	0	0	0	0	0	13	0	0	0	0
EXISTING W/ BACKGROUND		0	20	0	0	0	0	0	235	3	5	0	2
TOTAL "OTHER" DEVELOPMENTS		0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**54**	**0**	**0**	**0**	**0**	**0**	**240**	**3**	**5**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC		**0**	**2**	**4**	**12**	**0**	**9**	**3**	**-50**	**0**	**0**	**0**	**0**
Single Family Homes		0	1	3	8	0	6	2	4	0	0	0	0
Carriage Homes		0	1	1	4	0	3	1	2	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	-1	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-55	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**56**	**4**	**12**	**0**	**9**	**3**	**190**	**3**	**5**	**0**	**2**
"New" Site Traffic % of Total	####	0.0	3.6	100.0	100.0	0.0	100.0	100.0	-26.3	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road			NORTHBOUND Road K (Site Access) / Dunvegan			WESTBOUND W. Pleasant Grove Road			SOUTHBOUND Road K (Site Access) / Dunvega		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		3	32	0	0	0	0	0	243	11	1	0	2
Seasonal Adjustment Factor	1.000	3	32	0	0	0	0	0	243	11	1	0	2
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**3**	**32**	**0**	**0**	**0**	**0**	**0**	**243**	**11**	**1**	**0**	**2**
Background Growth	5.87 %	0	2	0	0	0	0	0	14	1	0	0	0
EXISTING W/ BACKGROUND		3	34	0	0	0	0	0	257	12	1	0	2
TOTAL "OTHER" DEVELOPMENTS		0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT		**3**	**62**	**0**	**0**	**0**	**0**	**0**	**263**	**12**	**1**	**0**	**2**
TOTAL "NEW" SITE TRAFFIC		**0**	**7**	**13**	**7**	**0**	**6**	**10**	**-50**	**0**	**0**	**0**	**0**
Single Family Homes		0	5	9	5	0	4	7	3	0	0	0	0
Carriage Homes		0	2	4	2	0	2	3	1	0	0	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	-54	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**3**	**69**	**13**	**7**	**0**	**6**	**10**	**213**	**12**	**1**	**0**	**2**
"New" Site Traffic % of Total	*0.0%*	0.0	10.1	100.0	100.0	0.0	100.0	100.0	-23.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
New Street/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC		0	0	0	0	173	6	203	0	21	13	127	0
Seasonal Adjustment Factor	1.000	0	0	0	0	173	6	203	0	21	13	127	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**173**	**6**	**203**	**0**	**21**	**13**	**127**	**0**
Background Growth	5.87 %	0	0	0	0	10	0	12	0	1	1	7	0
EXISTING W/ BACKGROUND		0	0	0	0	183	6	215	0	22	14	134	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	32	4	0	1	2	0	0
Condominium Development		0	0	0	0	0	0	1	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	0	0	0	0	4	3	0	1	2	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	0	28	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT		**0**	**0**	**0**	**0**	**183**	**38**	**219**	**0**	**23**	**16**	**134**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**3**	**-45**	**0**	**7**	**3**	**0**	**0**
Single Family Homes		0	0	0	0	0	2	7	0	5	2	0	0
Carriage Homes		0	0	0	0	0	1	3	0	2	1	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	-55	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**183**	**41**	**174**	**0**	**30**	**19**	**134**	**0**
"New" Site Traffic % of Total	####	0.0	0.0	0.0	0.0	0.0	7.3	-25.9	0.0	23.3	15.8	0.0	0.0

INTERSECTION VOLUME SUMMARY
New Street/W. Pleasant Grove Road

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND W. Pleasant Grove Road L	S	R	NORTHBOUND New Street L	S	R	WESTBOUND W. Pleasant Grove Road L	S	R	SOUTHBOUND New Street L	S	R
EXISTING TRAFFIC		0	0	0	0	143	17	198	0	47	18	168	0
Seasonal Adjustment Factor	1.000	0	0	0	0	143	17	198	0	47	18	168	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**143**	**17**	**198**	**0**	**47**	**18**	**168**	**0**
Background Growth	5.87 %	0	0	0	0	8	1	12	0	3	1	10	0
EXISTING W/ BACKGROUND		0	0	0	0	151	18	210	0	50	19	178	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	27	4	0	2	1	0	0
Condominium Development		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)		0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development		0	0	0	0	0	3	4	0	2	1	0	0
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		0	0	0	0	0	24	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**151**	**45**	**214**	**0**	**52**	**20**	**178**	**0**
TOTAL "NEW" SITE TRAFFIC		**0**	**0**	**0**	**0**	**0**	**11**	**-47**	**0**	**4**	**9**	**0**	**0**
Single Family Homes		0	0	0	0	0	8	5	0	3	6	0	0
Carriage Homes		0	0	0	0	0	3	2	0	1	2	0	0
Site Balancing		0	0	0	0	0	0	0	0	0	1	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	-54	0	0	0	0	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**0**	**0**	**0**	**0**	**151**	**56**	**167**	**0**	**56**	**29**	**178**	**0**
"New" Site Traffic % of Total	*0.0%*	0.0	0.0	0.0	0.0	0.0	19.6	-28.1	0.0	7.1	31.0	0.0	0.0

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

	EASTBOUND			NORTHBOUND			WESTBOUND			SOUTHBOUND		
	Stetson Blvd / Skiles Blvd			Wilmington Pike (US 202)			Stetson Blvd / Skiles Blvd			Wilmington Pike (US 202)		
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	81	141	31	0	2036	29	50	134	54	0	1874	256
Seasonal Adjustment Factor 1.000	81	141	31	0	2036	29	50	134	54	0	1874	256
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**81**	**141**	**31**	**0**	**2036**	**29**	**50**	**134**	**54**	**0**	**1874**	**256**
Background Growth 5.87 %	5	8	2	0	120	2	3	8	3	0	110	15
EXISTING W/ BACKGROUND	86	149	33	0	2156	31	53	142	57	0	1984	271
TOTAL "OTHER" DEVELOPMENTS	57	4	2	0	-21	26	34	0	5	0	14	33
Condominium Development	0	2	0	0	0	2	5	0	5	0	0	2
Malvern School (NEW)	0	0	0	0	8	7	7	0	0	0	8	0
Arborview Development	29	2	10	0	0	14	17	0	0	0	6	31
Malvern School (PB AM)	0	0	0	0	-1	5	5	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	0	0	0	-28	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	-2	0	0	0	0	0	0
Orvis Way Diversion C	0	0	-8	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**143**	**153**	**35**	**0**	**2135**	**57**	**87**	**142**	**62**	**0**	**1998**	**304**
TOTAL "NEW" SITE TRAFFIC	**100**	**0**	**0**	**0**	**-39**	**0**	**0**	**0**	**0**	**0**	**10**	**10**
Single Family Homes	31	0	0	0	10	0	0	0	0	0	7	7
Carriage Homes	15	0	0	0	5	0	0	0	0	0	3	3
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	27	0	0	0	-27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	27	0	0	0	-27	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**243**	**153**	**35**	**0**	**2096**	**57**	**87**	**142**	**62**	**0**	**2008**	**314**
"New" Site Traffic % of Total *0.0%*	41.2	0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.5	3.2

INTERSECTION VOLUME SUMMARY
Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\SDS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Stetson Blvd / Skiles Blvd			NORTHBOUND Wilmington Pike (US 202			WESTBOUND Stetson Blvd / Skiles Blvd			SOUTHBOUND Wilmington Pike (US 202		
		L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC		120	129	61	0	1993	46	27	43	59	0	1925	131
Seasonal Adjustment Factor	1.000	120	129	61	0	1993	46	27	43	59	0	1925	131
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**120**	**129**	**61**	**0**	**1993**	**46**	**27**	**43**	**59**	**0**	**1925**	**131**
Background Growth	5.87 %	7	8	4	0	117	3	2	3	3	0	113	8
EXISTING W/ BACKGROUND		127	137	65	0	2110	49	29	46	62	0	2038	139
TOTAL "OTHER" DEVELOPMENTS		62	9	-2	0	-14	28	31	0	4	0	12	30
Condominium Development		0	6	0	0	0	5	3	0	4	0	0	6
Malvern School (NEW)		0	0	0	0	9	8	8	0	0	0	8	0
Arborview Development		38	3	14	0	0	10	13	0	0	0	4	24
Malvern School (PB AM)		0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)		0	0	0	0	1	7	7	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A		24	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B		0	0	0	0	0	-2	0	0	0	0	0	0
Orvis Way Diversion C		0	0	-16	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**189**	**146**	**63**	**0**	**2096**	**77**	**60**	**46**	**66**	**0**	**2050**	**169**
TOTAL "NEW" SITE TRAFFIC		**167**	**0**	**0**	**0**	**-128**	**0**	**0**	**0**	**0**	**0**	**-148**	**213**
Single Family Homes		20	0	0	0	7	0	0	0	0	0	23	23
Carriage Homes		9	0	0	0	3	0	0	0	0	0	10	10
Site Balancing		0	0	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202		114	0	0	0	-114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	-22	22
Diversion D - NBR Bridlewood to 202		24	0	0	0	-24	0	0	0	0	0	0	0
Diversion G - US 202 SBT		0	0	0	0	0	0	0	0	0	0	-125	125
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	-34	34
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**356**	**146**	**63**	**0**	**1968**	**77**	**60**	**46**	**66**	**0**	**1902**	**382**
"New" Site Traffic % of Total	*0.0%*	46.9	0.0	0.0	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-7.8	55.8

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Appendix N

Capacity/Level-of-Service Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this transportation impact study was performed in accordance with the standard techniques contained in the *Highway Capacity Manual 6th Edition.* By definition, capacity represents "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." The level at which an intersection or a uniform section of a lane or roadway function can be expressed in terms of a level of service. Level of service (LOS) is defined as "a quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst."

Stop-Controlled Intersections

At unsignalized stop-controlled intersections, such as two-way stop-controlled (TWSC) or all-way stop-controlled (AWSC), a methodology for evaluating the relative functioning of these intersections is based upon the control delay. For these types of unsignalized intersections, the analysis of the control delay is based upon the following data:

- Number and configuration of lanes on each approach;
- Percentage of heavy vehicles on each approach;
- Demand flow rate for each entering vehicular movement and pedestrian crossing movement;
- Unique geometric factors such as, channelization aspects; two-way left-turn lanes, raised or striped median storage; approach grades, flared approaches on the minor street; and upstream signals within 0.25 miles.

At TWSC intersections, only drivers on the minor street approaches are required to stop before proceeding into the intersection and left-turning drivers from the major street may have to yield to on-coming major street through or right-turning traffic, but are not required to stop in the absence of on-coming traffic. The capacity at stop-controlled legs is based primarily on three factors: the distribution of gaps in the major stream, driver judgment in selecting the gaps, and the follow-up headways required by each driver in a queue.

At AWSC intersections, every vehicle is required to stop at the intersection before proceeding, and as a result, the decision to proceed is a function of the traffic conditions on the other approaches. Each driver proceeds only after determining that no vehicles are currently in the intersection and that it is the driver's turn to proceed. Capacity at an AWSC intersection is described by the saturation headway or time between departures of successive vehicles on a given approach for a particular case assuming a continuous queue; departure headway or the average time between departures of successive vehicles on a given approach accounting for the probability of each possible case; and service time or the average time sent by a vehicle in first position waiting to depart.

At both TWSC and AWSC intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. For TWSC intersections, the level of service is not calculated for major-street approaches or for the intersection as a whole; however, the intersection-wide level of service is calculated for AWSC intersections. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for TWSC and AWSC intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 15	B	F
> 15 – 25	C	F
> 25 – 35	D	F
> 35 – 50	E	F
> 50	F	F

Signalized Intersections

At three or four-legged signalized intersections, a methodology for evaluating the capacity and quality of service provided to road users traveling through the signalized intersection. For signalized intersections, the level of service can be characterized for the entire intersection, each approach, and each lane group. The level of service is based upon the control delay and volume-to-capacity ratio. The delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption, while the volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. Input data in determining the delay and volume-to-capacity ratio include:

- Demand flow rate for each entering vehicular movement and pedestrian crossing movement, including right-turn on red volumes and percent of heavy vehicles;
- Initial queue for each lane group;
- Number and configuration of lanes on each approach;
- Type of signal control and phase sequence;
- Allocation of minimum/maximum green times and clearance intervals (Yellow plus All Red phases); and
- Phase recall.

At signalized intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for signalized intersections.

Control Delay (Sec/Veh)	LOS by Volume-to-Capacity Ratio	
	v/c ≤ 1.0	v/c > 1.0
≤ 10	A	F
> 10 – 20	B	F
> 20 – 35	C	F
> 35 – 55	D	F
> 55 – 80	E	F
> 80	F	F

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Appendix O

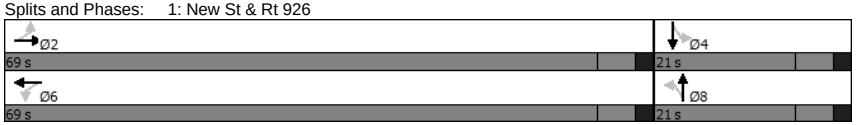
Existing Capacity/Level-of-Service Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	48	648	5	8	310	36	9	97	41	8	122	190
Future Volume (vph)	48	648	5	8	310	36	9	97	41	8	122	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.962			0.920	
Flt Protected		0.997			0.999			0.997			0.999	
Satd. Flow (prot)	0	1628	0	0	1547	0	0	1585	0	0	1514	0
Flt Permitted		0.955			0.986			0.897			0.991	
Satd. Flow (perm)	0	1559	0	0	1527	0	0	1426	0	0	1501	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			16							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	49	668	5	8	320	37	9	100	42	8	126	196
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	722	0	0	365	0	0	151	0	0	330	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



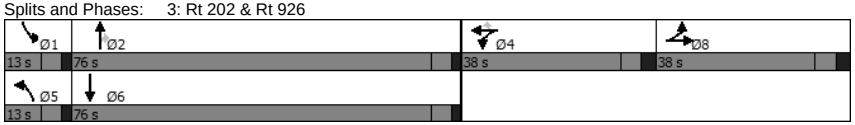
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	648	5	8	310	36	9	97	41	8	122	190
Future Volume (veh/h)	48	648	5	8	310	36	9	97	41	8	122	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	49	668	5	8	320	37	9	100	42	8	126	196
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	97	1188	9	48	1048	119	50	220	88	44	114	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	77	1670	12	11	1474	167	45	1238	494	16	640	959
Grp Volume(v), veh/h	722	0	0	365	0	0	151	0	0	330	0	0
Grp Sat Flow(s),veh/h/ln	1759	0	0	1652	0	0	1776	0	0	1615	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	17.4	0.0	0.0	7.4	0.0	0.0	7.0	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.07		0.01	0.02		0.10	0.06		0.28	0.02		0.59
Lane Grp Cap(c), veh/h	1274	0	0	1197	0	0	338	0	0	310	0	0
V/C Ratio(X)	0.57	0.00	0.00	0.30	0.00	0.00	0.45	0.00	0.00	1.06	0.00	0.00
Avail Cap(c_a), veh/h	1274	0	0	1197	0	0	338	0	0	310	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	6.3	0.0	0.0	4.8	0.0	0.0	33.4	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.7	0.0	0.0	0.9	0.0	0.0	69.0	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(95%),veh/ln	9.2	0.0	0.0	3.7	0.0	0.0	5.6	0.0	0.0	19.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	0.0	0.0	5.5	0.0	0.0	34.4	0.0	0.0	106.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		722			365			151			330	
Approach Delay, s/veh		8.1			5.5			34.4			106.9	
Approach LOS		A			A			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		19.4		17.0		9.4		9.0				
Green Ext Time (p_c), s		6.8		0.0		2.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	531	221	8	142	158	45	12	1551	151	48	1465	181
Future Volume (vph)	531	221	8	142	158	45	12	1551	151	48	1465	181
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.983	
Flt Protected	0.950	0.980		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1733	0	1565	1765	1556	1491	3291	1635	1487	3084	0
Flt Permitted	0.950	0.980		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1733	0	1565	1765	1556	1491	3291	1635	1487	3084	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									112		10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	547	228	8	146	163	46	12	1599	156	49	1510	187
Shared Lane Traffic (%)	29%											
Lane Group Flow (vph)	388	395	0	146	163	46	12	1599	156	49	1697	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	43.0	43.0		10.0	10.0	10.0	9.0	29.0	29.0	9.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	13.0	76.0	76.0	13.0	76.0	
Total Split (%)	23.0%	23.0%		23.0%	23.0%	23.0%	7.9%	46.1%	46.1%	7.9%	46.1%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	7.0	70.0	70.0	7.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	
Walk Time (s)	13.0	13.0						8.0	8.0		8.0	
Flash Dont Walk (s)	23.0	23.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 165	
Actuated Cycle Length: 151.1	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	531	221	8	142	158	45	12	1551	151	48	1465	181
Future Volume (veh/h)	531	221	8	142	158	45	12	1551	151	48	1465	181
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	392	446	8	146	163	46	12	1599	156	49	1510	187
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	382	408	2	205	215	185	26	1684	787	74	1450	177
Arrive On Green	0.21	0.21	0.21	0.11	0.11	0.11	0.02	0.48	0.48	0.05	0.51	0.50
Sat Flow, veh/h	1780	1875	34	1802	1892	1630	1626	3541	1655	1514	2852	349
Grp Volume(v), veh/h	392	0	454	146	163	46	12	1599	156	49	834	863
Grp Sat Flow(s),veh/h/ln	1780	0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	32.0	0.0	32.0	11.7	12.5	3.8	1.1	64.4	8.1	4.7	75.9	75.9
Cycle Q Clear(g_c), s	32.0	0.0	32.0	11.7	12.5	3.8	1.1	64.4	8.1	4.7	75.9	75.9
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	382	0	410	205	215	185	26	1684	787	74	808	819
V/C Ratio(X)	1.03	0.00	1.11	0.71	0.76	0.25	0.46	0.95	0.20	0.66	1.03	1.05
Avail Cap(c_a), veh/h	382	0	409	386	406	349	87	1684	787	81	808	819
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	58.6	63.8	64.2	60.3	72.8	37.4	22.7	69.8	36.7	36.8
Incr Delay (d2), s/veh	53.2	0.0	76.7	4.6	5.4	0.7	11.9	12.8	0.6	16.3	40.1	46.5
Initial Q Delay(d3),s/veh	75.5	0.0	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	35.4	0.0	40.7	9.4	10.3	2.9	1.0	38.4	5.9	3.9	47.8	50.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.3	0.0	196.8	68.3	69.5	61.0	84.7	50.2	23.2	86.1	76.8	83.3
LnGrp LOS	F	A	F	E	E	E	F	D	C	F	F	F
Approach Vol, veh/h		846			355			1767			1746	
Approach Delay, s/veh		192.4			68.0			48.1			80.3	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.3	76.0		23.0	7.4	80.9		38.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	7.0	70.0		31.0	7.0	70.0		31.0				
Max Q Clear Time (g_c+I1), s	7.2	66.9		15.0	3.6	78.4		34.5				
Green Ext Time (p_c), s	0.0	2.8		1.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	87.4
HCM 6th LOS	F

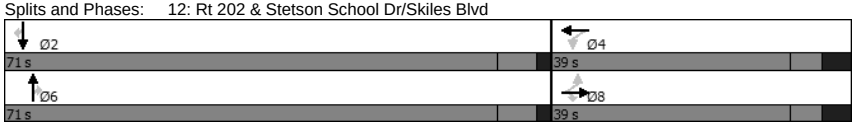
Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	141	31	50	134	54	0	2036	29	0	1874	256
Future Volume (vph)	81	141	31	50	134	54	0	2036	29	0	1874	256
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.957				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1691	0	0	3225	1616	0	3214	1676
Flt Permitted	0.536			0.663								
Satd. Flow (perm)	902	1765	1434	1136	1691	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	85	148	33	53	141	57	0	2143	31	0	1973	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	85	148	33	53	198	0	0	2143	31	0	1973	269
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0			71.0	71.0		71.0	71.0
Total Split (%)	35.5%	35.5%	35.5%	35.5%	35.5%			64.5%	64.5%		64.5%	64.5%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0			64.0	64.0		64.0	64.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			Max	Max		Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 110	
Actuated Cycle Length: 95.5	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	141	31	50	134	54	0	2036	29	0	1874	256
Future Volume (veh/h)	81	141	31	50	134	54	0	2036	29	0	1874	256
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	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	85	148	33	53	141	57	0	2143	31	0	1973	269
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	210	413	320	245	246	100	0	2131	1029	0	2244	1066
Arrive On Green	0.21	0.21	0.20	0.21	0.21	0.20	0.00	0.66	0.66	0.00	0.66	0.66
Sat Flow, veh/h	1271	1947	1588	1169	1163	470	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	85	148	33	53	0	198	0	2143	31	0	1973	269
Grp Sat Flow(s),veh/h/ln	1271	1947	1588	1169	0	1633	0	1622	1567	0	1708	1622
Q Serve(g_s), s	6.3	6.4	1.7	4.0	0.0	10.8	0.0	65.0	0.7	0.0	46.4	6.8
Cycle Q Clear(g_c), s	16.6	6.4	1.7	10.4	0.0	10.8	0.0	65.0	0.7	0.0	46.4	6.8
Prop In Lane	1.00		1.00	1.00		0.29	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	210	413	320	245	0	346	0	2131	1029	0	2244	1066
V/C Ratio(X)	0.40	0.36	0.10	0.22	0.00	0.57	0.00	1.01	0.03	0.00	0.88	0.25
Avail Cap(c_a), veh/h	352	630	497	375	0	528	0	2131	1029	0	2244	1066
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	33.3	32.2	37.7	0.0	35.1	0.0	17.0	5.9	0.0	13.8	7.0
Incr Delay (d2), s/veh	1.3	0.5	0.1	0.4	0.0	1.5	0.0	20.9	0.1	0.0	5.3	0.6
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(95%),veh/ln	3.7	5.6	1.2	2.1	0.0	7.9	0.0	32.7	0.4	0.0	21.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	33.8	32.3	38.2	0.0	36.6	0.0	37.9	6.0	0.0	19.1	7.6
LnGrp LOS	D	C	C	D	A	D	A	F	A	A	B	A
Approach Vol, veh/h		266			251			2174			2242	
Approach Delay, s/veh		36.7			36.9			37.4			17.7	
Approach LOS		D			D			D			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	71.0	28.0	71.0	28.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	64.0	31.0	64.0	31.0
Max Q Clear Time (g_c+I1), s	48.9	12.9	67.5	19.1
Green Ext Time (p_c), s	15.1	1.1	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	682	31	13	325	25	39
Future Volume (vph)	682	31	13	325	25	39
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%
Adj. Flow (vph)	703	32	13	335	26	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	703	32	13	335	26	40
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	682	31	13	325	25	39
Future Vol, veh/h	682	31	13	325	25	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None		- None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	0	8	0	3
Mvmt Flow	703	32	13	335	26	40

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	735	0	1064	703
Stage 1	-	-	-	-	703	-
Stage 2	-	-	-	-	361	-
Critical Hdwy	-	-	4.3	-	6.2	6.13
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	667	-	290	468
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	825	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	667	-	284	468
Mov Cap-2 Maneuver	-	-	-	-	284	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	809	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	468	-	-	667	-
HCM Lane V/C Ratio	0.091	0.086	-	-	0.02	-
HCM Control Delay (s)	18.9	13.4	-	-	10.5	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	12	0	0	7	10	2082	52	37	1753	150
Future Volume (vph)	0	0	12	0	0	7	10	2082	52	37	1753	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.988	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3205	0	1629	3160	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3205	0	1629	3160	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	13	0	0	7	10	2169	54	39	1826	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	7	10	2223	0	39	1982	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	12	0	0	7	10	2082	52	37	1753	150
Future Vol, veh/h	0	0	12	0	0	7	10	2082	52	37	1753	150
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	13	0	0	7	10	2169	54	39	1826	156

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	991	-	-	1112	1982	0	0	2223	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	248	0	0	189	277	-	-	243	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	248	-	-	189	277	-	-	243	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.3	24.8	0.1	0.4
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	277	-	-	248	189	243	-	-
HCM Lane V/C Ratio	0.038	-	-	0.05	0.039	0.159	-	-
HCM Control Delay (s)	18.5	-	-	20.3	24.8	22.6	-	-
HCM Lane LOS	C	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0.6	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	12	1	8	152	1	0
Future Volume (vph)	12	1	8	152	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1692	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1692	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	429			499	469	
Travel Time (s)	8.4			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	17	1	11	217	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	228	1	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	12	1	8	152	1	0
Future Vol, veh/h	12	1	8	152	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	17	1	11	217	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	18	0	257	18
Stage 1	-	-	-	-	18	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1183	-	820	1133
Stage 1	-	-	-	-	1174	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1183	-	811	1133
Mov Cap-2 Maneuver	-	-	-	-	811	-
Stage 1	-	-	-	-	1174	-
Stage 2	-	-	-	-	891	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.4
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	811	-	-	-	1183	-
HCM Lane V/C Ratio	0.002	-	-	-	0.01	-
HCM Control Delay (s)	9.4	0	-	-	8.1	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	13	0	0	153	0	0
Future Volume (vph)	13	0	0	153	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			429	436	
Travel Time (s)	57.1			8.4	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	19	0	0	219	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	219	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

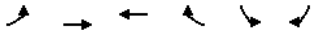
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	13	0	0	153	0	0
Future Vol, veh/h	13	0	0	153	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	19	0	0	219	0	0

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	0	-	-	-	-	238	19
Stage 1	-	-	-	-	-	19	-
Stage 2	-	-	-	-	-	219	-
Critical Hdwy	-	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	-	890	1134
Stage 1	-	0	0	-	-	1178	-
Stage 2	-	0	0	-	-	969	-
Platoon blocked, %	-			-			
Mov Cap-1 Maneuver	-	-	-	-	-	890	1134
Mov Cap-2 Maneuver	-	-	-	-	-	890	-
Stage 1	-	-	-	-	-	1178	-
Stage 2	-	-	-	-	-	969	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	19	222	3	5	2
Future Volume (vph)	0	19	222	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1643	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1643	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	27	317	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	27	321	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	19	222	3	5	2
Future Vol, veh/h	0	19	222	3	5	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	5	3	50	0	25
Mvmt Flow	0	27	317	4	7	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	321	0	-	0	346	319
Stage 1	-	-	-	-	319	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	4.3	-	-	-	6.6	6.55
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.3
Pot Cap-1 Maneuver	932	-	-	-	732	704
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	1164	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	932	-	-	-	732	704
Mov Cap-2 Maneuver	-	-	-	-	732	-
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	1164	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	932	-	-	-	724
HCM Lane V/C Ratio	-	-	-	-	0.014
HCM Control Delay (s)	0	-	-	-	10
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	21	173	6	13	127
Future Volume (vph)	203	21	173	6	13	127
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987		0.995			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1648	0	1757	0	0	1762
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1648	0	1757	0	0	1762
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	228	24	194	7	15	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	252	0	201	0	0	158
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	203	21	173	6	13	127
Future Vol, veh/h	203	21	173	6	13	127
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	0	8	1
Mvmt Flow	228	24	194	7	15	143

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	371	198	0	0	201	0
Stage 1	198	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuver	720	866	-	-	989	-
Stage 1	966	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	708	866	-	-	989	-
Mov Cap-2 Maneuver	708	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	977	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.7	0	0.8
HCM LOS	B		

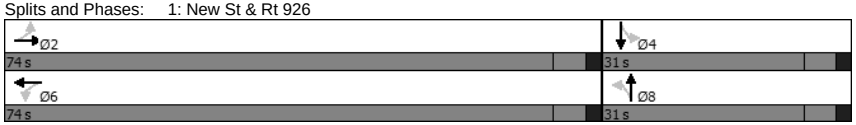
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	720	989	-
HCM Lane V/C Ratio	-	-	0.317	0.015	-
HCM Control Delay (s)	-	-	12.7	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.6	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	659	13	19	305	30	9	83	37	49	164	143
Future Volume (vph)	30	659	13	19	305	30	9	83	37	49	164	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.961			0.946	
Flt Protected		0.998			0.997			0.997			0.993	
Satd. Flow (prot)	0	1627	0	0	1551	0	0	1581	0	0	1530	0
Flt Permitted		0.974			0.950			0.963			0.940	
Satd. Flow (perm)	0	1588	0	0	1478	0	0	1527	0	0	1449	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	31	679	13	20	314	31	9	86	38	51	169	147
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	723	0	0	365	0	0	133	0	0	367	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (%)	70.5%	70.5%		70.5%	70.5%		29.5%	29.5%		29.5%	29.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



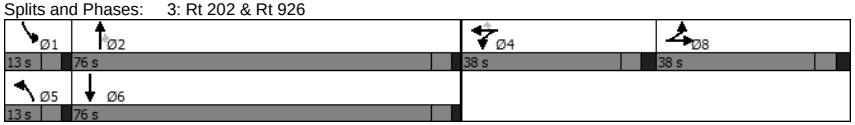
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	659	13	19	305	30	9	83	37	49	164	143
Future Volume (veh/h)	30	659	13	19	305	30	9	83	37	49	164	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	31	679	13	20	314	31	9	86	38	51	169	147
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	65	1119	21	68	933	90	49	297	124	81	197	160
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24
Sat Flow, veh/h	45	1703	32	49	1420	136	51	1200	500	170	796	646
Grp Volume(v), veh/h	723	0	0	365	0	0	133	0	0	367	0	0
Grp Sat Flow(s),veh/h/ln	1780	0	0	1605	0	0	1751	0	0	1612	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	0.0	0.0
Cycle Q Clear(g_c), s	23.7	0.0	0.0	10.0	0.0	0.0	6.4	0.0	0.0	23.0	0.0	0.0
Prop In Lane	0.04		0.02	0.05		0.08	0.07		0.29	0.14		0.40
Lane Grp Cap(c), veh/h	1222	0	0	1106	0	0	487	0	0	453	0	0
V/C Ratio(X)	0.59	0.00	0.00	0.33	0.00	0.00	0.27	0.00	0.00	0.81	0.00	0.00
Avail Cap(c_a), veh/h	1222	0	0	1106	0	0	487	0	0	453	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	10.2	0.0	0.0	7.9	0.0	0.0	32.2	0.0	0.0	38.4	0.0	0.0
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.8	0.0	0.0	0.3	0.0	0.0	10.5	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(95%),veh/ln	12.8	0.0	0.0	5.6	0.0	0.0	5.0	0.0	0.0	15.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.3	0.0	0.0	8.7	0.0	0.0	32.5	0.0	0.0	48.9	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		723			365			133			367	
Approach Delay, s/veh		12.3			8.7			32.5			48.9	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		74.0		31.0		74.0		31.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		68.0		25.0		68.0		25.0				
Max Q Clear Time (g_c+I1), s		25.7		25.0		12.0		8.4				
Green Ext Time (p_c), s		6.7		0.0		2.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	451	204	27	199	221	57	29	1551	121	79	1451	128
Future Volume (vph)	451	204	27	199	221	57	29	1551	121	79	1451	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									112		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	465	210	28	205	228	59	30	1599	125	81	1496	132
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	349	354	0	205	228	59	30	1599	125	81	1628	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	43.0	43.0		10.0	10.0	10.0	9.0	29.0	29.0	9.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	13.0	76.0	76.0	13.0	76.0	
Total Split (%)	23.0%	23.0%		23.0%	23.0%	23.0%	7.9%	46.1%	46.1%	7.9%	46.1%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	7.0	70.0	70.0	7.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	
Walk Time (s)	13.0	13.0						8.0	8.0		8.0	
Flash Dont Walk (s)	23.0	23.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 165	
Actuated Cycle Length: 158.8	
Natural Cycle: 115	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	451	204	27	199	221	57	29	1551	121	79	1451	128
Future Volume (veh/h)	451	204	27	199	221	57	29	1551	121	79	1451	128
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	352	369	28	205	228	59	30	1599	125	81	1496	132
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	361	396	6	269	280	241	55	1654	773	88	1559	57
Arrive On Green	0.21	0.21	0.20	0.14	0.14	0.14	0.03	0.46	0.46	0.05	0.48	0.47
Sat Flow, veh/h	1753	1798	136	1856	1935	1668	1856	3622	1693	1714	3082	270
Grp Volume(v), veh/h	352	0	397	205	228	59	30	1599	125	81	799	829
Grp Sat Flow(s),veh/h/ln	1753	0	1934	1856	1935	1668	1856	1811	1693	1714	1657	1695
Q Serve(g_s), s	31.0	0.0	31.9	16.5	17.8	4.9	2.5	66.8	6.7	7.3	74.4	74.4
Cycle Q Clear(g_c), s	31.0	0.0	31.9	16.5	17.8	4.9	2.5	66.8	6.7	7.3	74.4	74.4
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	361	0	402	269	280	241	55	1654	773	88	792	824
V/C Ratio(X)	0.98	0.00	0.99	0.76	0.81	0.24	0.54	0.97	0.16	0.92	1.01	1.01
Avail Cap(c_a), veh/h	361	0	398	382	398	343	95	1654	773	88	792	811
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	0.0	61.8	63.9	64.5	59.0	74.4	41.1	24.8	73.4	40.6	40.6
Incr Delay (d2), s/veh	40.8	0.0	41.9	5.6	8.4	0.5	8.1	15.6	0.4	69.4	34.2	32.8
Initial Q Delay(d3),s/veh	19.1	0.0	39.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	363.5	349.6
%ile BackOfQ(95%),veh/ln	26.9	0.0	32.0	12.8	14.3	3.7	2.3	41.4	5.0	8.5	126.6	127.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	121.6	0.0	142.9	69.5	72.9	59.5	82.5	56.7	25.2	142.8	438.2	422.9
LnGrp LOS	F	A	F	E	E	E	F	E	C	F	F	F
Approach Vol, veh/h		749			492			1754			1709	
Approach Delay, s/veh		132.9			69.9			54.9			416.8	
Approach LOS		F			E			D			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.0	76.0		28.5	9.6	79.4		38.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	7.0	70.0		31.0	7.0	70.0		31.0				
Max Q Clear Time (g_c+I1), s	9.8	69.3		20.3	5.0	76.9		33.9				
Green Ext Time (p_c), s	0.0	0.7		1.2	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	200.4
HCM 6th LOS	F

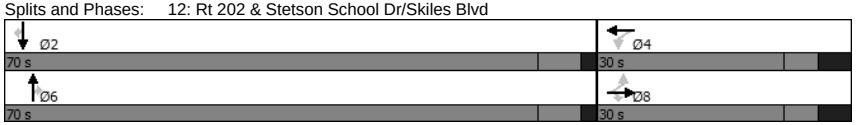
Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	129	61	27	43	59	0	1993	46	0	1925	131
Future Volume (vph)	120	129	61	27	43	59	0	1993	46	0	1925	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.913				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1735	0	0	3256	1616	0	3370	1709
Flt Permitted	0.689			0.634								
Satd. Flow (perm)	1205	1906	1589	1130	1735	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	124	133	63	28	44	61	0	2055	47	0	1985	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	124	133	63	28	105	0	0	2055	47	0	1985	135
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0			70.0	70.0		70.0	70.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0			63.0	63.0		63.0	63.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			Max	Max		Max	Max

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 92.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	129	61	27	43	59	0	1993	46	0	1925	131
Future Volume (veh/h)	120	129	61	27	43	59	0	1993	46	0	1925	131
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	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	124	133	63	28	44	61	0	2055	47	0	1985	135
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	288	408	359	246	138	192	0	2276	1090	0	2471	1146
Arrive On Green	0.20	0.20	0.21	0.20	0.20	0.17	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1424	2066	1726	1191	701	972	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	124	133	63	28	0	105	0	2055	47	0	1985	135
Grp Sat Flow(s),veh/h/ln	1424	2066	1726	1191	0	1674	0	1635	1567	0	1776	1647
Q Serve(g_s), s	7.6	5.2	2.8	1.9	0.0	5.1	0.0	48.1	0.9	0.0	36.0	2.5
Cycle Q Clear(g_c), s	12.2	5.2	2.8	7.1	0.0	5.1	0.0	48.1	0.9	0.0	36.0	2.5
Prop In Lane	1.00		1.00	1.00		0.58	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	288	408	359	246	0	330	0	2276	1090	0	2471	1146
V/C Ratio(X)	0.43	0.33	0.18	0.11	0.00	0.32	0.00	0.90	0.04	0.00	0.80	0.12
Avail Cap(c_a), veh/h	388	553	480	330	0	448	0	2276	1090	0	2471	1146
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	37.1	32.2	30.4	35.2	0.0	32.9	0.0	11.6	4.5	0.0	9.8	4.7
Incr Delay (d2), s/veh	1.0	0.5	0.2	0.2	0.0	0.5	0.0	6.4	0.1	0.0	2.9	0.2
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(95%),veh/ln	4.9	4.7	2.1	1.0	0.0	3.8	0.0	20.2	0.4	0.0	16.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	32.6	30.6	35.4	0.0	33.4	0.0	18.1	4.5	0.0	12.7	4.9
LnGrp LOS	D	C	C	D	A	C	A	B	A	A	B	A
Approach Vol, veh/h		320			133			2102			2120	
Approach Delay, s/veh		34.4			33.9			17.8			12.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	70.0	23.4	70.0	23.4
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	63.0	22.0	63.0	22.0
Max Q Clear Time (g_c+I1), s	38.5	9.6	50.6	14.7
Green Ext Time (p_c), s	24.4	0.4	12.4	0.7

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	692	37	20	357	16	34
Future Volume (vph)	692	37	20	357	16	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	721	39	21	372	17	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	721	39	21	372	17	35
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	692	37	20	357	16	34
Future Vol, veh/h	692	37	20	357	16	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	0	5	3	0	9
Mvmt Flow	721	39	21	372	17	35

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	760	0	1135	721
Stage 1	-	-	-	-	721	-
Stage 2	-	-	-	-	414	-
Critical Hdwy	-	-	4.3	-	6.2	6.19
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	653	-	263	451
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	780	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	653	-	255	451
Mov Cap-2 Maneuver	-	-	-	-	255	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	755	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	255	451	-	-	653	-
HCM Lane V/C Ratio	0.065	0.079	-	-	0.032	-
HCM Control Delay (s)	20.1	13.7	-	-	10.7	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	24	0	0	11	32	2004	46	89	1701	202
Future Volume (vph)	0	0	24	0	0	11	32	2004	46	89	1701	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.997			0.984	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3249	0	1678	3323	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3249	0	1678	3323	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	24	0	0	11	33	2045	47	91	1736	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	24	0	0	11	33	2092	0	91	1942	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	24	0	0	11	32	2004	46	89	1701	202
Future Vol, veh/h	0	0	24	0	0	11	32	2004	46	89	1701	202
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	24	0	0	11	33	2045	47	91	1736	206

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	971	-	-	1046	1942	0	0	2092	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	264	0	0	222	326	-	-	288	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	264	-	-	222	326	-	-	288	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20	22.1	0.3	1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	326	-	-	264	222	288	-	-
HCM Lane V/C Ratio	0.1	-	-	0.093	0.051	0.315	-	-
HCM Control Delay (s)	17.3	-	-	20	22.1	23.2	-	-
HCM Lane LOS	C	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.2	1.3	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	0	5	229	1	4
Future Volume (vph)	20	0	5	229	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	385			553	359	
Travel Time (s)	7.5			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	27	0	7	305	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	312	1	5
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	0	5	229	1	4
Future Vol, veh/h	20	0	5	229	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	27	0	7	305	1	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	27	0	346	27
Stage 1	-	-	-	-	27	-
Stage 2	-	-	-	-	319	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1175	-	719	1120
Stage 1	-	-	-	-	1162	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1175	-	714	1120
Mov Cap-2 Maneuver	-	-	-	-	714	-
Stage 1	-	-	-	-	1162	-
Stage 2	-	-	-	-	811	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.6
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	714	1120	-	-	1175	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.006	-
HCM Control Delay (s)	10.1	8.2	-	-	8.1	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	20	0	0	230	0	0
Future Volume (vph)	20	0	0	230	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			385	323	
Travel Time (s)	55.1			7.5	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	27	0	0	307	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	307	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

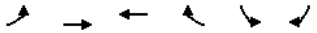
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	20	0	0	230	0	0
Future Vol, veh/h	20	0	0	230	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	27	0	0	307	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	0	-	-	-	-	-	334	27	
Stage 1	-	-	-	-	-	-	27	-	
Stage 2	-	-	-	-	-	-	307	-	
Critical Hdwy	-	-	-	-	-	-	6	6	
Critical Hdwy Stg 1	-	-	-	-	-	-	5	-	
Critical Hdwy Stg 2	-	-	-	-	-	-	5	-	
Follow-up Hdwy	-	-	-	-	-	-	3	3.1	
Pot Cap-1 Maneuver	-	0	0	-	-	-	788	1123	
Stage 1	-	0	0	-	-	-	1169	-	
Stage 2	-	0	0	-	-	-	888	-	
Platoon blocked, %	-			-					
Mov Cap-1 Maneuver	-	-	-	-	-	-	788	1123	
Mov Cap-2 Maneuver	-	-	-	-	-	-	788	-	
Stage 1	-	-	-	-	-	-	1169	-	
Stage 2	-	-	-	-	-	-	888	-	

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	32	243	11	1	2
Future Volume (vph)	3	32	243	11	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.996			0.988	
Satd. Flow (prot)	0	1648	1679	0	1485	0
Flt Permitted		0.996			0.988	
Satd. Flow (perm)	0	1648	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	43	324	15	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	47	339	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	32	243	11	1	2
Future Vol, veh/h	3	32	243	11	1	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	4	43	324	15	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	339	0	-	0	383	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	919	-	-	-	695	747
Stage 1	-	-	-	-	820	-
Stage 2	-	-	-	-	1132	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	919	-	-	-	692	747
Mov Cap-2 Maneuver	-	-	-	-	692	-
Stage 1	-	-	-	-	817	-
Stage 2	-	-	-	-	1132	-

Approach	EB	WB	SB
HCM Control Delay, s	8.8	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	919	-	-	-	728
HCM Lane V/C Ratio	0.004	-	-	-	0.005
HCM Control Delay (s)	8.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	198	47	143	17	18	168
Future Volume (vph)	198	47	143	17	18	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.986			
Flt Protected	0.961					0.995
Satd. Flow (prot)	1665	0	1759	0	0	1759
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1665	0	1759	0	0	1759
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	222	53	161	19	20	189
Shared Lane Traffic (%)						
Lane Group Flow (vph)	275	0	180	0	0	209
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	198	47	143	17	18	168
Future Vol, veh/h	198	47	143	17	18	168
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	222	53	161	19	20	189

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	400	171	0	0	180	0
Stage 1	171	-	-	-	-	-
Stage 2	229	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	592	929	-	-	1042	-
Stage 1	996	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	577	929	-	-	1042	-
Mov Cap-2 Maneuver	577	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	914	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.2	0	0.8
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	714	1042	-
HCM Lane V/C Ratio	-	-	0.386	0.019	-
HCM Control Delay (s)	-	-	13.2	8.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-

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Appendix P

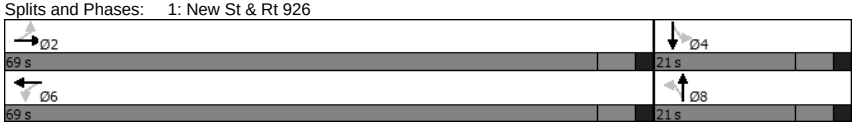
Future (2025) Capacity/Level-of-Service Without Development Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.920	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1587	0	0	1514	0
Flt Permitted		0.916			0.986			0.888			0.992	
Satd. Flow (perm)	0	1497	0	0	1527	0	0	1413	0	0	1503	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			15							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	82	662	5	8	332	38	9	105	43	8	131	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	749	0	0	378	0	0	157	0	0	344	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	82	662	5	8	332	38	9	105	43	8	131	205
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	145	1106	8	48	1050	118	50	222	87	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1556	11	10	1476	166	43	1248	487	15	637	962
Grp Volume(v), veh/h	749	0	0	378	0	0	157	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	1709	0	0	1653	0	0	1778	0	0	1615	0	0
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.2	0.0	0.0	7.7	0.0	0.0	7.3	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
V/C Ratio(X)	0.60	0.00	0.00	0.32	0.00	0.00	0.46	0.00	0.00	1.11	0.00	0.00
Avail Cap(c_a), veh/h	1241	0	0	1198	0	0	339	0	0	310	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	6.5	0.0	0.0	4.9	0.0	0.0	33.6	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.7	0.0	0.0	1.0	0.0	0.0	83.8	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(95%),veh/ln	9.7	0.0	0.0	3.9	0.0	0.0	5.8	0.0	0.0	21.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	0.0	0.0	5.6	0.0	0.0	34.5	0.0	0.0	121.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		749			378			157			344	
Approach Delay, s/veh		8.7			5.6			34.5			121.7	
Approach LOS		A			A			C			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		21.2		17.0		9.7		9.3				
Green Ext Time (p_c), s		7.3		0.0		2.9		0.2				

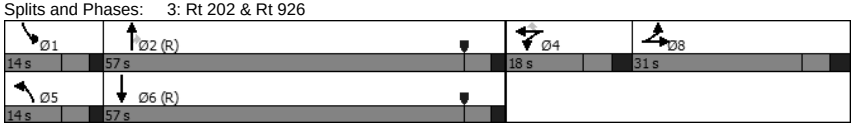
Intersection Summary		
HCM 6th Ctrl Delay		34.3
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	522	228	8	146	163	56	12	1630	156	56	1537	189
Future Volume (vph)	522	228	8	146	163	56	12	1630	156	56	1537	189
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.984	
Flt Protected	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1734	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Flt Permitted	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1734	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		14	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	538	235	8	151	168	58	12	1680	161	58	1585	195
Shared Lane Traffic (%)	28%											
Lane Group Flow (vph)	387	394	0	151	168	58	12	1680	161	58	1780	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
Total Split (%)	25.8%	25.8%		15.0%	15.0%	15.0%	11.7%	47.5%	47.5%	11.7%	47.5%	
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	522	228	8	146	163	56	12	1630	156	56	1537	189
Future Volume (veh/h)	522	228	8	146	163	56	12	1630	156	56	1537	189
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	390	441	8	151	168	58	12	1680	161	58	1585	195
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	397	2	180	189	163	29	1594	745	88	1401	170
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.02	0.45	0.45	0.06	0.49	0.48
Sat Flow, veh/h	1780	1874	34	1802	1892	1630	1626	3541	1655	1514	2855	346
Grp Volume(v), veh/h	390	0	449	151	168	58	12	1680	161	58	873	907
Grp Sat Flow(s),veh/h/ln	1780	0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	25.0	0.0	25.0	9.9	10.5	4.0	0.9	54.0	7.1	4.5	58.9	58.9
Cycle Q Clear(g_c), s	25.0	0.0	25.0	9.9	10.5	4.0	0.9	54.0	7.1	4.5	58.9	58.9
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	29	1594	745	88	780	791
V/C Ratio(X)	1.05	0.00	1.13	0.84	0.89	0.36	0.42	1.05	0.22	0.66	1.12	1.15
Avail Cap(c_a), veh/h	371	0	398	180	189	163	122	1594	745	114	780	791
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.0	53.3	50.4	58.3	33.0	20.1	55.3	30.6	30.7
Incr Delay (d2), s/veh	60.9	0.0	84.2	27.9	36.2	1.3	9.4	38.4	0.7	8.6	69.9	81.0
Initial Q Delay(d3),s/veh	77.7	0.0	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	32.4	0.0	37.1	9.7	11.0	3.0	0.8	40.4	5.0	3.4	49.6	54.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	186.1	0.0	195.0	80.9	89.5	51.7	67.8	71.4	20.8	64.0	100.4	111.6
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		839			377			1853			1838	
Approach Delay, s/veh		190.8			80.2			66.9			104.8	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	59.0		18.0	7.1	63.9		31.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+I1), s	7.0	56.5		13.0	3.4	61.4		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	103.3
HCM 6th LOS	F

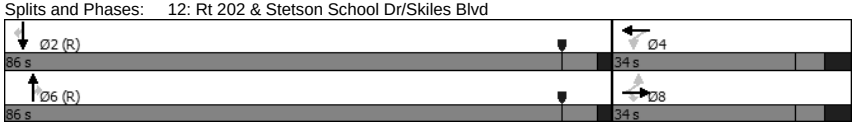
Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	141	149	34	86	138	61	0	2079	56	0	1947	297
Future Volume (vph)	141	149	34	86	138	61	0	2079	56	0	1947	297
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.483			0.599								
Satd. Flow (perm)	813	1765	1434	1026	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	148	157	36	91	145	64	0	2188	59	0	2049	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	148	157	36	91	209	0	0	2188	59	0	2049	313
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0			86.0	86.0		86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	28.3%			71.7%	71.7%		71.7%	71.7%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0			79.0	79.0		79.0	79.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	149	34	86	138	61	0	2079	56	0	1947	297
Future Volume (veh/h)	141	149	34	86	138	61	0	2079	56	0	1947	297
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	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	148	157	36	91	145	64	0	2188	59	0	2049	313
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	204	438	344	242	254	112	0	2163	1045	0	2277	1082
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.67	0.67	0.00	0.67	0.67
Sat Flow, veh/h	1258	1947	1588	1156	1129	498	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	148	157	36	91	0	209	0	2188	59	0	2049	313
Grp Sat Flow(s),veh/h/ln	1258	1947	1588	1156	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	13.8	8.2	2.2	8.6	0.0	13.7	0.0	80.0	1.6	0.0	59.9	9.6
Cycle Q Clear(g_c), s	27.0	8.2	2.2	16.8	0.0	13.7	0.0	80.0	1.6	0.0	59.9	9.6
Prop In Lane	1.00		1.00	1.00		0.31	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	204	438	344	242	0	366	0	2163	1045	0	2277	1082
V/C Ratio(X)	0.72	0.36	0.10	0.38	0.00	0.57	0.00	1.01	0.06	0.00	0.90	0.29
Avail Cap(c_a), veh/h	204	438	344	242	0	366	0	2163	1045	0	2277	1082
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	39.2	37.7	46.3	0.0	41.5	0.0	20.0	6.9	0.0	16.7	8.3
Incr Delay (d2), s/veh	11.9	0.5	0.1	1.0	0.0	2.1	0.0	22.3	0.1	0.0	6.2	0.7
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(95%),veh/ln	8.9	7.2	1.6	4.6	0.0	9.7	0.0	40.7	0.9	0.0	28.8	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.2	39.7	37.8	47.2	0.0	43.6	0.0	42.3	7.0	0.0	22.9	8.9
LnGrp LOS	E	D	D	D	A	D	A	F	A	A	C	A
Approach Vol, veh/h		341			300			2247			2362	
Approach Delay, s/veh		50.6			44.7			41.3			21.0	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	86.0	34.0	86.0	34.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	79.0	26.0	79.0	26.0
Max Q Clear Time (g_c+I1), s	62.4	19.3	82.5	29.5
Green Ext Time (p_c), s	16.5	0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	678	32	13	337	26	40
Future Volume (vph)	678	32	13	337	26	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%
Adj. Flow (vph)	699	33	13	347	27	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	699	33	13	347	27	41
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	678	32	13	337	26	40
Future Vol, veh/h	678	32	13	337	26	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		- None		- None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	0	8	0	3
Mvmt Flow	699	33	13	347	27	41

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	732	0	1072	699
Stage 1	-	-	-	-	699	-
Stage 2	-	-	-	-	373	-
Critical Hdwy	-	-	4.3	-	6.2	6.13
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	669	-	286	470
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	815	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	669	-	281	470
Mov Cap-2 Maneuver	-	-	-	-	281	-
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	15.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	281	470	-	-	669	-
HCM Lane V/C Ratio	0.095	0.088	-	-	0.02	-
HCM Control Delay (s)	19.2	13.4	-	-	10.5	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	27	0	0	34	32	2124	70	53	1827	154
Future Volume (vph)	0	0	27	0	0	34	32	2124	70	53	1827	154
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.988	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	28	0	0	35	33	2213	73	55	1903	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	28	0	0	35	33	2286	0	55	2063	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	27	0	0	34	32	2124	70	53	1827	154
Future Vol, veh/h	0	0	27	0	0	34	32	2124	70	53	1827	154
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	28	0	0	35	33	2213	73	55	1903	160

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1032	-	-	1143	2063	0	0	2286	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*386	0	0	*225	*449	-	-	*291	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*386	-	-	*225	*449	-	-	*291	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	24	0.2	0.5
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 449	-	-	386	225	* 291	-	-
HCM Lane V/C Ratio	0.074	-	-	0.073	0.157	0.19	-	-
HCM Control Delay (s)	13.7	-	-	15.1	24	20.2	-	-
HCM Lane LOS	B	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	0.5	0.7	-	-

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	27	1	8	178	1	0
Future Volume (vph)	27	1	8	178	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1700	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1700	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	39	1	11	254	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	265	1	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

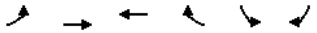
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	27	1	8	178	1	0
Future Vol, veh/h	27	1	8	178	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	39	1	11	254	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	40	0	316	40
Stage 1	-	-	-	-	40	-
Stage 2	-	-	-	-	276	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1163	-	751	1100
Stage 1	-	-	-	-	1144	-
Stage 2	-	-	-	-	861	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1163	-	743	1100
Mov Cap-2 Maneuver	-	-	-	-	743	-
Stage 1	-	-	-	-	1144	-
Stage 2	-	-	-	-	852	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	743	-	-	-	1163	-
HCM Lane V/C Ratio	0.002	-	-	-	0.01	-
HCM Control Delay (s)	9.9	0	-	-	8.1	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	34	12	151	28	15	12
Future Volume (vph)	34	12	151	28	15	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979		0.940	
Flt Protected		0.964			0.973	
Satd. Flow (prot)	0	1676	1748	0	1614	0
Flt Permitted		0.964			0.973	
Satd. Flow (perm)	0	1676	1748	0	1614	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	49	17	216	40	21	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	256	0	38	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	12	151	28	15	12
Future Vol, veh/h	34	12	151	28	15	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, %	-	4	-4	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	3	2	2	2
Mvmt Flow	49	17	216	40	21	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	256	0	-	0	351	236
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	115	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	981	-	-	-	740	854
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	1058	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	981	-	-	-	703	854
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	881	-
Stage 2	-	-	-	-	1058	-

Approach	EB	WB	SB
HCM Control Delay, s	8.5	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	981	-	-	-	763
HCM Lane V/C Ratio	0.05	-	-	-	0.051
HCM Control Delay (s)	8.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	47	0	0	163	0	0
Future Volume (vph)	47	0	0	163	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			322	436	
Travel Time (s)	57.1			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	67	0	0	233	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	0	0	233	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

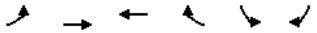
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	47	0	0	163	0	0
Future Vol, veh/h	47	0	0	163	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	67	0	0	233	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	300	67
Stage 1	-	-	-	-	67	-
Stage 2	-	-	-	-	233	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	823	1069
Stage 1	-	0	0	-	1124	-
Stage 2	-	0	0	-	955	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	823	1069
Mov Cap-2 Maneuver	-	-	-	-	823	-
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	955	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	54	234	3	5	2
Future Volume (vph)	0	54	234	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1643	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1643	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	77	334	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	77	338	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	54	234	3	5	2
Future Vol, veh/h	0	54	234	3	5	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	5	3	50	0	25
Mvmt Flow	0	77	334	4	7	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	338	0	-	0	413	336
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.3	-	-	-	6.6	6.55
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.3
Pot Cap-1 Maneuver	920	-	-	-	665	688
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	1099	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	920	-	-	-	665	688
Mov Cap-2 Maneuver	-	-	-	-	665	-
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	1099	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	920	-	-	-	671
HCM Lane V/C Ratio	-	-	-	-	0.015
HCM Control Delay (s)	0	-	-	-	10.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	213	23	178	38	15	131
Future Volume (vph)	213	23	178	38	15	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987		0.976			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1648	0	1728	0	0	1761
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1648	0	1728	0	0	1761
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	239	26	200	43	17	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	265	0	243	0	0	164
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	213	23	178	38	15	131
Future Vol, veh/h	213	23	178	38	15	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	0	8	1
Mvmt Flow	239	26	200	43	17	147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	403	222	0	0	243	0
Stage 1	222	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuver	589	839	-	-	956	-
Stage 1	941	-	-	-	-	-
Stage 2	984	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	576	839	-	-	956	-
Mov Cap-2 Maneuver	576	-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	965	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.9
HCM LOS	B		

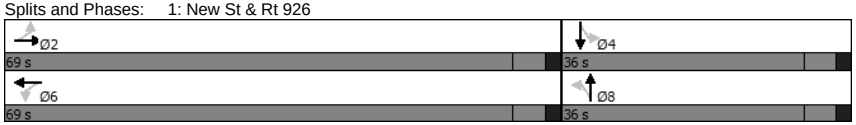
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	689	956	-
HCM Lane V/C Ratio	-	-	0.385	0.018	-
HCM Control Delay (s)	-	-	13.5	8.8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.997			0.993	
Satd. Flow (prot)	0	1625	0	0	1551	0	0	1583	0	0	1530	0
Flt Permitted		0.941			0.947			0.972			0.939	
Satd. Flow (perm)	0	1536	0	0	1473	0	0	1544	0	0	1447	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	59	679	13	21	327	32	9	90	39	53	176	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	751	0	0	380	0	0	138	0	0	384	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		36.0	36.0		36.0	36.0	
Total Split (%)	65.7%	65.7%		65.7%	65.7%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 103.9
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



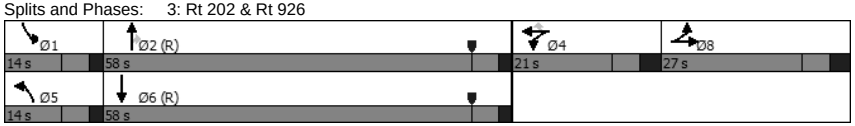
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	59	679	13	21	327	32	9	90	39	53	176	155
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	101	1026	19	68	906	86	51	320	131	85	209	172
Arrive On Green	0.65	0.64	0.63	0.65	0.64	0.63	0.27	0.26	0.25	0.27	0.26	0.25
Sat Flow, veh/h	99	1611	30	48	1424	135	48	1212	496	168	792	650
Grp Volume(v), veh/h	751	0	0	380	0	0	138	0	0	384	0	0
Grp Sat Flow(s),veh/h/ln	1740	0	0	1607	0	0	1757	0	0	1610	0	0
Q Serve(g_s), s	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	0.0	0.0
Cycle Q Clear(g_c), s	26.4	0.0	0.0	10.7	0.0	0.0	6.3	0.0	0.0	22.9	0.0	0.0
Prop In Lane	0.08		0.02	0.06		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1163	0	0	1076	0	0	519	0	0	482	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.35	0.00	0.00	0.27	0.00	0.00	0.80	0.00	0.00
Avail Cap(c_a), veh/h	1163	0	0	1076	0	0	595	0	0	552	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	11.3	0.0	0.0	8.6	0.0	0.0	29.6	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.9	0.0	0.0	0.3	0.0	0.0	7.1	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(95%),veh/ln	13.9	0.0	0.0	6.1	0.0	0.0	4.8	0.0	0.0	14.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.1	0.0	0.0	9.5	0.0	0.0	29.9	0.0	0.0	42.8	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		751			380			138			384	
Approach Delay, s/veh		14.1			9.5			29.9			42.8	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		31.6		69.0		31.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		30.0		63.0		30.0				
Max Q Clear Time (g_c+I1), s		28.4		24.9		12.7		8.3				
Green Ext Time (p_c), s		7.0		0.7		3.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	444	210	28	205	228	66	30	1626	125	89	1531	134
Future Volume (vph)	444	210	28	205	228	66	30	1626	125	89	1531	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	458	216	29	211	235	68	31	1676	129	92	1578	138
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	343	360	0	211	235	68	31	1676	129	92	1716	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	27.0	27.0		21.0	21.0	21.0	14.0	58.0	58.0	14.0	58.0	
Total Split (%)	22.5%	22.5%		17.5%	17.5%	17.5%	11.7%	48.3%	48.3%	11.7%	48.3%	
Maximum Green (s)	20.0	20.0		14.0	14.0	14.0	8.0	52.0	52.0	8.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	444	210	28	205	228	66	30	1626	125	89	1531	134
Future Volume (veh/h)	444	210	28	205	228	66	30	1626	125	89	1531	134
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	352	365	29	211	235	68	31	1676	129	92	1578	138
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	307	336	5	232	242	208	60	1600	748	129	1576	60
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.03	0.44	0.44	0.08	0.48	0.48
Sat Flow, veh/h	1753	1791	142	1856	1935	1668	1856	3622	1693	1714	3085	267
Grp Volume(v), veh/h	352	0	394	211	235	68	31	1676	129	92	841	875
Grp Sat Flow(s),veh/h/ln	1753	0	1933	1856	1935	1668	1856	1811	1693	1714	1657	1696
Q Serve(g_s), s	21.0	0.0	21.0	13.5	14.5	4.5	2.0	53.0	5.5	6.3	58.1	58.1
Cycle Q Clear(g_c), s	21.0	0.0	21.0	13.5	14.5	4.5	2.0	53.0	5.5	6.3	58.1	58.1
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	307	0	342	232	242	208	60	1600	748	129	802	834
V/C Ratio(X)	1.15	0.00	1.15	0.91	0.97	0.33	0.52	1.05	0.17	0.72	1.05	1.05
Avail Cap(c_a), veh/h	307	0	338	232	242	208	139	1600	748	129	802	821
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	49.5	51.8	52.3	47.9	57.1	33.5	20.2	54.2	30.9	31.0
Incr Delay (d2), s/veh	97.4	0.0	96.9	35.6	49.8	0.9	6.7	36.1	0.5	17.2	45.2	45.0
Initial Q Delay(d3),s/veh	35.2	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	359.0	345.5
%ile BackOfQ(95%),veh/ln	28.7	0.0	33.2	13.1	15.4	3.4	1.8	39.9	4.0	5.9	122.0	123.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	182.1	0.0	199.1	87.5	102.0	48.8	63.8	69.6	20.7	71.4	435.1	421.4
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		746			514			1836			1808	
Approach Delay, s/veh		191.1			89.0			66.1			410.0	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	58.0		21.0	8.9	63.1		27.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	52.0		14.0	8.0	52.0		20.0				
Max Q Clear Time (g_c+I1), s	8.8	55.5		17.0	4.5	60.6		23.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	214.3
HCM 6th LOS	F

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

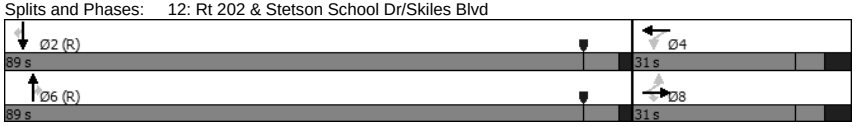
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	186	142	61	59	44	65	0	2042	75	0	1998	165
Future Volume (vph)	186	142	61	59	44	65	0	2042	75	0	1998	165
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.910				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1730	0	0	3256	1616	0	3370	1709
Flt Permitted	0.647			0.571								
Satd. Flow (perm)	1131	1906	1589	1018	1730	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	192	146	63	61	45	67	0	2105	77	0	2060	170
Shared Lane Traffic (%)												
Lane Group Flow (vph)	192	146	63	61	112	0	0	2105	77	0	2060	170
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

McMahon Associates, Inc. Robinson Tract
12: Rt 202 & Stetson School Dr/Skiles Blvd 2025 without Dev Weekday Afternoon Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0			89.0	89.0		89.0	89.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%			74.2%	74.2%		74.2%	74.2%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0			82.0	82.0		82.0	82.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 without Dev\81 - Base\We

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	186	142	61	59	44	65	0	2042	75	0	1998	165
Future Volume (veh/h)	186	142	61	59	44	65	0	2042	75	0	1998	165
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	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	192	146	63	61	45	67	0	2105	77	0	2060	170
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	292	448	388	245	145	216	0	2290	1097	0	2486	1153
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.19	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1415	2066	1726	1177	671	998	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	192	146	63	61	0	112	0	2105	77	0	2060	170
Grp Sat Flow(s),veh/h/ln	1415	2066	1726	1177	0	1669	0	1635	1567	0	1776	1647
Q Serve(g_s), s	15.8	7.1	3.5	5.5	0.0	6.9	0.0	65.0	1.9	0.0	49.7	4.1
Cycle Q Clear(g_c), s	22.1	7.1	3.5	12.7	0.0	6.9	0.0	65.0	1.9	0.0	49.7	4.1
Prop In Lane	1.00		1.00	1.00		0.60	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	292	448	388	245	0	362	0	2290	1097	0	2486	1153
V/C Ratio(X)	0.66	0.33	0.16	0.25	0.00	0.31	0.00	0.92	0.07	0.00	0.83	0.15
Avail Cap(c_a), veh/h	292	448	388	245	0	362	0	2290	1097	0	2486	1153
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	39.6	37.4	45.0	0.0	40.3	0.0	15.1	5.7	0.0	12.9	6.0
Incr Delay (d2), s/veh	5.3	0.4	0.2	0.5	0.0	0.5	0.0	7.4	0.1	0.0	3.4	0.3
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(95%),veh/ln	10.1	6.7	2.8	3.0	0.0	5.3	0.0	28.9	1.0	0.0	23.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	40.0	37.6	45.5	0.0	40.7	0.0	22.6	5.8	0.0	16.2	6.3
LnGrp LOS	D	D	D	D	A	D	A	C	A	A	B	A
Approach Vol, veh/h		401			173			2182			2230	
Approach Delay, s/veh		46.3			42.4			22.0			15.5	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	89.0	31.0	89.0	31.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	82.0	23.0	82.0	23.0
Max Q Clear Time (g_c+I1), s	52.2	15.2	67.5	24.6
Green Ext Time (p_c), s	29.7	0.4	14.5	0.0

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	693	38	21	370	17	35
Future Volume (vph)	693	38	21	370	17	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	722	40	22	385	18	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	722	40	22	385	18	36
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	693	38	21	370	17	35
Future Vol, veh/h	693	38	21	370	17	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	0	5	3	0	9
Mvmt Flow	722	40	22	385	18	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	762	0	1151	722
Stage 1	-	-	-	-	722	-
Stage 2	-	-	-	-	429	-
Critical Hdwy	-	-	4.3	-	6.2	6.19
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	652	-	257	451
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	768	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	652	-	248	451
Mov Cap-2 Maneuver	-	-	-	-	248	-
Stage 1	-	-	-	-	563	-
Stage 2	-	-	-	-	742	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	16
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	248	451	-	-	652	-
HCM Lane V/C Ratio	0.071	0.081	-	-	0.034	-
HCM Control Delay (s)	20.6	13.7	-	-	10.7	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	45	0	0	42	50	2049	60	108	1779	196
Future Volume (vph)	0	0	45	0	0	42	50	2049	60	108	1779	196
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.985	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	46	0	0	43	51	2091	61	110	1815	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	43	51	2152	0	110	2015	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	45	0	0	42	50	2049	60	108	1779	196
Future Vol, veh/h	0	0	45	0	0	42	50	2049	60	108	1779	196
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	46	0	0	43	51	2091	61	110	1815	200

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1008	-	-	1076	2015	0	0	2152	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*386	0	0	*260	*467	-	-	*326	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*386	-	-	*260	*467	-	-	*326	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	21.6	0.3	1.1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 467	-	-	386	260	* 326	-	-
HCM Lane V/C Ratio	0.109	-	-	0.119	0.165	0.338	-	-
HCM Control Delay (s)	13.7	-	-	15.6	21.6	21.6	-	-
HCM Lane LOS	B	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.4	0.6	1.5	-	-

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	41	0	5	241	1	4
Future Volume (vph)	41	0	5	241	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	55	0	7	321	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	328	1	5
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

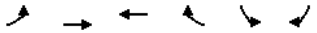
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	0	5	241	1	4
Future Vol, veh/h	41	0	5	241	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	55	0	7	321	1	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	390	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	335	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1150	-	673	1078
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	802	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	668	1078
Mov Cap-2 Maneuver	-	-	-	-	668	-
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	796	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	668	1078	-	-	1150	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.006	-
HCM Control Delay (s)	10.4	8.4	-	-	8.1	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	25	221	21	20	22
Future Volume (vph)	28	25	221	21	20	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988		0.930	
Flt Protected		0.974			0.976	
Satd. Flow (prot)	0	1700	1786	0	1602	0
Flt Permitted		0.974			0.976	
Satd. Flow (perm)	0	1700	1786	0	1602	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	37	33	295	28	27	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	323	0	56	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	25	221	21	20	22
Future Vol, veh/h	28	25	221	21	20	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, %	-	4	-3	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	1	2	2	2
Mvmt Flow	37	33	295	28	27	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	323	0	-	0	416	309
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	931	-	-	-	676	775
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	1068	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	931	-	-	-	649	775
Mov Cap-2 Maneuver	-	-	-	-	649	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	1068	-

Approach	EB	WB	SB
HCM Control Delay, s	8.8	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	931	-	-	-	709
HCM Lane V/C Ratio	0.04	-	-	-	0.079
HCM Control Delay (s)	9	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	49	0	0	243	0	0
Future Volume (vph)	49	0	0	243	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			300	323	
Travel Time (s)	55.1			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	65	0	0	324	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	0	324	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	49	0	0	243	0	0
Future Vol, veh/h	49	0	0	243	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	65	0	0	324	0	0

Major/Minor	Major1			Major2		
Conflicting Flow All	0	-	-	-	389	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	324	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	735	1071
Stage 1	-	0	0	-	1126	-
Stage 2	-	0	0	-	873	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	735	1071
Mov Cap-2 Maneuver	-	-	-	-	735	-
Stage 1	-	-	-	-	1126	-
Stage 2	-	-	-	-	873	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	61	257	11	1	2
Future Volume (vph)	3	61	257	11	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.998			0.988	
Satd. Flow (prot)	0	1651	1679	0	1485	0
Flt Permitted		0.998			0.988	
Satd. Flow (perm)	0	1651	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	81	343	15	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	85	358	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	61	257	11	1	2
Future Vol, veh/h	3	61	257	11	1	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	4	81	343	15	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	358	0	-	0	440	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	905	-	-	-	640	728
Stage 1	-	-	-	-	802	-
Stage 2	-	-	-	-	1084	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	905	-	-	-	637	728
Mov Cap-2 Maneuver	-	-	-	-	637	-
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	1084	-

Approach	EB	WB	SB
HCM Control Delay, s	9.4	0	10.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	695
HCM Lane V/C Ratio	0.004	-	-	-	0.006
HCM Control Delay (s)	9	0	-	-	10.2
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	208	50	148	45	20	173
Future Volume (vph)	208	50	148	45	20	173
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.968			
Flt Protected	0.961					0.995
Satd. Flow (prot)	1665	0	1729	0	0	1759
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1665	0	1729	0	0	1759
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	234	56	166	51	22	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	290	0	217	0	0	216
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	208	50	148	45	20	173
Future Vol, veh/h	208	50	148	45	20	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	234	56	166	51	22	194

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	430	192	0	0	217	0
Stage 1	192	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	564	904	-	-	1012	-
Stage 1	973	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	548	904	-	-	1012	-
Mov Cap-2 Maneuver	548	-	-	-	-	-
Stage 1	973	-	-	-	-	-
Stage 2	903	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	686	1012	-
HCM Lane V/C Ratio	-	-	0.423	0.022	-
HCM Control Delay (s)	-	-	14	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.1	0.1	-

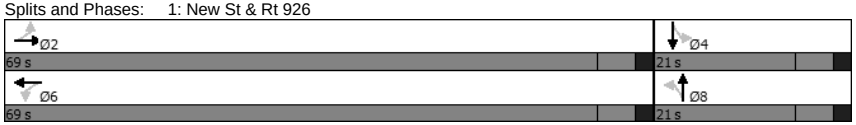
Base

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.920	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1587	0	0	1514	0
Flt Permitted		0.916			0.986			0.888			0.992	
Satd. Flow (perm)	0	1497	0	0	1527	0	0	1413	0	0	1503	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			15							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	82	662	5	8	332	38	9	105	43	8	131	205
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	749	0	0	378	0	0	157	0	0	344	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	82	662	5	8	332	38	9	105	43	8	131	205
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	145	1106	8	48	1050	118	50	222	87	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1556	11	10	1476	166	43	1248	487	15	637	962
Grp Volume(v), veh/h	749	0	0	378	0	0	157	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	1709	0	0	1653	0	0	1778	0	0	1615	0	0
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.2	0.0	0.0	7.7	0.0	0.0	7.3	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
V/C Ratio(X)	0.60	0.00	0.00	0.32	0.00	0.00	0.46	0.00	0.00	1.11	0.00	0.00
Avail Cap(c_a), veh/h	1241	0	0	1198	0	0	339	0	0	310	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	6.5	0.0	0.0	4.9	0.0	0.0	33.6	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.7	0.0	0.0	1.0	0.0	0.0	83.8	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(95%),veh/ln	9.7	0.0	0.0	3.9	0.0	0.0	5.8	0.0	0.0	21.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.7	0.0	0.0	5.6	0.0	0.0	34.5	0.0	0.0	121.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		749			378			157			344	
Approach Delay, s/veh		8.7			5.6			34.5			121.7	
Approach LOS		A			A			C			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	69.0	21.0	69.0	21.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	15.0	63.0	15.0
Max Q Clear Time (g_c+I1), s	21.2	17.0	9.7	9.3
Green Ext Time (p_c), s	7.3	0.0	2.9	0.2

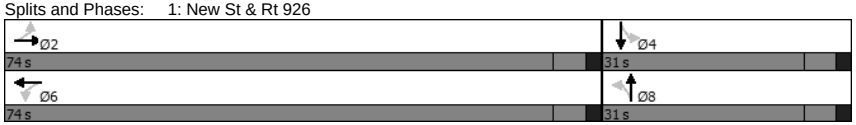
Intersection Summary	
HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.997			0.993	
Satd. Flow (prot)	0	1625	0	0	1551	0	0	1583	0	0	1530	0
Flt Permitted		0.941			0.947			0.960			0.938	
Satd. Flow (perm)	0	1536	0	0	1473	0	0	1525	0	0	1446	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	59	679	13	21	327	32	9	90	39	53	176	155
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	751	0	0	380	0	0	138	0	0	384	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (%)	70.5%	70.5%		70.5%	70.5%		29.5%	29.5%		29.5%	29.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	59	679	13	21	327	32	9	90	39	53	176	155
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	102	1058	20	69	933	89	49	298	122	81	196	161
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24
Sat Flow, veh/h	99	1610	30	50	1420	135	49	1204	493	171	791	651
Grp Volume(v), veh/h	751	0	0	380	0	0	138	0	0	384	0	0
Grp Sat Flow(s),veh/h/ln	1739	0	0	1604	0	0	1746	0	0	1613	0	0
Q Serve(g_s), s	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	0.0	0.0
Cycle Q Clear(g_c), s	25.9	0.0	0.0	10.6	0.0	0.0	6.7	0.0	0.0	24.4	0.0	0.0
Prop In Lane	0.08		0.02	0.06		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1197	0	0	1106	0	0	485	0	0	454	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.34	0.00	0.00	0.28	0.00	0.00	0.85	0.00	0.00
Avail Cap(c_a), veh/h	1197	0	0	1106	0	0	485	0	0	454	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	10.5	0.0	0.0	8.0	0.0	0.0	32.3	0.0	0.0	38.9	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.8	0.0	0.0	0.3	0.0	0.0	13.8	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(95%),veh/ln	13.5	0.0	0.0	5.9	0.0	0.0	5.2	0.0	0.0	16.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	8.8	0.0	0.0	32.6	0.0	0.0	52.7	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		751			380			138			384	
Approach Delay, s/veh		13.0			8.8			32.6			52.7	
Approach LOS		B			A			C			D	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	74.0	31.0	74.0	31.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	68.0	25.0	68.0	25.0
Max Q Clear Time (g_c+I1), s	27.9	26.4	12.6	8.7
Green Ext Time (p_c), s	7.2	0.0	3.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

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Appendix Q

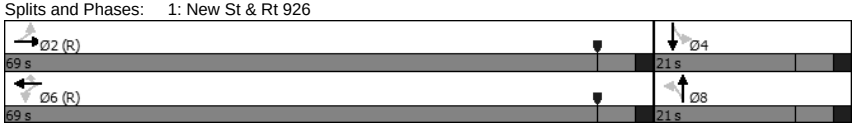
Future (2025) Capacity/Level-of-Service With Development Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1564	1379	0	1587	0	0	1530	0
Flt Permitted		0.908			0.977			0.925			0.991	
Satd. Flow (perm)	0	1484	0	0	1529	1379	0	1472	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1				38						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	86	665	5	12	395	38	9	106	44	8	134	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	756	0	0	407	38	0	159	0	0	300	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%	76.7%	23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



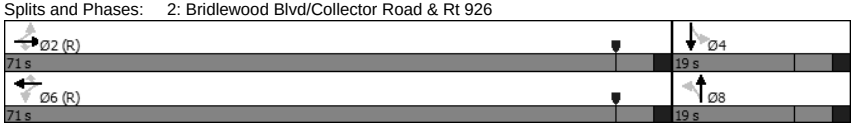
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	86	665	5	12	395	38	9	106	44	8	134	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	149	1089	8	54	1178	1040	50	221	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	147	1531	11	17	1656	1485	42	1244	492	17	755	860
Grp Volume(v), veh/h	756	0	0	407	0	38	159	0	0	300	0	0
Grp Sat Flow(s),veh/h/ln	1690	0	0	1673	0	1485	1778	0	0	1632	0	0
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	1.7	0.0	0.2	7.4	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		1.00	0.06		0.28	0.03		0.53
Lane Grp Cap(c), veh/h	1227	0	0	1212	0	1040	339	0	0	313	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.34	0.00	0.04	0.47	0.00	0.00	0.96	0.00	0.00
Avail Cap(c_a), veh/h	1227	0	0	1212	0	1040	339	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	0.8	0.0	0.9	33.6	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.7	0.0	0.1	1.0	0.0	0.0	39.6	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(95%),veh/ln	9.9	0.0	0.0	1.0	0.0	0.1	5.9	0.0	0.0	15.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	0.0	0.0	1.5	0.0	1.0	34.6	0.0	0.0	77.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	E	A	A
Approach Vol, veh/h		756			445			159			300	
Approach Delay, s/veh		8.9			1.5			34.6			77.2	
Approach LOS		A			A			C			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		21.8		17.0		3.7		9.4				
Green Ext Time (p_c), s		7.5		0.0		3.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	652	32	13	243	14	26	31	13	46	15	159
Future Volume (vph)	30	652	32	13	243	14	26	31	13	46	15	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.957			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1662	1521	1719	1733	1560	1719	1692	0	1676	1523	0
Flt Permitted	0.603			0.369			0.400			0.728		
Satd. Flow (perm)	1022	1662	1521	668	1733	1560	724	1692	0	1285	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			36		13			164	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			607	
Travel Time (s)		36.9			35.6			11.3			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	0%	8%	2%	0%	2%	3%	2%	2%	2%
Adj. Flow (vph)	31	672	33	13	251	14	27	32	13	47	15	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	672	33	13	251	14	27	45	0	47	179	0
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30	30	30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	71.0	71.0	71.0	71.0	71.0	71.0	19.0	19.0		19.0	19.0	
Total Split (%)	78.9%	78.9%	78.9%	78.9%	78.9%	78.9%	21.1%	21.1%		21.1%	21.1%	
Maximum Green (s)	65.0	65.0	65.0	65.0	65.0	65.0	13.0	13.0		13.0	13.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection	
Natural Cycle: 45	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	652	32	13	243	14	26	31	13	46	15	159
Future Volume (veh/h)	30	652	32	13	243	14	26	31	13	46	15	159
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	1415	1387	1457	2098	1984	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	31	672	33	13	251	14	27	32	13	47	15	164
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	3	0	8	2	0	2	2	2	2	2
Cap, veh/h	698	1017	905	695	1455	1286	140	190	77	268	20	217
Arrive On Green	0.98	0.98	0.98	0.73	0.73	0.73	0.16	0.16	0.14	0.16	0.16	0.14
Sat Flow, veh/h	890	1387	1235	879	1984	1754	1250	1223	497	1361	127	1394
Grp Volume(v), veh/h	31	672	33	13	251	14	27	0	45	47	0	179
Grp Sat Flow(s),veh/h/ln	890	1387	1235	879	1984	1754	1250	0	1719	1361	0	1521
Q Serve(g_s), s	0.2	3.0	0.1	0.4	3.5	0.2	1.9	0.0	2.0	2.8	0.0	10.2
Cycle Q Clear(g_c), s	3.7	3.0	0.1	3.4	3.5	0.2	11.6	0.0	2.0	4.3	0.0	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.92
Lane Grp Cap(c), veh/h	698	1017	905	695	1455	1286	140	0	267	268	0	237
V/C Ratio(X)	0.04	0.66	0.04	0.02	0.17	0.01	0.19	0.00	0.17	0.18	0.00	0.76
Avail Cap(c_a), veh/h	698	1017	905	695	1455	1286	140	0	267	268	0	237
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.34	0.34	0.34	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.3	0.3	4.1	3.7	3.2	41.7	0.0	33.1	34.6	0.0	36.8
Incr Delay (d2), s/veh	0.1	2.1	0.0	0.0	0.1	0.0	0.7	0.0	0.3	0.3	0.0	13.1
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(95%),veh/ln	0.0	1.5	0.0	0.1	1.7	0.1	1.1	0.0	1.6	1.7	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.6	2.5	0.3	4.1	3.8	3.2	42.3	0.0	33.4	34.9	0.0	49.9
LnGrp LOS	A	A	A	A	A	A	D	A	C	C	A	D
Approach Vol, veh/h		736			278			72			226	
Approach Delay, s/veh		2.3			3.7			36.7			46.8	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.0		19.0		71.0		19.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		65.0		13.0		65.0		13.0				
Max Q Clear Time (g_c+I1), s		6.2		12.2		6.0		14.1				
Green Ext Time (p_c), s		2.8		0.1		0.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	12.2	
HCM 6th LOS	B	

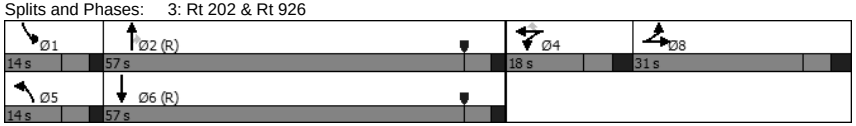
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.991	
Flt Protected	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Flt Permitted	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	499	243	32	151	172	58	23	1680	161	66	1593	98
Shared Lane Traffic (%)	23%											
Lane Group Flow (vph)	384	390	0	151	172	58	23	1680	161	66	1691	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
Total Split (%)	25.8%	25.8%		15.0%	15.0%	15.0%	11.7%	47.5%	47.5%	11.7%	47.5%	
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	387	400	32	151	172	58	23	1680	161	66	1593	98
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	391	7	180	189	163	44	1571	734	98	1465	90
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.03	0.44	0.44	0.06	0.48	0.47
Sat Flow, veh/h	1780	1749	140	1802	1892	1630	1626	3541	1655	1514	3044	186
Grp Volume(v), veh/h	387	0	432	151	172	58	23	1680	161	66	828	863
Grp Sat Flow(s),veh/h/ln	1780	0	1889	1802	1892	1630	1626	1771	1655	1514	1590	1640
Q Serve(g_s), s	25.0	0.0	25.0	9.9	10.8	4.0	1.7	53.2	7.2	5.1	57.8	57.8
Cycle Q Clear(g_c), s	25.0	0.0	25.0	9.9	10.8	4.0	1.7	53.2	7.2	5.1	57.8	57.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	44	1571	734	98	765	789
V/C Ratio(X)	1.04	0.00	1.09	0.84	0.91	0.36	0.52	1.07	0.22	0.67	1.08	1.09
Avail Cap(c_a), veh/h	371	0	394	180	189	163	122	1571	734	114	765	789
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)	0.85	0.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.0	53.5	50.4	57.6	33.4	20.6	54.9	31.1	31.2
Incr Delay (d2), s/veh	54.9	0.0	67.0	27.9	40.8	1.3	9.3	43.9	0.7	12.0	56.8	60.6
Initial Q Delay(d3),s/veh	77.7	0.0	63.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	31.0	0.0	33.6	9.7	11.5	3.0	1.4	41.9	5.1	4.0	44.3	46.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	180.0	0.0	177.9	80.9	94.3	51.7	67.0	77.3	21.3	66.9	88.0	91.8
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		819			381			1864			1757	
Approach Delay, s/veh		178.9			82.5			72.3			89.0	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.8	58.2		18.0	8.2	62.8		31.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+I1), s	7.6	55.7		13.3	4.2	60.3		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		97.3	
HCM 6th LOS		F	

Notes

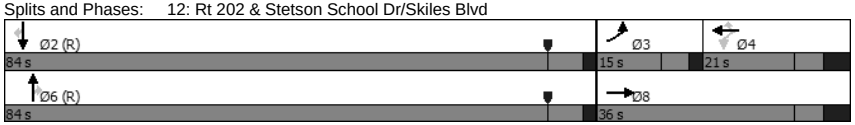
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.972				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3101	1701	0	1628	1744	1554	0	3225	1616	0	3214	1676
Flt Permitted	0.950			0.636								
Satd. Flow (perm)	3101	1701	0	1090	1744	1554	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	253	157	36	91	145	64	0	2147	59	0	2060	323
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	193	0	91	145	64	0	2147	59	0	2060	323
Number of Detectors	1	4		1	4	1		2	1		2	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	6		40	6	40		40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	15.0	36.0		21.0	21.0	21.0		84.0	84.0		84.0	84.0
Total Split (%)	12.5%	30.0%		17.5%	17.5%	17.5%		70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	9.0	28.0		13.0	13.0	13.0		77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	0.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	5.0	7.0		7.0	7.0	8.0		6.0	6.0		6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
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	1901	1947	1947	1722	1717	1790	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	253	157	36	91	145	64	0	2147	59	0	2060	323
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	8	4	9	4	0	5	0	0	8	5
Cap, veh/h	293	363	83	189	192	157	0	2124	1026	0	2237	1062
Arrive On Green	0.08	0.24	0.23	0.11	0.11	0.10	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3512	1533	351	1156	1717	1517	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	253	0	193	91	145	64	0	2147	59	0	2060	323
Grp Sat Flow(s),veh/h/ln	1756	0	1884	1156	1717	1517	0	1622	1567	0	1708	1622
Q Serve(g_s), s	8.5	0.0	10.5	9.1	9.8	4.7	0.0	78.6	1.6	0.0	62.9	10.3
Cycle Q Clear(g_c), s	8.5	0.0	10.5	9.1	9.8	4.7	0.0	78.6	1.6	0.0	62.9	10.3
Prop In Lane	1.00		0.19	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	293	0	446	189	192	157	0	2124	1026	0	2237	1062
V/C Ratio(X)	0.86	0.00	0.43	0.48	0.75	0.41	0.00	1.01	0.06	0.00	0.92	0.30
Avail Cap(c_a), veh/h	293	0	455	195	200	164	0	2124	1026	0	2237	1062
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	0.0	39.0	51.4	51.7	50.3	0.0	20.7	7.4	0.0	18.0	8.9
Incr Delay (d2), s/veh	22.5	0.0	0.7	1.9	14.5	1.7	0.0	22.2	0.1	0.0	7.7	0.7
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(95%),veh/ln	8.3	0.0	8.6	5.0	8.7	3.4	0.0	40.6	0.9	0.0	30.9	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.9	0.0	39.7	53.3	66.1	52.0	0.0	42.9	7.5	0.0	25.7	9.7
LnGrp LOS	E	A	D	D	E	D	A	F	A	A	C	A
Approach Vol, veh/h		446			300			2206			2383	
Approach Delay, s/veh		60.8			59.2			41.9			23.5	
Approach LOS		E			E			D			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		84.6	15.0	20.4		84.6		35.4				
Change Period (Y+Rc), s		7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gmax), s		77.0	9.0	13.0		77.0		28.0				
Max Q Clear Time (g_c+I1), s		65.4	11.0	12.3		81.1		12.5				
Green Ext Time (p_c), s		11.6	0.0	0.1		0.0		0.7				

Intersection Summary	
HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3185	1508
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3185	1508
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	45	0	0	35	33	2173	73	55	1805	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	45	0	0	35	33	2246	0	55	1805	269
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Vol, veh/h	0	0	43	0	0	34	32	2086	70	53	1733	258
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	45	0	0	35	33	2173	73	55	1805	269

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	903	-	-	1123	2074	0	0	2246	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*415	0	0	*225	399	-	-	*291	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*415	-	-	*225	399	-	-	*291	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	24	0.2	0.5
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	399	-	-	415	225	* 291	-	-
HCM Lane V/C Ratio	0.084	-	-	0.108	0.157	0.19	-	-
HCM Control Delay (s)	14.8	-	-	14.7	24	20.2	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	0.5	0.7	-	-

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	43	1	8	282	1	0
Future Volume (vph)	43	1	8	282	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1702	0	0	1723	1636	1663
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1702	0	0	1723	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	61	1	11	403	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	414	1	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	43	1	8	282	1	0
Future Vol, veh/h	43	1	8	282	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	61	1	11	403	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	62	0	487	62
Stage 1	-	-	-	-	62	-
Stage 2	-	-	-	-	425	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1143	-	582	1068
Stage 1	-	-	-	-	1114	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1143	-	575	1068
Mov Cap-2 Maneuver	-	-	-	-	575	-
Stage 1	-	-	-	-	1114	-
Stage 2	-	-	-	-	710	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	575	-	-	-	1143	-
HCM Lane V/C Ratio	0.002	-	-	-	0.01	-
HCM Control Delay (s)	11.3	0	-	-	8.2	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	133	28	255	28	15	22
Future Volume (vph)	133	28	255	28	15	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.920	
Flt Protected		0.960			0.980	
Satd. Flow (prot)	0	1666	1761	0	1591	0
Flt Permitted		0.960			0.980	
Satd. Flow (perm)	0	1666	1761	0	1591	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	190	40	364	40	21	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	230	404	0	52	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	133	28	255	28	15	22
Future Vol, veh/h	133	28	255	28	15	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, %	-	4	-4	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	3	2	2	2
Mvmt Flow	190	40	364	40	21	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	404	0	-	0	804	384
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	420	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	872	-	-	-	393	702
Stage 1	-	-	-	-	787	-
Stage 2	-	-	-	-	756	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	872	-	-	-	305	702
Mov Cap-2 Maneuver	-	-	-	-	305	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	756	-

Approach	EB	WB	SB
HCM Control Delay, s	8.5	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	872	-	-	-	460
HCM Lane V/C Ratio	0.218	-	-	-	0.115
HCM Control Delay (s)	10.3	0	-	-	13.8
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	162	0	0	277	0	0
Future Volume (vph)	162	0	0	277	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	318			322	436	
Travel Time (s)	6.2			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	231	0	0	396	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	0	0	396	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	162	0	0	277	0	0
Future Vol, veh/h	162	0	0	277	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	231	0	0	396	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	627	231
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-	396	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	542	871
Stage 1	-	0	0	-	957	-
Stage 2	-	0	0	-	813	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	542	871
Mov Cap-2 Maneuver	-	-	-	-	542	-
Stage 1	-	-	-	-	957	-
Stage 2	-	-	-	-	813	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	70	1	160	116	4	92
Future Volume (vph)	70	1	160	116	4	92
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.871	
Flt Protected				0.972	0.998	
Satd. Flow (prot)	1712	0	0	1676	1534	0
Flt Permitted				0.972	0.998	
Satd. Flow (perm)	1712	0	0	1676	1534	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1878			318	459	
Travel Time (s)	36.6			6.2	8.9	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	2%	2%	3%	2%	2%
Adj. Flow (vph)	100	1	229	166	6	131
Shared Lane Traffic (%)						
Lane Group Flow (vph)	101	0	0	395	137	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	70	1	160	116	4	92
Future Vol, veh/h	70	1	160	116	4	92
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, %	3	-	-	-3	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	2	2	3	2	2
Mvmt Flow	100	1	229	166	6	131

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	101	0	725	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	624	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1109	-	439	1018
Stage 1	-	-	-	-	1075	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1109	-	339	1018
Mov Cap-2 Maneuver	-	-	-	-	339	-
Stage 1	-	-	-	-	1075	-
Stage 2	-	-	-	-	465	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	940	-	-	1109	-
HCM Lane V/C Ratio	0.146	-	-	0.206	-
HCM Control Delay (s)	9.5	-	-	9.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.8	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	69	0	4	191	1	13
Future Volume (vph)	69	0	4	191	1	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	6%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.872	
Flt Protected				0.999	0.998	
Satd. Flow (prot)	1607	0	0	1713	1536	0
Flt Permitted				0.999	0.998	
Satd. Flow (perm)	1607	0	0	1713	1536	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	733			1878	268	
Travel Time (s)	14.3			36.6	5.2	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	5%	2%	2%	3%	2%	2%
Adj. Flow (vph)	99	0	6	273	1	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	279	20	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	69	0	4	191	1	13
Future Vol, veh/h	69	0	4	191	1	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, %	6	-	-	-3	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	5	2	2	3	2	2
Mvmt Flow	99	0	6	273	1	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	99	0	384	99
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	285	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1111	-	707	1021
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	878	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1111	-	703	1021
Mov Cap-2 Maneuver	-	-	-	-	703	-
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	873	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	989	-	-	1111	-
HCM Lane V/C Ratio	0.02	-	-	0.005	-
HCM Control Delay (s)	8.7	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	56	4	3	186	3	12	0	9	5	0	2
Future Volume (vph)	0	56	4	3	186	3	12	0	9	5	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.998			0.941			0.959	
Flt Protected					0.999			0.972			0.966	
Satd. Flow (prot)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Flt Permitted					0.999			0.972			0.966	
Satd. Flow (perm)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		496			733			274			306	
Travel Time (s)		9.7			14.3			7.5			8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	2%	2%	3%	50%	2%	2%	2%	0%	2%	25%
Adj. Flow (vph)	0	80	6	4	266	4	17	0	13	7	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	274	0	0	30	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	56	4	3	186	3	12	0	9	5	0	2
Future Vol, veh/h	0	56	4	3	186	3	12	0	9	5	0	2
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, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	5	2	2	3	50	2	2	2	0	2	25
Mvmt Flow	0	80	6	4	266	4	17	0	13	7	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	270	0	0	86	0	0	361	361	83	366	362	268
Stage 1	-	-	-	-	-	-	83	83	-	276	276	-
Stage 2	-	-	-	-	-	-	278	278	-	90	86	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.55
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.3
Pot Cap-1 Maneuver	971	-	-	1122	-	-	680	566	1043	663	554	756
Stage 1	-	-	-	-	-	-	1079	826	-	829	671	-
Stage 2	-	-	-	-	-	-	838	680	-	1064	820	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	971	-	-	1122	-	-	675	564	1043	653	552	756
Mov Cap-2 Maneuver	-	-	-	-	-	-	675	564	-	653	552	-
Stage 1	-	-	-	-	-	-	1079	826	-	829	668	-
Stage 2	-	-	-	-	-	-	831	677	-	1051	820	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.7	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	795	971	-	-	1122	-	-	679
HCM Lane V/C Ratio	0.038	-	-	-	0.004	-	-	0.015
HCM Control Delay (s)	9.7	0	-	-	8.2	0	-	10.4
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	170	30	178	41	18	131
Future Volume (vph)	170	30	178	41	18	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.975			
Flt Protected	0.959					0.994
Satd. Flow (prot)	1630	0	1727	0	0	1757
Flt Permitted	0.959					0.994
Satd. Flow (perm)	1630	0	1727	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	191	34	200	46	20	147
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	0	246	0	0	167
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	170	30	178	41	18	131
Future Vol, veh/h	170	30	178	41	18	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	0	8	1
Mvmt Flow	191	34	200	46	20	147

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	410	223	0	0	246	0
Stage 1	223	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuver	582	837	-	-	954	-
Stage 1	940	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	566	837	-	-	954	-
Mov Cap-2 Maneuver	566	-	-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	956	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.8	0	1.1
HCM LOS	B		

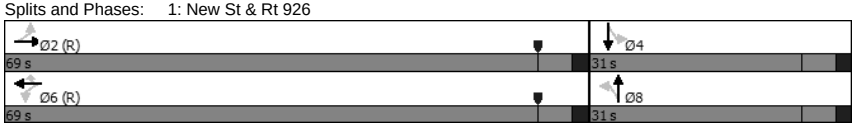
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	687	954	-
HCM Lane V/C Ratio	-	-	0.327	0.021	-
HCM Control Delay (s)	-	-	12.8	8.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.4	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1564	1379	0	1580	0	0	1547	0
Flt Permitted		0.930			0.940			0.974			0.930	
Satd. Flow (perm)	0	1518	0	0	1474	1379	0	1543	0	0	1451	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2				33						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	67	689	13	24	385	32	9	93	43	53	178	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	769	0	0	409	32	0	145	0	0	337	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%	69.0%	31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-2.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0	4.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



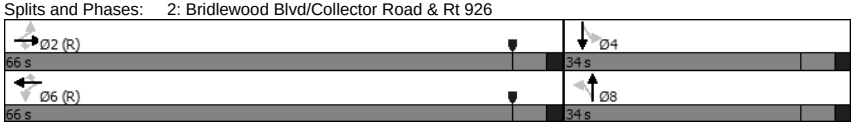
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	67	689	13	24	385	32	9	93	43	53	178	106
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	114	1057	19	74	1049	1008	49	275	121	87	213	119
Arrive On Green	0.68	0.67	0.66	1.00	1.00	1.00	0.24	0.23	0.22	0.24	0.23	0.22
Sat Flow, veh/h	112	1579	29	54	1567	1485	48	1190	522	197	922	514
Grp Volume(v), veh/h	769	0	0	409	0	32	145	0	0	337	0	0
Grp Sat Flow(s),veh/h/ln	1720	0	0	1621	0	1485	1761	0	0	1633	0	0
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0
Cycle Q Clear(g_c), s	25.1	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	19.7	0.0	0.0
Prop In Lane	0.09		0.02	0.06		1.00	0.06		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1207	0	0	1139	0	1008	462	0	0	435	0	0
V/C Ratio(X)	0.64	0.00	0.00	0.36	0.00	0.03	0.31	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1207	0	0	1139	0	1008	512	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	0.0	0.0	0.0	32.3	0.0	0.0	37.1	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.9	0.0	0.1	0.4	0.0	0.0	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(95%),veh/ln	12.6	0.0	0.0	0.5	0.0	0.0	5.3	0.0	0.0	13.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	0.0	0.9	0.0	0.1	32.7	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		769			441			145			337	
Approach Delay, s/veh		12.1			0.8			32.7			44.1	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.9		28.1		71.9		28.1				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+I1), s		27.1		21.7		2.5		8.9				
Green Ext Time (p_c), s		7.4		0.4		3.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	582	38	21	301	49	17	40	12	29	260	128
Future Volume (vph)	124	582	38	21	301	49	17	40	12	29	260	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		75	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.965			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1678	1567	1637	1817	1560	1719	1684	0	1676	1678	0
Flt Permitted	0.545			0.341			0.208			0.721		
Satd. Flow (perm)	923	1678	1567	588	1817	1560	376	1684	0	1272	1678	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			40			51		13			25	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			1108	
Travel Time (s)		36.9			35.6			11.3			21.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	3%	0%	5%	3%	2%	0%	2%	9%	2%	2%	2%
Adj. Flow (vph)	129	606	40	22	314	51	18	42	13	30	271	133
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	606	40	22	314	51	18	55	0	30	404	0
Number of Detectors	1	1	1	1	1	1	1	2		1	2	
Detector Template		Thru	Right	Left	Thru		Left					
Leading Detector (ft)	30	30	30	30	30	30	20	100		30	100	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	20	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	34.0	34.0		34.0	34.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%		34.0%	34.0%	
Maximum Green (s)	60.0	60.0	60.0	60.0	60.0	60.0	28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection	
Natural Cycle: 55	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	582	38	21	301	49	17	40	12	29	260	128
Future Volume (veh/h)	124	582	38	21	301	49	17	40	12	29	260	128
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	1415	1401	1501	2027	2055	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	129	606	40	22	314	51	18	42	12	30	271	133
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	3	0	5	3	2	0	2	2	2	2	2
Cap, veh/h	522	872	792	631	1279	1092	125	375	107	422	311	153
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.27	0.28	0.28	0.27
Sat Flow, veh/h	812	1401	1272	897	2055	1754	1017	1353	387	1350	1122	551
Grp Volume(v), veh/h	129	606	40	22	314	51	18	0	54	30	0	404
Grp Sat Flow(s),veh/h/ln	812	1401	1272	897	2055	1754	1017	0	1739	1350	0	1673
Q Serve(g_s), s	2.3	0.0	0.0	0.9	6.8	1.1	1.7	0.0	2.3	1.7	0.0	23.0
Cycle Q Clear(g_c), s	9.1	0.0	0.0	0.9	6.8	1.1	24.2	0.0	2.3	3.5	0.0	23.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.33
Lane Grp Cap(c), veh/h	522	872	792	631	1279	1092	125	0	483	422	0	464
V/C Ratio(X)	0.25	0.70	0.05	0.03	0.25	0.05	0.14	0.00	0.11	0.07	0.00	0.87
Avail Cap(c_a), veh/h	522	872	792	631	1279	1092	138	0	504	439	0	485
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	0.23	0.23	0.23	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	7.3	8.4	7.3	45.7	0.0	27.0	28.1	0.0	34.6
Incr Delay (d2), s/veh	0.6	2.4	0.1	0.0	0.1	0.0	0.5	0.0	0.1	0.1	0.0	15.2
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(95%),veh/ln	0.2	1.1	0.0	0.3	3.9	0.7	0.8	0.0	1.8	1.0	0.0	16.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	2.4	0.1	7.3	8.5	7.4	46.2	0.0	27.1	28.1	0.0	49.8
LnGrp LOS	A	A	A	A	A	A	D	A	C	C	A	D
Approach Vol, veh/h		775			387			72			434	
Approach Delay, s/veh		2.1			8.3			31.9			48.3	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.2		32.8		67.2		32.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		60.0		28.0		60.0		28.0				
Max Q Clear Time (g_c+I1), s		11.6		25.0		9.3		26.7				
Green Ext Time (p_c), s		3.3		0.7		1.3		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

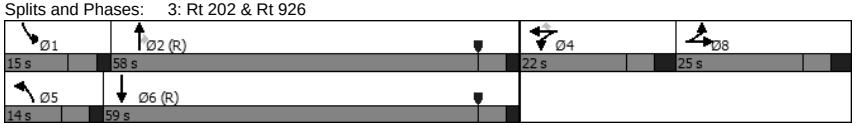
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981				0.850			0.850		0.993	
Flt Protected	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Flt Permitted	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	330	221	44	211	253	68	64	1676	129	98	1326	69
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	247	348	0	211	253	68	64	1676	129	98	1395	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	25.0	25.0		22.0	22.0	22.0	14.0	58.0	58.0	15.0	59.0	
Total Split (%)	20.8%	20.8%		18.3%	18.3%	18.3%	11.7%	48.3%	48.3%	12.5%	49.2%	
Maximum Green (s)	18.0	18.0		15.0	15.0	15.0	8.0	52.0	52.0	9.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	298	266	44	211	253	68	64	1676	129	98	1326	69
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	278	301	7	247	258	222	105	1605	750	140	1558	30
Arrive On Green	0.16	0.16	0.15	0.13	0.13	0.13	0.06	0.44	0.44	0.08	0.47	0.46
Sat Flow, veh/h	1753	1639	271	1856	1935	1668	1856	3622	1693	1714	3204	166
Grp Volume(v), veh/h	298	0	310	211	253	68	64	1676	129	98	685	710
Grp Sat Flow(s),veh/h/ln	1753	0	1910	1856	1935	1668	1856	1811	1693	1714	1657	1714
Q Serve(g_s), s	19.0	0.0	19.0	13.3	15.6	4.4	4.0	53.2	5.5	6.7	44.9	45.2
Cycle Q Clear(g_c), s	19.0	0.0	19.0	13.3	15.6	4.4	4.0	53.2	5.5	6.7	44.9	45.2
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	278	0	309	247	258	222	105	1605	750	140	776	812
V/C Ratio(X)	1.07	0.00	1.00	0.85	0.98	0.31	0.61	1.04	0.17	0.70	0.88	0.88
Avail Cap(c_a), veh/h	278	0	302	247	258	222	139	1605	750	143	776	803
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)	0.82	0.00	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	50.5	50.8	51.8	47.0	55.3	33.4	20.1	53.6	31.9	31.9
Incr Delay (d2), s/veh	69.9	0.0	47.4	23.8	50.5	0.8	5.6	35.0	0.5	13.7	13.8	12.7
Initial Q Delay(d3),s/veh	38.9	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	318.0	298.8
%ile BackOfQ(95%),veh/ln	22.6	0.0	23.4	12.2	16.4	3.3	3.6	39.6	4.0	6.0	100.1	99.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	159.3	0.0	156.2	74.6	102.3	47.8	60.9	68.4	20.6	67.3	363.6	343.4
LnGrp LOS	F	A	F	E	F	D	E	F	C	E	F	F
Approach Vol, veh/h		608			532			1869			1493	
Approach Delay, s/veh		157.7			84.4			64.9			334.5	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.8	58.2		22.0	11.8	61.2		25.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	9.0	52.0		15.0	8.0	53.0		18.0				
Max Q Clear Time (g_c+I1), s	9.2	55.7		18.1	6.5	47.4		21.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	4.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		169.1	
HCM 6th LOS		F	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Synchro 8 Scenario 2A\W

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3223	1810	0	1693	1901	1616	0	3256	1616	0	3370	1709
Flt Permitted	0.950			0.627								
Satd. Flow (perm)	3223	1810	0	1117	1901	1616	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	360	146	63	61	45	67	0	1977	77	0	1907	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	360	209	0	61	45	67	0	1977	77	0	1907	390
Number of Detectors	1	1		1	1	1		5	1		5	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	69		40	69	40		40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Synchro 8 Scenario 2A\W

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	20.0	45.0		25.0	25.0	25.0		75.0	75.0		75.0	75.0
Total Split (%)	16.7%	37.5%		20.8%	20.8%	20.8%		62.5%	62.5%		62.5%	62.5%
Maximum Green (s)	14.0	37.0		17.0	17.0	17.0		68.0	68.0		68.0	68.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	0.0		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	3.0	5.0		5.0	5.0	8.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Description: Signal

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
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	1958	2066	2066	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	360	146	63	61	45	67	0	1977	77	0	1907	390
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	0	0	0	0	4	0	0	3	3
Cap, veh/h	510	362	156	176	182	115	0	2134	1022	0	2317	1075
Arrive On Green	0.14	0.26	0.27	0.10	0.10	0.07	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3617	1369	591	1177	1849	1567	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	360	0	209	61	45	67	0	1977	77	0	1907	390
Grp Sat Flow(s),veh/h/ln	1809	0	1959	1177	1849	1567	0	1635	1567	0	1776	1647
Q Serve(g_s), s	11.4	0.0	10.5	5.9	2.7	5.0	0.0	63.7	2.2	0.0	48.4	12.9
Cycle Q Clear(g_c), s	11.4	0.0	10.5	5.9	2.7	5.0	0.0	63.7	2.2	0.0	48.4	12.9
Prop In Lane	1.00		0.30	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	510	0	518	176	182	115	0	2134	1022	0	2317	1075
V/C Ratio(X)	0.71	0.00	0.40	0.35	0.25	0.58	0.00	0.93	0.08	0.00	0.82	0.36
Avail Cap(c_a), veh/h	512	0	653	256	308	222	0	2134	1022	0	2317	1075
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	0.0	36.2	51.4	50.0	53.8	0.0	18.3	7.6	0.0	15.7	9.5
Incr Delay (d2), s/veh	4.4	0.0	0.5	1.2	0.7	4.6	0.0	8.5	0.1	0.0	3.5	1.0
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(95%),veh/ln	9.3	0.0	8.9	3.3	2.3	3.8	0.0	30.4	1.2	0.0	24.6	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6	0.0	36.7	52.6	50.7	58.4	0.0	26.8	7.8	0.0	19.1	10.5
LnGrp LOS	D	A	D	D	D	E	A	C	A	A	B	B
Approach Vol, veh/h		569			173			2054			2297	
Approach Delay, s/veh		47.4			54.4			26.1			17.7	
Approach LOS		D			D			C			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		83.3	19.9	16.8		83.3		36.7				
Change Period (Y+Rc), s		7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gmax), s		68.0	14.0	17.0		68.0		37.0				
Max Q Clear Time (g_c+I1), s		50.9	13.9	8.4		66.2		12.5				
Green Ext Time (p_c), s		17.1	0.0	0.4		1.8		1.0				

Intersection Summary

HCM 6th Ctrl Delay 25.6
HCM 6th LOS C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Future Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	43	51	1964	61	110	1492	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	43	51	2025	0	110	1492	372
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365
Future Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	57	0	0	43	51	1964	61	110	1492	372

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	746	-	-	1013	1864	0	0	2025	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*561	0	0	*317	468	-	-	*397	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*561	-	-	*317	468	-	-	*397	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	18.1	0.3	1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	468	-	-	561	317	* 397	-	-
HCM Lane V/C Ratio	0.109	-	-	0.102	0.135	0.278	-	-
HCM Control Delay (s)	13.6	-	-	12.1	18.1	17.5	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.3	0.5	1.1	-	-

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	0	5	410	1	4
Future Volume (vph)	52	0	5	410	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	69	0	7	547	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	554	1	5
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

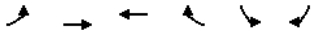
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	0	5	410	1	4
Future Vol, veh/h	52	0	5	410	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	69	0	7	547	1	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	630	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	561	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1137	-	469	1058
Stage 1	-	-	-	-	1105	-
Stage 2	-	-	-	-	608	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	465	1058
Mov Cap-2 Maneuver	-	-	-	-	465	-
Stage 1	-	-	-	-	1105	-
Stage 2	-	-	-	-	603	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	465	1058	-	-	1137	-
HCM Lane V/C Ratio	0.003	0.005	-	-	0.006	-
HCM Control Delay (s)	12.8	8.4	-	-	8.2	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	191	36	390	21	20	235
Future Volume (vph)	191	36	390	21	20	235
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.875	
Flt Protected		0.960			0.996	
Satd. Flow (prot)	0	1665	1795	0	1538	0
Flt Permitted		0.960			0.996	
Satd. Flow (perm)	0	1665	1795	0	1538	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	212	40	433	23	22	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	252	456	0	283	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	191	36	390	21	20	235
Future Vol, veh/h	191	36	390	21	20	235
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, %	-	4	-3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	0	1	2	2	2
Mvmt Flow	212	40	433	23	22	261

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	456	0	-	0	909	445
Stage 1	-	-	-	-	445	-
Stage 2	-	-	-	-	464	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	837	-	-	-	338	648
Stage 1	-	-	-	-	735	-
Stage 2	-	-	-	-	720	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	837	-	-	-	250	648
Mov Cap-2 Maneuver	-	-	-	-	250	-
Stage 1	-	-	-	-	545	-
Stage 2	-	-	-	-	720	-

Approach	EB	WB	SB
HCM Control Delay, s	9.1	0	17.1
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	837	-	-	-	576
HCM Lane V/C Ratio	0.254	-	-	-	0.492
HCM Control Delay (s)	10.8	0	-	-	17.1
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	1	-	-	-	2.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	223	0	0	625	0	0
Future Volume (vph)	223	0	0	625	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	228			300	323	
Travel Time (s)	4.4			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	297	0	0	833	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	0	0	833	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	223	0	0	625	0	0
Future Vol, veh/h	223	0	0	625	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	297	0	0	833	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1130	297
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	833	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	282	802
Stage 1	-	0	0	-	897	-
Stage 2	-	0	0	-	523	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	282	802
Mov Cap-2 Maneuver	-	-	-	-	282	-
Stage 1	-	-	-	-	897	-
Stage 2	-	-	-	-	523	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	65	4	410	215	3	158
Future Volume (vph)	65	4	410	215	3	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.868	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1530	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1530	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	547	287	4	211
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	834	215	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	4	410	215	3	158
Future Vol, veh/h	65	4	410	215	3	158
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, %	3	-	-	-3	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	2	2	1	2	2
Mvmt Flow	87	5	547	287	4	211

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	92	0	1471	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	1381	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1117	-	151	1033
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	253	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	63	1033
Mov Cap-2 Maneuver	-	-	-	-	63	-
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	106	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	11.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	803	-	-	1117	-
HCM Lane V/C Ratio	0.267	-	-	0.489	-
HCM Control Delay (s)	11.1	-	-	11.3	0
HCM Lane LOS	B	-	-	B	A
HCM 95th %tile Q(veh)	1.1	-	-	2.8	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	73	2	14	229	1	9
Future Volume (vph)	73	2	14	229	1	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	6%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.875	
Flt Protected				0.997	0.996	
Satd. Flow (prot)	1680	0	0	1742	1538	0
Flt Permitted				0.997	0.996	
Satd. Flow (perm)	1680	0	0	1742	1538	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	787			1811	415	
Travel Time (s)	15.3			35.3	11.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	97	3	19	305	1	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	0	0	324	13	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	73	2	14	229	1	9
Future Vol, veh/h	73	2	14	229	1	9
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, %	6	-	-	-3	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	2	2	1	2	2
Mvmt Flow	97	3	19	305	1	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	100	0	442	99
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	343	-
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	-	-	1493	-	573	957
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	719	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1493	-	564	957
Mov Cap-2 Maneuver	-	-	-	-	564	-
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	708	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.1
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1493	-
HCM Lane V/C Ratio	0.015	-	-	0.013	-
HCM Control Delay (s)	9.1	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	68	13	10	209	11	7	0	6	1	0	2
Future Volume (vph)	3	68	13	10	209	11	7	0	6	1	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.993			0.936			0.899	
Flt Protected		0.998			0.998			0.974			0.988	
Satd. Flow (prot)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Flt Permitted		0.998			0.998			0.974			0.988	
Satd. Flow (perm)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		591			787			452			385	
Travel Time (s)		11.5			15.3			12.3			10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	2%	2%	1%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	4	91	17	13	279	15	9	0	8	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	307	0	0	17	0	0	4	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	68	13	10	209	11	7	0	6	1	0	2
Future Vol, veh/h	3	68	13	10	209	11	7	0	6	1	0	2
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, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	2	2	1	0	2	2	2	0	2	0
Mvmt Flow	4	91	17	13	279	15	9	0	8	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	294	0	0	108	0	0	422	428	100	425	429	287
Stage 1	-	-	-	-	-	-	108	108	-	313	313	-
Stage 2	-	-	-	-	-	-	314	320	-	112	116	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Follow-up Hdwy	3	-	-	3	-	-	3.5	4.018	3.1	3.5	4.018	3.1
Pot Cap-1 Maneuver	952	-	-	1103	-	-	618	519	1020	602	506	793
Stage 1	-	-	-	-	-	-	1044	806	-	788	646	-
Stage 2	-	-	-	-	-	-	800	652	-	1033	794	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	952	-	-	1103	-	-	607	510	1020	589	497	793
Mov Cap-2 Maneuver	-	-	-	-	-	-	607	510	-	589	497	-
Stage 1	-	-	-	-	-	-	1040	803	-	785	637	-
Stage 2	-	-	-	-	-	-	786	643	-	1021	791	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	0.4	9.9	10.1
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	747	952	-	-	1103	-	-	711
HCM Lane V/C Ratio	0.023	0.004	-	-	0.012	-	-	0.006
HCM Control Delay (s)	9.9	8.8	0	-	8.3	0	-	10.1
HCM Lane LOS	A	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	163	54	148	56	29	173
Future Volume (vph)	163	54	148	56	29	173
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966		0.963			
Flt Protected	0.964					0.993
Satd. Flow (prot)	1656	0	1721	0	0	1757
Flt Permitted	0.964					0.993
Satd. Flow (perm)	1656	0	1721	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	183	61	166	63	33	194
Shared Lane Traffic (%)						
Lane Group Flow (vph)	244	0	229	0	0	227
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	163	54	148	56	29	173
Future Vol, veh/h	163	54	148	56	29	173
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	183	61	166	63	33	194

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	458	198	0	0	229	0
Stage 1	198	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	539	897	-	-	1003	-
Stage 1	967	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	515	897	-	-	1003	-
Mov Cap-2 Maneuver	515	-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	870	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	667	1003	-
HCM Lane V/C Ratio	-	-	0.366	0.032	-
HCM Control Delay (s)	-	-	13.5	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.7	0.1	-

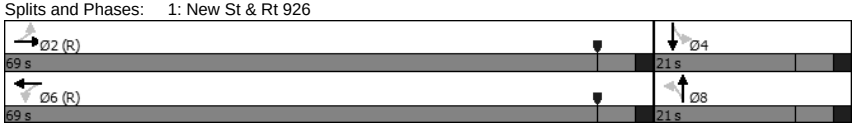
Base

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.988			0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1550	0	0	1587	0	0	1530	0
Flt Permitted		0.902			0.979			0.925			0.991	
Satd. Flow (perm)	0	1474	0	0	1519	0	0	1472	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			13							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	86	665	5	12	395	38	9	106	44	8	134	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	756	0	0	445	0	0	159	0	0	300	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	86	665	5	12	395	38	9	106	44	8	134	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	149	1089	8	52	1062	100	50	221	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	147	1531	11	16	1493	141	42	1244	492	17	755	860
Grp Volume(v), veh/h	756	0	0	445	0	0	159	0	0	300	0	0
Grp Sat Flow(s),veh/h/ln	1690	0	0	1650	0	0	1778	0	0	1632	0	0
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	2.1	0.0	0.0	7.4	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		0.09	0.06		0.28	0.03		0.53
Lane Grp Cap(c), veh/h	1227	0	0	1196	0	0	339	0	0	313	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.37	0.00	0.00	0.47	0.00	0.00	0.96	0.00	0.00
Avail Cap(c_a), veh/h	1227	0	0	1196	0	0	339	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	0.8	0.0	0.0	33.6	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.9	0.0	0.0	1.0	0.0	0.0	39.6	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(95%),veh/ln	9.9	0.0	0.0	1.2	0.0	0.0	5.9	0.0	0.0	15.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.9	0.0	0.0	1.7	0.0	0.0	34.6	0.0	0.0	77.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	E	A	A
Approach Vol, veh/h		756			445			159			300	
Approach Delay, s/veh		8.9			1.7			34.6			77.2	
Approach LOS		A			A			C			E	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		21.8		17.0		4.1		9.4				
Green Ext Time (p_c), s		7.5		0.0		3.5		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	21.7	
HCM 6th LOS	C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.981	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	45	0	0	35	33	2173	73	55	1805	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	45	0	0	35	33	2246	0	55	2074	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Vol, veh/h	0	0	43	0	0	34	32	2086	70	53	1733	258
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	45	0	0	35	33	2173	73	55	1805	269

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1037	-	-	1123	2074	0	0	2246	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*415	0	0	*225	399	-	-	*291	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*415	-	-	*225	399	-	-	*291	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	24	0.2	0.5
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	399	-	-	415	225	* 291	-	-
HCM Lane V/C Ratio	0.084	-	-	0.108	0.157	0.19	-	-
HCM Control Delay (s)	14.8	-	-	14.7	24	20.2	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	0.5	0.7	-	-

Notes

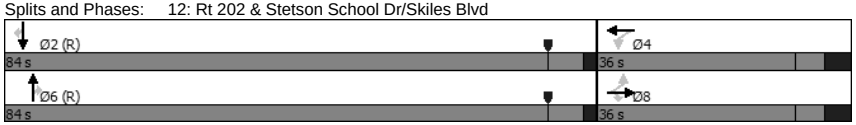
~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.520			0.619								
Satd. Flow (perm)	875	1765	1434	1061	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	253	157	36	91	145	64	0	2147	59	0	2060	323
Shared Lane Traffic (%)												
Lane Group Flow (vph)	253	157	36	91	209	0	0	2147	59	0	2060	323
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0			84.0	84.0		84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0			77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
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	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	253	157	36	91	145	64	0	2147	59	0	2060	323
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	228	471	370	263	273	120	0	2109	1018	0	2221	1054
Arrive On Green	0.24	0.24	0.23	0.24	0.24	0.23	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	1258	1947	1588	1156	1129	498	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	253	157	36	91	0	209	0	2147	59	0	2060	323
Grp Sat Flow(s),veh/h/ln	1258	1947	1588	1156	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	16.1	8.0	2.1	8.5	0.0	13.4	0.0	78.0	1.6	0.0	63.8	10.4
Cycle Q Clear(g_c), s	29.0	8.0	2.1	16.4	0.0	13.4	0.0	78.0	1.6	0.0	63.8	10.4
Prop In Lane	1.00		1.00	1.00		0.31	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	228	471	370	263	0	393	0	2109	1018	0	2221	1054
V/C Ratio(X)	1.11	0.33	0.10	0.35	0.00	0.53	0.00	1.02	0.06	0.00	0.93	0.31
Avail Cap(c_a), veh/h	228	471	370	263	0	393	0	2109	1018	0	2221	1054
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	54.1	37.5	36.1	44.3	0.0	39.7	0.0	21.0	7.6	0.0	18.5	9.2
Incr Delay (d2), s/veh	91.3	0.4	0.1	0.8	0.0	1.4	0.0	24.3	0.1	0.0	8.3	0.8
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(95%),veh/ln	19.7	7.0	1.5	4.5	0.0	9.5	0.0	41.4	0.9	0.0	31.5	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.4	37.9	36.2	45.1	0.0	41.1	0.0	45.3	7.7	0.0	26.8	9.9
LnGrp LOS	F	D	D	D	A	D	A	F	A	A	C	A
Approach Vol, veh/h		446			300			2206			2383	
Approach Delay, s/veh		98.7			42.3			44.3			24.5	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	84.0	36.0	84.0	36.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	77.0	28.0	77.0	28.0
Max Q Clear Time (g_c+I1), s	66.3	18.9	80.5	31.5
Green Ext Time (p_c), s	10.7	0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.9
HCM 6th LOS	D

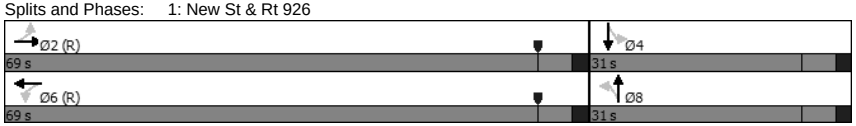
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.990			0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1552	0	0	1580	0	0	1547	0
Flt Permitted		0.926			0.944			0.974			0.930	
Satd. Flow (perm)	0	1511	0	0	1469	0	0	1543	0	0	1451	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	67	689	13	24	385	32	9	93	43	53	178	106
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	769	0	0	441	0	0	145	0	0	337	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%		31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	67	689	13	24	385	32	9	93	43	53	178	106
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	114	1057	19	70	966	78	49	275	121	87	213	119
Arrive On Green	0.68	0.67	0.66	1.00	1.00	1.00	0.24	0.23	0.22	0.24	0.23	0.22
Sat Flow, veh/h	112	1579	29	48	1444	117	48	1190	522	197	922	514
Grp Volume(v), veh/h	769	0	0	441	0	0	145	0	0	337	0	0
Grp Sat Flow(s),veh/h/ln	1720	0	0	1609	0	0	1761	0	0	1633	0	0
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0
Cycle Q Clear(g_c), s	25.1	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	19.7	0.0	0.0
Prop In Lane	0.09		0.02	0.05		0.07	0.06		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1207	0	0	1131	0	0	462	0	0	435	0	0
V/C Ratio(X)	0.64	0.00	0.00	0.39	0.00	0.00	0.31	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1207	0	0	1131	0	0	512	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	0.0	0.0	0.0	32.3	0.0	0.0	37.1	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	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(95%),veh/ln	12.6	0.0	0.0	0.6	0.0	0.0	5.3	0.0	0.0	13.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.1	0.0	0.0	1.0	0.0	0.0	32.7	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		769			441			145			337	
Approach Delay, s/veh		12.1			1.0			32.7			44.1	
Approach LOS		B			A			C			D	

Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	71.9		28.1		71.9		28.1					
Change Period (Y+Rc), s	6.0		6.0		6.0		6.0					
Max Green Setting (Gmax), s	63.0		25.0		63.0		25.0					
Max Q Clear Time (g_c+I1), s	27.1		21.7		2.5		8.9					
Green Ext Time (p_c), s	7.4		0.4		3.6		0.4					

Intersection Summary		
HCM 6th Ctrl Delay		17.3
HCM 6th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Future Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.970	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3282	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3282	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	43	51	1964	61	110	1492	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	43	51	2025	0	110	1864	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365
Future Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	57	0	0	43	51	1964	61	110	1492	372

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	932	-	-	1013	1864	0	0	2025	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*561	0	0	*317	468	-	-	*397	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*561	-	-	*317	468	-	-	*397	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.1	18.1	0.3	1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	468	-	-	561	317	* 397	-	-
HCM Lane V/C Ratio	0.109	-	-	0.102	0.135	0.278	-	-
HCM Control Delay (s)	13.6	-	-	12.1	18.1	17.5	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.3	0.5	1.1	-	-

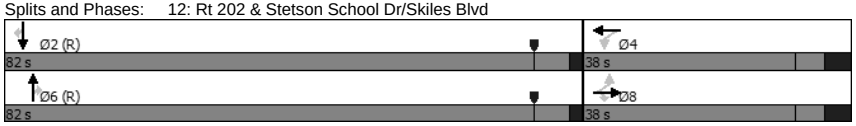
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.910				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1730	0	0	3256	1616	0	3370	1709
Flt Permitted	0.669			0.610								
Satd. Flow (perm)	1170	1906	1589	1087	1730	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	360	146	63	61	45	67	0	1977	77	0	1907	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	360	146	63	61	112	0	0	1977	77	0	1907	390
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0			82.0	82.0		82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	31.7%			68.3%	68.3%		68.3%	68.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0			75.0	75.0		75.0	75.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
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	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	360	146	63	61	45	67	0	1977	77	0	1907	390
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	380	568	489	319	184	275	0	2099	1005	0	2279	1057
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.25	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	1415	2066	1726	1177	671	998	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	360	146	63	61	0	112	0	1977	77	0	1907	390
Grp Sat Flow(s),veh/h/ln	1415	2066	1726	1177	0	1669	0	1635	1567	0	1776	1647
Q Serve(g_s), s	27.1	6.6	3.3	5.1	0.0	6.4	0.0	65.7	2.2	0.0	49.9	13.3
Cycle Q Clear(g_c), s	33.0	6.6	3.3	11.7	0.0	6.4	0.0	65.7	2.2	0.0	49.9	13.3
Prop In Lane	1.00		1.00	1.00		0.60	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	380	568	489	319	0	459	0	2099	1005	0	2279	1057
V/C Ratio(X)	0.95	0.26	0.13	0.19	0.00	0.24	0.00	0.94	0.08	0.00	0.84	0.37
Avail Cap(c_a), veh/h	380	568	489	319	0	459	0	2099	1005	0	2279	1057
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	33.9	32.0	38.5	0.0	34.5	0.0	19.5	8.1	0.0	16.6	10.1
Incr Delay (d2), s/veh	32.8	0.2	0.1	0.3	0.0	0.3	0.0	10.1	0.1	0.0	3.8	1.0
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(95%),veh/ln	20.7	6.1	2.5	2.7	0.0	4.8	0.0	31.9	1.3	0.0	25.5	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	80.7	34.2	32.1	38.8	0.0	34.8	0.0	29.5	8.3	0.0	20.5	11.1
LnGrp LOS	F	C	C	D	A	C	A	C	A	A	C	B
Approach Vol, veh/h		569			173			2054			2297	
Approach Delay, s/veh		63.4			36.2			28.7			18.9	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	82.0	38.0	82.0	38.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	75.0	30.0	75.0	30.0
Max Q Clear Time (g_c+I1), s	52.4	14.2	68.2	35.5
Green Ext Time (p_c), s	22.6	0.6	6.8	0.0

Intersection Summary	
HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

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Appendix R

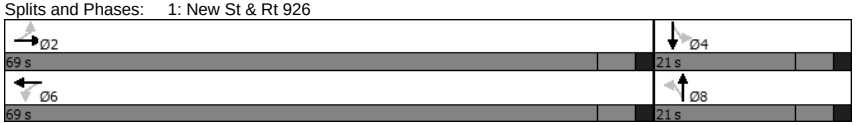
Future (2030) Capacity/Level-of-Service Without Development Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.919	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1586	0	0	1512	0
Flt Permitted		0.914			0.986			0.869			0.992	
Satd. Flow (perm)	0	1493	0	0	1527	0	0	1383	0	0	1502	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			16							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	84	680	5	8	340	39	10	108	44	8	134	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	769	0	0	387	0	0	162	0	0	352	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	

Splits and Phases: 1: New St & Rt 926



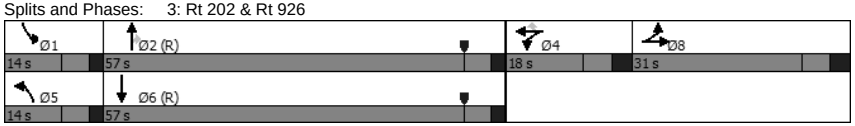
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	84	680	5	8	340	39	10	108	44	8	134	210
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	146	1104	8	48	1050	118	51	221	86	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1553	11	10	1476	167	48	1244	482	15	637	963
Grp Volume(v), veh/h	769	0	0	387	0	0	162	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1707	0	0	1653	0	0	1773	0	0	1615	0	0
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.2	0.0	0.0	7.9	0.0	0.0	7.5	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1239	0	0	1198	0	0	338	0	0	310	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.32	0.00	0.00	0.48	0.00	0.00	1.14	0.00	0.00
Avail Cap(c_a), veh/h	1239	0	0	1198	0	0	338	0	0	310	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	6.6	0.0	0.0	4.9	0.0	0.0	33.7	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	92.9	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(95%),veh/ln	10.1	0.0	0.0	4.0	0.0	0.0	6.0	0.0	0.0	22.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	0.0	0.0	5.6	0.0	0.0	34.7	0.0	0.0	130.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		769			387			162			352	
Approach Delay, s/veh		9.0			5.6			34.7			130.7	
Approach LOS		A			A			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		22.2		17.0		9.9		9.5				
Green Ext Time (p_c), s		7.6		0.0		3.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			36.4									
HCM 6th LOS			D									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	536	234	8	150	167	58	13	1672	160	57	1577	194
Future Volume (vph)	536	234	8	150	167	58	13	1672	160	57	1577	194
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.984	
Flt Protected	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1735	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Flt Permitted	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1735	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		14	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	553	241	8	155	172	60	13	1724	165	59	1626	200
Shared Lane Traffic (%)	28%											
Lane Group Flow (vph)	398	404	0	155	172	60	13	1724	165	59	1826	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
Total Split (%)	25.8%	25.8%		15.0%	15.0%	15.0%	11.7%	47.5%	47.5%	11.7%	47.5%	
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	536	234	8	150	167	58	13	1672	160	57	1577	194
Future Volume (veh/h)	536	234	8	150	167	58	13	1672	160	57	1577	194
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	401	454	8	155	172	60	13	1724	165	59	1626	200
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	397	2	180	189	163	30	1591	743	90	1399	169
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.02	0.45	0.45	0.06	0.49	0.48
Sat Flow, veh/h	1780	1875	33	1802	1892	1630	1626	3541	1655	1514	2856	346
Grp Volume(v), veh/h	401	0	462	155	172	60	13	1724	165	59	894	932
Grp Sat Flow(s),veh/h/ln	1780	0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	25.0	0.0	25.0	10.2	10.8	4.1	0.9	53.9	7.3	4.6	58.8	58.8
Cycle Q Clear(g_c), s	25.0	0.0	25.0	10.2	10.8	4.1	0.9	53.9	7.3	4.6	58.8	58.8
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	30	1591	743	90	779	789
V/C Ratio(X)	1.08	0.00	1.16	0.86	0.91	0.37	0.43	1.08	0.22	0.66	1.15	1.18
Avail Cap(c_a), veh/h	371	0	398	180	189	163	122	1591	743	114	779	789
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.2	53.5	50.5	58.3	33.0	20.2	55.3	30.6	30.7
Incr Delay (d2), s/veh	70.2	0.0	96.2	31.8	40.8	1.4	9.6	49.0	0.7	9.1	81.0	94.3
Initial Q Delay(d3),s/veh	77.7	0.0	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	34.0	0.0	39.3	10.1	11.5	3.1	0.8	44.1	5.1	3.5	53.4	58.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	195.4	0.0	206.9	85.0	94.3	51.8	67.8	82.0	20.9	64.3	111.6	125.0
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		863			387			1902			1885	
Approach Delay, s/veh		201.6			84.0			76.6			116.8	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.1	58.9		18.0	7.2	63.8		31.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+I1), s	7.1	56.4		13.3	3.4	61.3		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	113.6
HCM 6th LOS	F

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

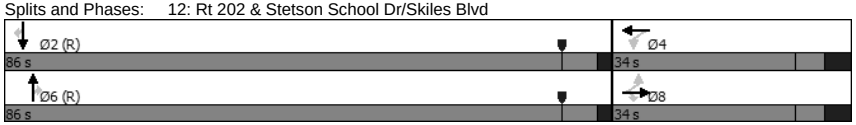
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	153	35	87	142	62	0	2135	57	0	1998	304
Future Volume (vph)	143	153	35	87	142	62	0	2135	57	0	1998	304
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.477			0.593								
Satd. Flow (perm)	803	1765	1434	1016	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	151	161	37	92	149	65	0	2247	60	0	2103	320
Shared Lane Traffic (%)												
Lane Group Flow (vph)	151	161	37	92	214	0	0	2247	60	0	2103	320
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0			86.0	86.0		86.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	28.3%			71.7%	71.7%		71.7%	71.7%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0			79.0	79.0		79.0	79.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	153	35	87	142	62	0	2135	57	0	1998	304
Future Volume (veh/h)	143	153	35	87	142	62	0	2135	57	0	1998	304
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	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	151	161	37	92	149	65	0	2247	60	0	2103	320
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	200	438	344	239	255	111	0	2163	1045	0	2277	1082
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.67	0.67	0.00	0.67	0.67
Sat Flow, veh/h	1252	1947	1588	1151	1134	495	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	151	161	37	92	0	214	0	2247	60	0	2103	320
Grp Sat Flow(s),veh/h/ln	1252	1947	1588	1151	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	13.4	8.4	2.2	8.8	0.0	14.1	0.0	80.0	1.6	0.0	64.1	9.8
Cycle Q Clear(g_c), s	27.0	8.4	2.2	17.2	0.0	14.1	0.0	80.0	1.6	0.0	64.1	9.8
Prop In Lane	1.00		1.00	1.00		0.30	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	200	438	344	239	0	366	0	2163	1045	0	2277	1082
V/C Ratio(X)	0.76	0.37	0.11	0.39	0.00	0.58	0.00	1.04	0.06	0.00	0.92	0.30
Avail Cap(c_a), veh/h	200	438	344	239	0	366	0	2163	1045	0	2277	1082
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	53.8	39.3	37.7	46.5	0.0	41.6	0.0	20.0	6.9	0.0	17.3	8.3
Incr Delay (d2), s/veh	15.1	0.5	0.1	1.0	0.0	2.4	0.0	30.3	0.1	0.0	7.8	0.7
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(95%),veh/ln	9.3	7.4	1.6	4.7	0.0	10.0	0.0	44.6	0.9	0.0	31.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.9	39.8	37.8	47.6	0.0	44.0	0.0	50.3	7.0	0.0	25.1	9.0
LnGrp LOS	E	D	D	D	A	D	A	F	A	A	C	A
Approach Vol, veh/h		349			306			2307			2423	
Approach Delay, s/veh		52.2			45.1			49.2			23.0	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	86.0	34.0	86.0	34.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	79.0	26.0	79.0	26.0
Max Q Clear Time (g_c+I1), s	66.6	19.7	82.5	29.5
Green Ext Time (p_c), s	12.4	0.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	696	33	14	346	26	41
Future Volume (vph)	696	33	14	346	26	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%
Adj. Flow (vph)	718	34	14	357	27	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	718	34	14	357	27	42
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	696	33	14	346	26	41
Future Vol, veh/h	696	33	14	346	26	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None		None	-	None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	4	3	0	8	0	3
Mvmt Flow	718	34	14	357	27	42

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	752	0	1103	718
Stage 1	-	-	-	-	718	-
Stage 2	-	-	-	-	385	-
Critical Hdwy	-	-	4.3	-	6.2	6.13
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	658	-	275	458
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	658	-	269	458
Mov Cap-2 Maneuver	-	-	-	-	269	-
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	787	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	16.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	269	458	-	-	658	-
HCM Lane V/C Ratio	0.1	0.092	-	-	0.022	-
HCM Control Delay (s)	19.9	13.7	-	-	10.6	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	28	0	0	34	33	2180	71	54	1875	158
Future Volume (vph)	0	0	28	0	0	34	33	2180	71	54	1875	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.988	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	29	0	0	35	34	2271	74	56	1953	165
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	29	0	0	35	34	2345	0	56	2118	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	28	0	0	34	33	2180	71	54	1875	158
Future Vol, veh/h	0	0	28	0	0	34	33	2180	71	54	1875	158
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #	0	-	-	0	-	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	29	0	0	35	34	2271	74	56	1953	165

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1059	-	-	1173	2118	0	0	2345	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*357	0	0	*197	*415	-	-	*255	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*357	-	-	*197	*415	-	-	*255	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	27.2	0.2	0.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 415	-	-	357	197	* 255	-	-
HCM Lane V/C Ratio	0.083	-	-	0.082	0.18	0.221	-	-
HCM Control Delay (s)	14.5	-	-	16	27.2	23.1	-	-
HCM Lane LOS	B	-	-	C	D	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.3	0.6	0.8	-	-

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	28	1	8	182	1	0
Future Volume (vph)	28	1	8	182	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1700	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1700	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	40	1	11	260	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	271	1	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

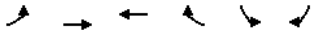
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	28	1	8	182	1	0
Future Vol, veh/h	28	1	8	182	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	40	1	11	260	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	41	0	323	41
Stage 1	-	-	-	-	41	-
Stage 2	-	-	-	-	282	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1162	-	744	1099
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	855	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	736	1099
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	1143	-
Stage 2	-	-	-	-	846	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	736	-	-	-	1162	-
HCM Lane V/C Ratio	0.002	-	-	-	0.01	-
HCM Control Delay (s)	9.9	0	-	-	8.1	0
HCM Lane LOS	A	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	34	13	155	28	15	12
Future Volume (vph)	34	13	155	28	15	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979		0.940	
Flt Protected		0.965			0.973	
Satd. Flow (prot)	0	1678	1748	0	1614	0
Flt Permitted		0.965			0.973	
Satd. Flow (perm)	0	1678	1748	0	1614	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	49	19	221	40	21	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	68	261	0	38	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	34	13	155	28	15	12
Future Vol, veh/h	34	13	155	28	15	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, %	-	4	-4	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	3	2	2	2
Mvmt Flow	49	19	221	40	21	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	261	0	-	0	358	241
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	978	-	-	-	733	848
Stage 1	-	-	-	-	921	-
Stage 2	-	-	-	-	1056	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	978	-	-	-	696	848
Mov Cap-2 Maneuver	-	-	-	-	696	-
Stage 1	-	-	-	-	874	-
Stage 2	-	-	-	-	1056	-

Approach	EB	WB	SB
HCM Control Delay, s	8.4	0	10
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	978	-	-	-	756
HCM Lane V/C Ratio	0.05	-	-	-	0.051
HCM Control Delay (s)	8.9	0	-	-	10
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	48	0	0	167	0	0
Future Volume (vph)	48	0	0	167	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			322	436	
Travel Time (s)	57.1			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	69	0	0	239	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	239	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

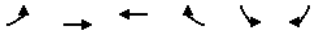
Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	48	0	0	167	0	0
Future Vol, veh/h	48	0	0	167	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	69	0	0	239	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	308	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	814	1066
Stage 1	-	0	0	-	1122	-
Stage 2	-	0	0	-	950	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	814	1066
Mov Cap-2 Maneuver	-	-	-	-	814	-
Stage 1	-	-	-	-	1122	-
Stage 2	-	-	-	-	950	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	54	240	3	5	2
Future Volume (vph)	0	54	240	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1644	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1644	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	77	343	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	77	347	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	54	240	3	5	2
Future Vol, veh/h	0	54	240	3	5	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	5	3	50	0	25
Mvmt Flow	0	77	343	4	7	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	347	0	-	0	422	345
Stage 1	-	-	-	-	345	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.3	-	-	-	6.6	6.55
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.3
Pot Cap-1 Maneuver	913	-	-	-	657	679
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	1099	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	913	-	-	-	657	679
Mov Cap-2 Maneuver	-	-	-	-	657	-
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	1099	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	913	-	-	-	663
HCM Lane V/C Ratio	-	-	-	-	0.015
HCM Control Delay (s)	0	-	-	-	10.5
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	219	23	183	38	16	134
Future Volume (vph)	219	23	183	38	16	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987		0.977			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1648	0	1730	0	0	1760
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1648	0	1730	0	0	1760
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	246	26	206	43	18	151
Shared Lane Traffic (%)						
Lane Group Flow (vph)	272	0	249	0	0	169
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	219	23	183	38	16	134
Future Vol, veh/h	219	23	183	38	16	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	0	8	1
Mvmt Flow	246	26	206	43	18	151

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	415	228	0	0	249	0
Stage 1	228	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuver	577	832	-	-	952	-
Stage 1	935	-	-	-	-	-
Stage 2	978	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	563	832	-	-	952	-
Mov Cap-2 Maneuver	563	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	957	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.9	0	0.9
HCM LOS	B		

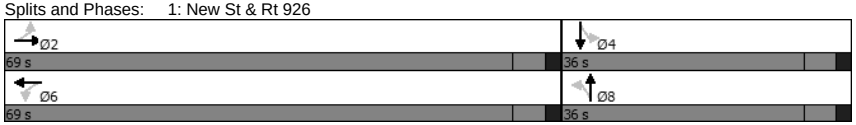
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	676	952	-
HCM Lane V/C Ratio	-	-	0.402	0.019	-
HCM Control Delay (s)	-	-	13.9	8.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.996			0.993	
Satd. Flow (prot)	0	1625	0	0	1551	0	0	1581	0	0	1531	0
Flt Permitted		0.940			0.946			0.969			0.939	
Satd. Flow (perm)	0	1534	0	0	1471	0	0	1538	0	0	1447	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	60	698	14	21	335	33	10	92	40	54	181	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	772	0	0	389	0	0	142	0	0	393	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		36.0	36.0		36.0	36.0	
Total Split (%)	65.7%	65.7%		65.7%	65.7%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 104.2
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



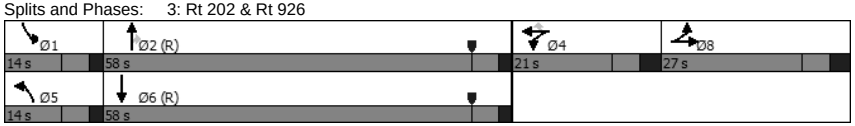
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	60	698	14	21	335	33	10	92	40	54	181	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	100	1017	20	67	901	86	52	323	132	86	214	174
Arrive On Green	0.64	0.63	0.62	0.64	0.63	0.62	0.28	0.27	0.26	0.28	0.27	0.26
Sat Flow, veh/h	98	1609	32	46	1424	136	53	1203	493	168	795	647
Grp Volume(v), veh/h	772	0	0	389	0	0	142	0	0	393	0	0
Grp Sat Flow(s),veh/h/ln	1739	0	0	1607	0	0	1749	0	0	1609	0	0
Q Serve(g_s), s	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0
Cycle Q Clear(g_c), s	28.4	0.0	0.0	11.3	0.0	0.0	6.4	0.0	0.0	23.6	0.0	0.0
Prop In Lane	0.08		0.02	0.05		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1155	0	0	1069	0	0	526	0	0	489	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.36	0.00	0.00	0.27	0.00	0.00	0.80	0.00	0.00
Avail Cap(c_a), veh/h	1155	0	0	1069	0	0	589	0	0	549	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	8.9	0.0	0.0	29.5	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.0	0.0	0.0	0.3	0.0	0.0	7.7	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(95%),veh/ln	14.8	0.0	0.0	6.4	0.0	0.0	5.0	0.0	0.0	15.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.0	0.0	0.0	9.9	0.0	0.0	29.8	0.0	0.0	43.4	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		772			389			142			393	
Approach Delay, s/veh		15.0			9.9			29.8			43.4	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		32.2		69.0		32.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		30.0		63.0		30.0				
Max Q Clear Time (g_c+I1), s		30.4		25.6		13.3		8.4				
Green Ext Time (p_c), s		7.3		0.6		3.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	456	216	29	211	234	67	31	1668	128	92	1570	138
Future Volume (vph)	456	216	29	211	234	67	31	1668	128	92	1570	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	470	223	30	218	241	69	32	1720	132	95	1619	142
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	352	371	0	218	241	69	32	1720	132	95	1761	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	27.0	27.0		21.0	21.0	21.0	14.0	58.0	58.0	14.0	58.0	
Total Split (%)	22.5%	22.5%		17.5%	17.5%	17.5%	11.7%	48.3%	48.3%	11.7%	48.3%	
Maximum Green (s)	20.0	20.0		14.0	14.0	14.0	8.0	52.0	52.0	8.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	456	216	29	211	234	67	31	1668	128	92	1570	138
Future Volume (veh/h)	456	216	29	211	234	67	31	1668	128	92	1570	138
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	362	375	30	218	241	69	32	1720	132	95	1619	142
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	307	336	6	232	242	208	62	1600	748	129	1571	62
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.03	0.44	0.44	0.08	0.48	0.48
Sat Flow, veh/h	1753	1790	143	1856	1935	1668	1856	3622	1693	1714	3084	268
Grp Volume(v), veh/h	362	0	405	218	241	69	32	1720	132	95	862	899
Grp Sat Flow(s),veh/h/ln	1753	0	1933	1856	1935	1668	1856	1811	1693	1714	1657	1696
Q Serve(g_s), s	21.0	0.0	21.0	14.0	14.9	4.5	2.0	53.0	5.7	6.5	58.0	58.0
Cycle Q Clear(g_c), s	21.0	0.0	21.0	14.0	14.9	4.5	2.0	53.0	5.7	6.5	58.0	58.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	307	0	342	232	242	208	62	1600	748	129	801	832
V/C Ratio(X)	1.18	0.00	1.19	0.94	1.00	0.33	0.52	1.08	0.18	0.74	1.08	1.08
Avail Cap(c_a), veh/h	307	0	338	232	242	208	139	1600	748	129	801	820
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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	49.5	52.1	52.5	47.9	57.1	33.5	20.3	54.3	31.0	31.0
Incr Delay (d2), s/veh	109.5	0.0	109.0	42.6	56.8	0.9	6.6	45.7	0.5	20.0	54.4	55.2
Initial Q Delay(d3),s/veh	35.2	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	359.6	346.1
%ile BackOfQ(95%),veh/ln	30.3	0.0	35.0	14.0	16.3	3.4	1.9	43.2	4.1	6.2	125.3	127.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	194.2	0.0	211.2	94.6	109.3	48.8	63.7	79.2	20.8	74.3	445.0	432.3
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		767			528			1884			1856	
Approach Delay, s/veh		203.2			95.3			74.9			419.9	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	58.0		21.0	9.0	63.0		27.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	52.0		14.0	8.0	52.0		20.0				
Max Q Clear Time (g_c+I1), s	9.5	55.5		17.4	4.5	60.5		23.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	223.7
HCM 6th LOS	F

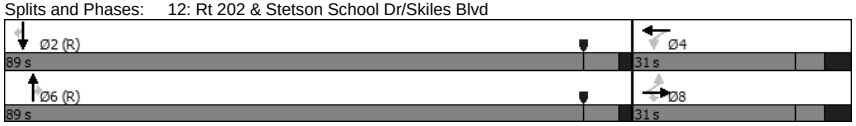
Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	189	146	63	60	46	66	0	2096	77	0	2050	169
Future Volume (vph)	189	146	63	60	46	66	0	2096	77	0	2050	169
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.911				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1732	0	0	3256	1616	0	3370	1709
Flt Permitted	0.642			0.562								
Satd. Flow (perm)	1123	1906	1589	1001	1732	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	195	151	65	62	47	68	0	2161	79	0	2113	174
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	151	65	62	115	0	0	2161	79	0	2113	174
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0			89.0	89.0		89.0	89.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%			74.2%	74.2%		74.2%	74.2%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0			82.0	82.0		82.0	82.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	146	63	60	46	66	0	2096	77	0	2050	169
Future Volume (veh/h)	189	146	63	60	46	66	0	2096	77	0	2050	169
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	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	195	151	65	62	47	68	0	2161	79	0	2113	174
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	289	448	388	241	148	214	0	2290	1097	0	2486	1153
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.19	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1411	2066	1726	1169	683	988	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	195	151	65	62	0	115	0	2161	79	0	2113	174
Grp Sat Flow(s),veh/h/ln	1411	2066	1726	1169	0	1671	0	1635	1567	0	1776	1647
Q Serve(g_s), s	16.1	7.4	3.6	5.7	0.0	7.0	0.0	70.1	1.9	0.0	52.9	4.3
Cycle Q Clear(g_c), s	22.7	7.4	3.6	13.1	0.0	7.0	0.0	70.1	1.9	0.0	52.9	4.3
Prop In Lane	1.00		1.00	1.00		0.59	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	289	448	388	241	0	362	0	2290	1097	0	2486	1153
V/C Ratio(X)	0.68	0.34	0.17	0.26	0.00	0.32	0.00	0.94	0.07	0.00	0.85	0.15
Avail Cap(c_a), veh/h	289	448	388	241	0	362	0	2290	1097	0	2486	1153
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	39.7	37.4	45.3	0.0	40.3	0.0	15.9	5.7	0.0	13.3	6.0
Incr Delay (d2), s/veh	6.1	0.4	0.2	0.6	0.0	0.5	0.0	9.6	0.1	0.0	3.9	0.3
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(95%),veh/ln	10.3	7.0	2.9	3.1	0.0	5.4	0.0	31.5	1.0	0.0	25.1	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.0	40.2	37.6	45.8	0.0	40.8	0.0	25.5	5.8	0.0	17.2	6.3
LnGrp LOS	D	D	D	D	A	D	A	C	A	A	B	A
Approach Vol, veh/h		411			177			2240			2287	
Approach Delay, s/veh		46.8			42.6			24.8			16.4	
Approach LOS		D			D			C			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	89.0	31.0	89.0	31.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	82.0	23.0	82.0	23.0
Max Q Clear Time (g_c+I1), s	55.4	15.6	72.6	25.2
Green Ext Time (p_c), s	26.6	0.4	9.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.4
HCM 6th LOS	C

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	712	39	21	380	17	36
Future Volume (vph)	712	39	21	380	17	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	742	41	22	396	18	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	742	41	22	396	18	38
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	712	39	21	380	17	36
Future Vol, veh/h	712	39	21	380	17	36
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	350	120	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	0	5	3	0	9
Mvmt Flow	742	41	22	396	18	38

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	783	0	1182	742
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	440	-
Critical Hdwy	-	-	4.3	-	6.2	6.19
Critical Hdwy Stg 1	-	-	-	-	5.2	-
Critical Hdwy Stg 2	-	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	641	-	246	439
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	759	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	641	-	238	439
Mov Cap-2 Maneuver	-	-	-	-	238	-
Stage 1	-	-	-	-	551	-
Stage 2	-	-	-	-	733	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.6	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	238	439	-	-	641	-
HCM Lane V/C Ratio	0.074	0.085	-	-	0.034	-
HCM Control Delay (s)	21.3	14	-	-	10.8	-
HCM Lane LOS	C	B	-	-	B	-
HCM 95th %tile Q(veh)	0.2	0.3	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	45	0	0	43	51	2104	62	110	1825	202
Future Volume (vph)	0	0	45	0	0	43	51	2104	62	110	1825	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.985	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	46	0	0	44	52	2147	63	112	1862	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	44	52	2210	0	112	2068	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other
Control Type: Unsignalized

Intersection

Int Delay, s/veh 1.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	45	0	0	43	51	2104	62	110	1825	202
Future Vol, veh/h	0	0	45	0	0	43	51	2104	62	110	1825	202
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	46	0	0	44	52	2147	63	112	1862	206

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1034	-	-	1105	2068	0	0	2210	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*386	0	0	*232	464	-	-	*291	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*386	-	-	*232	464	-	-	*291	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	24.1	0.3	1.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	464	-	-	386	232	* 291	-	-
HCM Lane V/C Ratio	0.112	-	-	0.119	0.189	0.386	-	-
HCM Control Delay (s)	13.7	-	-	15.6	24.1	24.9	-	-
HCM Lane LOS	B	-	-	C	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.4	0.7	1.7	-	-

Notes

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	41	0	5	247	1	4
Future Volume (vph)	41	0	5	247	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	55	0	7	329	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	336	1	5
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

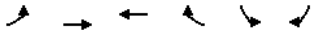
Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	41	0	5	247	1	4
Future Vol, veh/h	41	0	5	247	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	55	0	7	329	1	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	55	0	398	55
Stage 1	-	-	-	-	55	-
Stage 2	-	-	-	-	343	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1150	-	665	1078
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1150	-	660	1078
Mov Cap-2 Maneuver	-	-	-	-	660	-
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	788	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	660	1078	-	-	1150	-
HCM Lane V/C Ratio	0.002	0.005	-	-	0.006	-
HCM Control Delay (s)	10.5	8.4	-	-	8.1	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	28	25	228	21	20	22
Future Volume (vph)	28	25	228	21	20	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.989		0.930	
Flt Protected		0.974			0.976	
Satd. Flow (prot)	0	1700	1788	0	1602	0
Flt Permitted		0.974			0.976	
Satd. Flow (perm)	0	1700	1788	0	1602	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	37	33	304	28	27	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	332	0	56	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	28	25	228	21	20	22
Future Vol, veh/h	28	25	228	21	20	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, %	-	4	-3	-	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	0	1	2	2	2
Mvmt Flow	37	33	304	28	27	29

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	332	0	-	0	425	318
Stage 1	-	-	-	-	318	-
Stage 2	-	-	-	-	107	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	924	-	-	-	668	766
Stage 1	-	-	-	-	846	-
Stage 2	-	-	-	-	1068	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	924	-	-	-	641	766
Mov Cap-2 Maneuver	-	-	-	-	641	-
Stage 1	-	-	-	-	811	-
Stage 2	-	-	-	-	1068	-

Approach	EB	WB	SB
HCM Control Delay, s	8.8	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	924	-	-	-	701
HCM Lane V/C Ratio	0.04	-	-	-	0.08
HCM Control Delay (s)	9.1	0	-	-	10.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	49	0	0	250	0	0
Future Volume (vph)	49	0	0	250	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			300	323	
Travel Time (s)	55.1			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	65	0	0	333	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	0	333	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	49	0	0	250	0	0
Future Vol, veh/h	49	0	0	250	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	65	0	0	333	0	0

Major/Minor	Major1			Major2		
Conflicting Flow All	0	-	-	-	398	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	333	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuver	-	0	0	-	726	1071
Stage 1	-	0	0	-	1126	-
Stage 2	-	0	0	-	865	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	726	1071
Mov Cap-2 Maneuver	-	-	-	-	726	-
Stage 1	-	-	-	-	1126	-
Stage 2	-	-	-	-	865	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	3	62	263	12	1	2
Future Volume (vph)	3	62	263	12	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.998			0.988	
Satd. Flow (prot)	0	1651	1679	0	1485	0
Flt Permitted		0.998			0.988	
Satd. Flow (perm)	0	1651	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	83	351	16	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	87	367	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	3	62	263	12	1	2
Future Vol, veh/h	3	62	263	12	1	2
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, %	-	3	-3	-	1	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	4	83	351	16	1	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	367	0	-	0	450	359
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	899	-	-	-	631	720
Stage 1	-	-	-	-	794	-
Stage 2	-	-	-	-	1082	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	899	-	-	-	628	720
Mov Cap-2 Maneuver	-	-	-	-	628	-
Stage 1	-	-	-	-	790	-
Stage 2	-	-	-	-	1082	-

Approach	EB	WB	SB
HCM Control Delay, s	9.4	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	899	-	-	-	686
HCM Lane V/C Ratio	0.004	-	-	-	0.006
HCM Control Delay (s)	9	0	-	-	10.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	214	52	151	45	20	178
Future Volume (vph)	214	52	151	45	20	178
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.969			
Flt Protected	0.961					0.995
Satd. Flow (prot)	1665	0	1731	0	0	1759
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1665	0	1731	0	0	1759
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	240	58	170	51	22	200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	298	0	221	0	0	222
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	214	52	151	45	20	178
Future Vol, veh/h	214	52	151	45	20	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	240	58	170	51	22	200

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	440	196	0	0	221	0
Stage 1	196	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	555	900	-	-	1009	-
Stage 1	969	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	539	900	-	-	1009	-
Mov Cap-2 Maneuver	539	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	677	1009	-
HCM Lane V/C Ratio	-	-	0.441	0.022	-
HCM Control Delay (s)	-	-	14.5	8.6	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	2.3	0.1	-

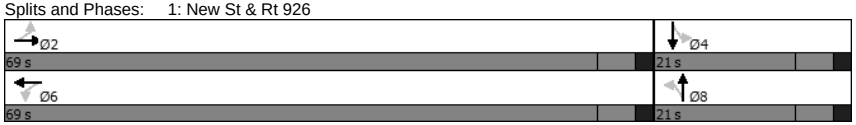
Base

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.919	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1586	0	0	1512	0
Flt Permitted		0.914			0.986			0.869			0.992	
Satd. Flow (perm)	0	1493	0	0	1527	0	0	1383	0	0	1502	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			16							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	84	680	5	8	340	39	10	108	44	8	134	210
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	769	0	0	387	0	0	162	0	0	352	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	84	680	5	8	340	39	10	108	44	8	134	210
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	146	1104	8	48	1050	118	51	221	86	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1553	11	10	1476	167	48	1244	482	15	637	963
Grp Volume(v), veh/h	769	0	0	387	0	0	162	0	0	352	0	0
Grp Sat Flow(s),veh/h/ln	1707	0	0	1653	0	0	1773	0	0	1615	0	0
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.2	0.0	0.0	7.9	0.0	0.0	7.5	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1239	0	0	1198	0	0	338	0	0	310	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.32	0.00	0.00	0.48	0.00	0.00	1.14	0.00	0.00
Avail Cap(c_a), veh/h	1239	0	0	1198	0	0	338	0	0	310	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	6.6	0.0	0.0	4.9	0.0	0.0	33.7	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	92.9	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(95%),veh/ln	10.1	0.0	0.0	4.0	0.0	0.0	6.0	0.0	0.0	22.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.0	0.0	0.0	5.6	0.0	0.0	34.7	0.0	0.0	130.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		769			387			162			352	
Approach Delay, s/veh		9.0			5.6			34.7			130.7	
Approach LOS		A			A			C			F	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	69.0	21.0	69.0	21.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	63.0	15.0	63.0	15.0
Max Q Clear Time (g_c+I1), s	22.2	17.0	9.9	9.5
Green Ext Time (p_c), s	7.6	0.0	3.0	0.2

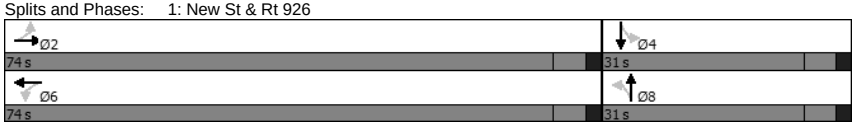
Intersection Summary	
HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.996			0.993	
Satd. Flow (prot)	0	1625	0	0	1551	0	0	1581	0	0	1531	0
Flt Permitted		0.941			0.947			0.951			0.935	
Satd. Flow (perm)	0	1536	0	0	1473	0	0	1510	0	0	1441	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	60	698	14	21	335	33	10	92	40	54	181	158
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	772	0	0	389	0	0	142	0	0	393	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (%)	70.5%	70.5%		70.5%	70.5%		29.5%	29.5%		29.5%	29.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary
Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	60	698	14	21	335	33	10	92	40	54	181	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	102	1057	21	68	933	89	50	295	121	81	197	161
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24
Sat Flow, veh/h	99	1608	32	48	1420	136	53	1190	488	171	795	649
Grp Volume(v), veh/h	772	0	0	389	0	0	142	0	0	393	0	0
Grp Sat Flow(s),veh/h/ln	1738	0	0	1604	0	0	1731	0	0	1615	0	0
Q Serve(g_s), s	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0
Cycle Q Clear(g_c), s	27.3	0.0	0.0	10.9	0.0	0.0	6.9	0.0	0.0	25.1	0.0	0.0
Prop In Lane	0.08		0.02	0.05		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1196	0	0	1106	0	0	482	0	0	454	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.35	0.00	0.00	0.29	0.00	0.00	0.87	0.00	0.00
Avail Cap(c_a), veh/h	1196	0	0	1106	0	0	482	0	0	454	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	10.7	0.0	0.0	8.0	0.0	0.0	32.4	0.0	0.0	39.1	0.0	0.0
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.9	0.0	0.0	0.3	0.0	0.0	15.9	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(95%),veh/ln	14.1	0.0	0.0	6.1	0.0	0.0	5.4	0.0	0.0	17.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	0.0	8.9	0.0	0.0	32.7	0.0	0.0	55.0	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	E	A	A
Approach Vol, veh/h		772			389			142			393	
Approach Delay, s/veh		13.4			8.9			32.7			55.0	
Approach LOS		B			A			C			E	

Timer - Assigned Phs	2		4		6		8					
Phs Duration (G+Y+Rc), s	74.0		31.0		74.0		31.0					
Change Period (Y+Rc), s	6.0		6.0		6.0		6.0					
Max Green Setting (Gmax), s	68.0		25.0		68.0		25.0					
Max Q Clear Time (g_c+I1), s	29.3		27.1		12.9		8.9					
Green Ext Time (p_c), s	7.5		0.0		3.1		0.4					

Intersection Summary		
HCM 6th Ctrl Delay	23.7	
HCM 6th LOS	C	

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Appendix S

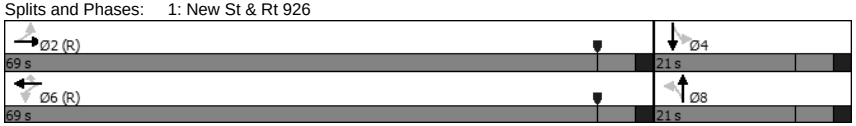
Future (2030) Capacity/Level-of-Service With Development Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1564	1379	0	1586	0	0	1530	0
Flt Permitted		0.907			0.977			0.910			0.991	
Satd. Flow (perm)	0	1482	0	0	1529	1379	0	1448	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1				39						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	776	0	0	417	39	0	164	0	0	306	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%	76.7%	23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 65	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



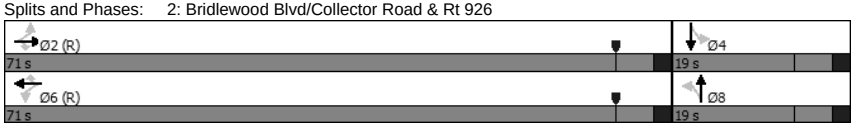
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	148	1089	8	53	1178	1040	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	146	1532	11	17	1657	1485	47	1240	487	17	756	859
Grp Volume(v), veh/h	776	0	0	417	0	39	164	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	1688	0	0	1674	0	1485	1773	0	0	1632	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	0.0	1.8	0.0	0.2	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		1.00	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	1226	0	0	1213	0	1040	338	0	0	313	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.34	0.00	0.04	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1226	0	0	1213	0	1040	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	0.8	0.0	0.9	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.8	0.0	0.1	1.1	0.0	0.0	44.5	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(95%),veh/ln	0.3	0.0	0.0	1.0	0.0	0.1	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	0.0	1.5	0.0	1.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		9.2			1.5			34.8			82.2	
Approach LOS		A			A			C			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		22.9		17.0		3.8		9.6				
Green Ext Time (p_c), s		7.8		0.0		3.6		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			22.7									
HCM 6th LOS			C									

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	31	669	33	14	249	14	26	31	14	46	15	164
Future Volume (vph)	31	669	33	14	249	14	26	31	14	46	15	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.954			0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1662	1521	1719	1733	1560	1719	1687	0	1676	1521	0
Flt Permitted	0.600			0.359			0.396			0.727		
Satd. Flow (perm)	1016	1662	1521	650	1733	1560	716	1687	0	1283	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			36		14			169	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			607	
Travel Time (s)		36.9			35.6			11.3			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	0%	8%	2%	0%	2%	3%	2%	2%	2%
Adj. Flow (vph)	32	690	34	14	257	14	27	32	14	47	15	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	690	34	14	257	14	27	46	0	47	184	0
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30	30	30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	71.0	71.0	71.0	71.0	71.0	71.0	19.0	19.0		19.0	19.0	
Total Split (%)	78.9%	78.9%	78.9%	78.9%	78.9%	78.9%	21.1%	21.1%		21.1%	21.1%	
Maximum Green (s)	65.0	65.0	65.0	65.0	65.0	65.0	13.0	13.0		13.0	13.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	669	33	14	249	14	26	31	14	46	15	164
Future Volume (veh/h)	31	669	33	14	249	14	26	31	14	46	15	164
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	1415	1387	1457	2098	1984	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	32	690	34	14	257	14	27	32	14	47	15	169
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	3	0	8	2	0	2	2	2	2	2
Cap, veh/h	694	1017	905	682	1455	1286	135	186	81	267	19	217
Arrive On Green	0.98	0.98	0.98	0.73	0.73	0.73	0.16	0.16	0.14	0.16	0.16	0.14
Sat Flow, veh/h	885	1387	1235	864	1984	1754	1244	1193	522	1360	124	1397
Grp Volume(v), veh/h	32	690	34	14	257	14	27	0	46	47	0	184
Grp Sat Flow(s),veh/h/ln	885	1387	1235	864	1984	1754	1244	0	1715	1360	0	1521
Q Serve(g_s), s	0.3	3.3	0.1	0.4	3.6	0.2	1.9	0.0	2.1	2.8	0.0	10.5
Cycle Q Clear(g_c), s	3.8	3.3	0.1	3.7	3.6	0.2	11.9	0.0	2.1	4.4	0.0	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.92
Lane Grp Cap(c), veh/h	694	1017	905	682	1455	1286	135	0	267	267	0	237
V/C Ratio(X)	0.05	0.68	0.04	0.02	0.18	0.01	0.20	0.00	0.17	0.18	0.00	0.78
Avail Cap(c_a), veh/h	694	1017	905	682	1455	1286	135	0	267	267	0	237
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.3	0.3	4.2	3.7	3.2	42.0	0.0	33.1	34.7	0.0	37.0
Incr Delay (d2), s/veh	0.1	2.2	0.0	0.0	0.1	0.0	0.7	0.0	0.3	0.3	0.0	15.1
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(95%),veh/ln	0.0	1.5	0.0	0.1	1.7	0.1	1.1	0.0	1.6	1.7	0.0	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.6	2.5	0.3	4.2	3.8	3.2	42.7	0.0	33.4	35.0	0.0	52.1
LnGrp LOS	A	A	A	A	A	A	D	A	C	C	A	D
Approach Vol, veh/h		756			285			73			231	
Approach Delay, s/veh		2.4			3.8			36.9			48.6	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.0		19.0		71.0		19.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		65.0		13.0		65.0		13.0				
Max Q Clear Time (g_c+I1), s		6.3		12.5		6.2		14.4				
Green Ext Time (p_c), s		2.9		0.0		0.9		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	12.5	
HCM 6th LOS	B	

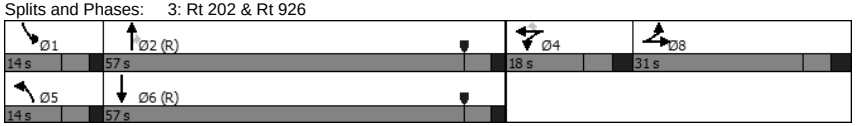
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.991	
Flt Protected	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Flt Permitted	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	512	249	32	155	176	60	24	1724	165	67	1634	100
Shared Lane Traffic (%)	23%											
Lane Group Flow (vph)	394	399	0	155	176	60	24	1724	165	67	1734	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
Total Split (%)	25.8%	25.8%		15.0%	15.0%	15.0%	11.7%	47.5%	47.5%	11.7%	47.5%	
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	396	411	32	155	176	60	24	1724	165	67	1634	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	391	7	180	189	163	45	1568	733	99	1463	89
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.03	0.44	0.44	0.07	0.48	0.47
Sat Flow, veh/h	1780	1753	137	1802	1892	1630	1626	3541	1655	1514	3045	185
Grp Volume(v), veh/h	396	0	443	155	176	60	24	1724	165	67	848	886
Grp Sat Flow(s),veh/h/ln	1780	0	1890	1802	1892	1630	1626	1771	1655	1514	1590	1640
Q Serve(g_s), s	25.0	0.0	25.0	10.2	11.1	4.1	1.7	53.1	7.4	5.2	57.7	57.7
Cycle Q Clear(g_c), s	25.0	0.0	25.0	10.2	11.1	4.1	1.7	53.1	7.4	5.2	57.7	57.7
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	45	1568	733	99	764	788
V/C Ratio(X)	1.07	0.00	1.11	0.86	0.93	0.37	0.53	1.10	0.23	0.67	1.11	1.12
Avail Cap(c_a), veh/h	371	0	394	180	189	163	122	1568	733	114	764	788
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)	0.84	0.00	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.2	53.6	50.5	57.6	33.4	20.7	54.8	31.2	31.2
Incr Delay (d2), s/veh	62.1	0.0	76.4	31.8	45.9	1.4	9.3	55.1	0.7	12.4	67.2	71.9
Initial Q Delay(d3),s/veh	77.7	0.0	63.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	32.2	0.0	35.2	10.1	12.0	3.1	1.5	45.6	5.2	4.1	47.7	50.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.2	0.0	187.3	85.0	99.5	51.8	66.8	88.6	21.4	67.2	98.3	103.1
LnGrp LOS	F	A	F	F	F	D	E	F	C	E	F	F
Approach Vol, veh/h		839			391			1913			1801	
Approach Delay, s/veh		187.3			86.4			82.5			99.5	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.9	58.1		18.0	8.3	62.7		31.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	8.0	51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+I1), s	7.7	55.6		13.6	4.2	60.2		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				

Intersection Summary		
HCM 6th Ctrl Delay	106.8	
HCM 6th LOS	F	

Notes

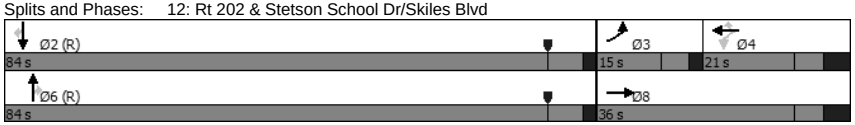
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.972				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3101	1701	0	1628	1744	1554	0	3225	1616	0	3214	1676
Flt Permitted	0.950			0.633								
Satd. Flow (perm)	3101	1701	0	1085	1744	1554	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	256	161	37	92	149	65	0	2206	60	0	2114	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	198	0	92	149	65	0	2206	60	0	2114	331
Number of Detectors	1	4		1	4	1		2	1		2	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	6		40	6	40		40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	15.0	36.0		21.0	21.0	21.0		84.0	84.0		84.0	84.0
Total Split (%)	12.5%	30.0%		17.5%	17.5%	17.5%		70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	9.0	28.0		13.0	13.0	13.0		77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	0.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	5.0	7.0		7.0	7.0	8.0		6.0	6.0		6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
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	1901	1947	1947	1722	1717	1790	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	256	161	37	92	149	65	0	2206	60	0	2114	331
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	8	4	9	4	0	5	0	0	8	5
Cap, veh/h	293	366	84	191	196	160	0	2118	1023	0	2230	1059
Arrive On Green	0.08	0.24	0.23	0.11	0.11	0.11	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3512	1532	352	1151	1717	1517	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	256	0	198	92	149	65	0	2206	60	0	2114	331
Grp Sat Flow(s),veh/h/ln	1756	0	1884	1151	1717	1517	0	1622	1567	0	1708	1622
Q Serve(g_s), s	8.6	0.0	10.7	9.2	10.1	4.8	0.0	78.3	1.7	0.0	67.6	10.7
Cycle Q Clear(g_c), s	8.6	0.0	10.7	9.2	10.1	4.8	0.0	78.3	1.7	0.0	67.6	10.7
Prop In Lane	1.00		0.19	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	293	0	450	191	196	160	0	2118	1023	0	2230	1059
V/C Ratio(X)	0.87	0.00	0.44	0.48	0.76	0.41	0.00	1.04	0.06	0.00	0.95	0.31
Avail Cap(c_a), veh/h	293	0	455	194	200	164	0	2118	1023	0	2230	1059
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	54.4	0.0	38.9	51.2	51.6	50.2	0.0	20.8	7.5	0.0	19.0	9.1
Incr Delay (d2), s/veh	24.1	0.0	0.7	1.9	15.4	1.7	0.0	31.4	0.1	0.0	10.2	0.8
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(95%),veh/ln	8.4	0.0	8.8	5.0	9.0	3.5	0.0	44.8	1.0	0.0	33.7	7.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.5	0.0	39.6	53.1	67.0	51.8	0.0	52.2	7.6	0.0	29.2	9.9
LnGrp LOS	E	A	D	D	E	D	A	F	A	A	C	A
Approach Vol, veh/h		454			306			2266			2445	
Approach Delay, s/veh		61.6			59.6			51.1			26.6	
Approach LOS		E			E			D			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		84.3	15.0	20.7		84.3		35.7				
Change Period (Y+Rc), s		7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gmax), s		77.0	9.0	13.0		77.0		28.0				
Max Q Clear Time (g_c+I1), s		70.1	11.1	12.6		80.8		12.7				
Green Ext Time (p_c), s		6.9	0.0	0.1		0.0		0.8				

Intersection Summary	
HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	44	1	8	289	1	0
Future Volume (vph)	44	1	8	289	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1702	0	0	1723	1636	1663
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1702	0	0	1723	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	63	1	11	413	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	0	424	1	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

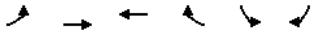
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	44	1	8	289	1	0
Future Vol, veh/h	44	1	8	289	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	63	1	11	413	1	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	64	0	499	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	435	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1142	-	571	1065
Stage 1	-	-	-	-	1112	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1142	-	564	1065
Mov Cap-2 Maneuver	-	-	-	-	564	-
Stage 1	-	-	-	-	1112	-
Stage 2	-	-	-	-	701	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	564	-	-	-	1142	-
HCM Lane V/C Ratio	0.003	-	-	-	0.01	-
HCM Control Delay (s)	11.4	0	-	-	8.2	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	134	29	262	28	15	22
Future Volume (vph)	134	29	262	28	15	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.920	
Flt Protected		0.960			0.980	
Satd. Flow (prot)	0	1666	1761	0	1591	0
Flt Permitted		0.960			0.980	
Satd. Flow (perm)	0	1666	1761	0	1591	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	191	41	374	40	21	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	232	414	0	52	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	3.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	134	29	262	28	15	22
Future Vol, veh/h	134	29	262	28	15	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, %	-	4	-4	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	3	2	2	2
Mvmt Flow	191	41	374	40	21	31

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	414	0	-	0	817	394
Stage 1	-	-	-	-	394	-
Stage 2	-	-	-	-	423	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	865	-	-	-	385	693
Stage 1	-	-	-	-	778	-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	865	-	-	-	298	693
Mov Cap-2 Maneuver	-	-	-	-	298	-
Stage 1	-	-	-	-	602	-
Stage 2	-	-	-	-	753	-

Approach	EB	WB	SB
HCM Control Delay, s	8.5	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	865	-	-	-	451
HCM Lane V/C Ratio	0.221	-	-	-	0.117
HCM Control Delay (s)	10.3	0	-	-	14
HCM Lane LOS	B	A	-	-	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.4

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	164	0	0	284	0	0
Future Volume (vph)	164	0	0	284	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	318			322	436	
Travel Time (s)	6.2			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	234	0	0	406	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	234	0	0	406	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	164	0	0	284	0	0
Future Vol, veh/h	164	0	0	284	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	234	0	0	406	0	0

Major/Minor	Major1			Major2		Minor1	
Conflicting Flow All	0	-	-	-	640	234	
Stage 1	-	-	-	-	234	-	
Stage 2	-	-	-	-	406	-	
Critical Hdwy	-	-	-	-	6	6	
Critical Hdwy Stg 1	-	-	-	-	5	-	
Critical Hdwy Stg 2	-	-	-	-	5	-	
Follow-up Hdwy	-	-	-	-	3	3.1	
Pot Cap-1 Maneuver	-	0	0	-	533	868	
Stage 1	-	0	0	-	954	-	
Stage 2	-	0	0	-	805	-	
Platoon blocked, %	-			-			
Mov Cap-1 Maneuver	-	-	-	-	533	868	
Mov Cap-2 Maneuver	-	-	-	-	533	-	
Stage 1	-	-	-	-	954	-	
Stage 2	-	-	-	-	805	-	

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	71	1	165	118	4	93
Future Volume (vph)	71	1	165	118	4	93
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.871	
Flt Protected				0.972	0.998	
Satd. Flow (prot)	1712	0	0	1676	1534	0
Flt Permitted				0.972	0.998	
Satd. Flow (perm)	1712	0	0	1676	1534	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1878			318	459	
Travel Time (s)	36.6			6.2	8.9	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	2%	2%	3%	2%	2%
Adj. Flow (vph)	101	1	236	169	6	133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	405	139	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	71	1	165	118	4	93
Future Vol, veh/h	71	1	165	118	4	93
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, %	3	-	-	-3	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	2	2	3	2	2
Mvmt Flow	101	1	236	169	6	133

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	743	102
Stage 1	-	-	-	-	102	-
Stage 2	-	-	-	-	641	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1108	-	428	1017
Stage 1	-	-	-	-	1074	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1108	-	327	1017
Mov Cap-2 Maneuver	-	-	-	-	327	-
Stage 1	-	-	-	-	1074	-
Stage 2	-	-	-	-	451	-

Approach	EB	WB	NB
HCM Control Delay, s	0	5.3	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	936	-	-	1108	-
HCM Lane V/C Ratio	0.148	-	-	0.213	-
HCM Control Delay (s)	9.5	-	-	9.1	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.8	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	69	0	4	195	1	13
Future Volume (vph)	69	0	4	195	1	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	6%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.872	
Flt Protected				0.999	0.998	
Satd. Flow (prot)	1607	0	0	1713	1536	0
Flt Permitted				0.999	0.998	
Satd. Flow (perm)	1607	0	0	1713	1536	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	733			1878	268	
Travel Time (s)	14.3			36.6	5.2	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	5%	2%	2%	3%	2%	2%
Adj. Flow (vph)	99	0	6	279	1	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	285	20	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	69	0	4	195	1	13
Future Vol, veh/h	69	0	4	195	1	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, %	6	-	-	-3	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	5	2	2	3	2	2
Mvmt Flow	99	0	6	279	1	19

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	99	0	390	99
Stage 1	-	-	-	-	99	-
Stage 2	-	-	-	-	291	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1111	-	701	1021
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	872	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1111	-	697	1021
Mov Cap-2 Maneuver	-	-	-	-	697	-
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	867	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	8.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	988	-	-	1111	-
HCM Lane V/C Ratio	0.02	-	-	0.005	-
HCM Control Delay (s)	8.7	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	56	4	3	190	3	12	0	9	5	0	2
Future Volume (vph)	0	56	4	3	190	3	12	0	9	5	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.998			0.941			0.959	
Flt Protected					0.999			0.972			0.966	
Satd. Flow (prot)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Flt Permitted					0.999			0.972			0.966	
Satd. Flow (perm)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		496			733			274			306	
Travel Time (s)		9.7			14.3			7.5			8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	2%	2%	3%	50%	2%	2%	2%	0%	2%	25%
Adj. Flow (vph)	0	80	6	4	271	4	17	0	13	7	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	279	0	0	30	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	56	4	3	190	3	12	0	9	5	0	2
Future Vol, veh/h	0	56	4	3	190	3	12	0	9	5	0	2
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, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	5	2	2	3	50	2	2	2	0	2	25
Mvmt Flow	0	80	6	4	271	4	17	0	13	7	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	275	0	0	86	0	0	366	366	83	371	367	273
Stage 1	-	-	-	-	-	-	83	83	-	281	281	-
Stage 2	-	-	-	-	-	-	283	283	-	90	86	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.55
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Follow-up Hdwy	3	-	-	3	-	-	3	4.018	3.1	3	4.018	3.3
Pot Cap-1 Maneuver	967	-	-	1122	-	-	675	562	1043	657	550	750
Stage 1	-	-	-	-	-	-	1079	826	-	823	668	-
Stage 2	-	-	-	-	-	-	833	677	-	1064	820	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	967	-	-	1122	-	-	670	560	1043	647	548	750
Mov Cap-2 Maneuver	-	-	-	-	-	-	670	560	-	647	548	-
Stage 1	-	-	-	-	-	-	1079	826	-	823	665	-
Stage 2	-	-	-	-	-	-	827	674	-	1051	820	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0.1	9.7	10.4
HCM LOS			A	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	791	967	-	-	1122	-	-	673
HCM Lane V/C Ratio	0.038	-	-	-	0.004	-	-	0.015
HCM Control Delay (s)	9.7	0	-	-	8.2	0	-	10.4
HCM Lane LOS	A	A	-	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	174	30	183	41	19	134
Future Volume (vph)	174	30	183	41	19	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.975			
Flt Protected	0.959					0.994
Satd. Flow (prot)	1630	0	1727	0	0	1757
Flt Permitted	0.959					0.994
Satd. Flow (perm)	1630	0	1727	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	196	34	206	46	21	151
Shared Lane Traffic (%)						
Lane Group Flow (vph)	230	0	252	0	0	172
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	4.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	174	30	183	41	19	134
Future Vol, veh/h	174	30	183	41	19	134
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	0	8	1
Mvmt Flow	196	34	206	46	21	151

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	422	229	0	0	252	0
Stage 1	229	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuver	571	831	-	-	949	-
Stage 1	934	-	-	-	-	-
Stage 2	972	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	555	831	-	-	949	-
Mov Cap-2 Maneuver	555	-	-	-	-	-
Stage 1	934	-	-	-	-	-
Stage 2	949	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	1.1
HCM LOS	B		

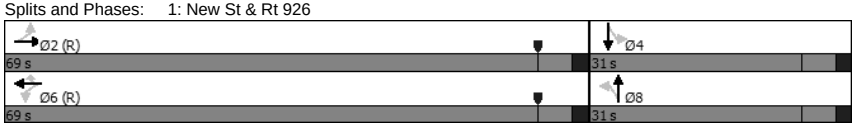
Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	676	949	-
HCM Lane V/C Ratio	-	-	0.339	0.022	-
HCM Control Delay (s)	-	-	13	8.9	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.5	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1563	1379	0	1579	0	0	1547	0
Flt Permitted		0.929			0.940			0.970			0.928	
Satd. Flow (perm)	0	1516	0	0	1474	1379	0	1536	0	0	1448	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2				33						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	789	0	0	419	33	0	149	0	0	345	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%	69.0%	31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	0.0		-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0	6.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 100	
Actuated Cycle Length: 100	
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
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	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	113	1049	20	73	1044	972	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	111	1577	30	52	1570	1485	53	1184	518	197	930	507
Grp Volume(v), veh/h	789	0	0	419	0	33	149	0	0	345	0	0
Grp Sat Flow(s),veh/h/ln	1718	0	0	1622	0	1485	1755	0	0	1634	0	0
Q Serve(g_s), s	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	0.09		0.02	0.06		1.00	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1199	0	0	1133	0	972	469	0	0	442	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.37	0.00	0.03	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	1199	0	0	1133	0	972	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.9	0.0	0.1	0.4	0.0	0.0	7.4	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(95%),veh/ln	13.3	0.0	0.0	0.5	0.0	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	0.0	0.9	0.0	0.1	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		789			452			149			345	
Approach Delay, s/veh		12.8			0.8			32.4			44.3	
Approach LOS		B			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.5		28.5		71.5		28.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+I1), s		28.8		22.1		2.5		9.0				
Green Ext Time (p_c), s		7.7		0.4		3.6		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.6									
HCM 6th LOS			B									

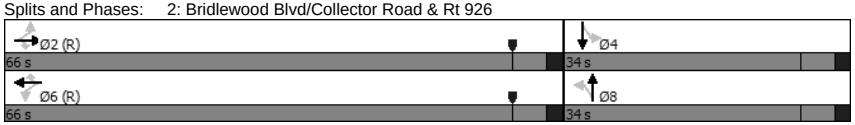
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	598	39	21	311	49	17	41	12	29	260	130
Future Volume (vph)	127	598	39	21	311	49	17	41	12	29	260	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.965			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1678	1567	1637	1817	1560	1719	1685	0	1676	1676	0
Flt Permitted	0.537			0.330			0.207			0.720		
Satd. Flow (perm)	910	1678	1567	569	1817	1560	374	1685	0	1271	1676	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			41			51		13			25	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			1108	
Travel Time (s)		36.9			35.6			11.3			21.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	3%	0%	5%	3%	2%	0%	2%	9%	2%	2%	2%
Adj. Flow (vph)	132	623	41	22	324	51	18	43	13	30	271	135
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	623	41	22	324	51	18	56	0	30	406	0
Number of Detectors	1	1	1	1	1	1	1	2		1	2	
Detector Template		Thru	Right	Left	Thru		Left					
Leading Detector (ft)	30	30	30	30	30	30	20	100		30	100	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	20	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	34.0	34.0		34.0	34.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%		34.0%	34.0%	
Maximum Green (s)	60.0	60.0	60.0	60.0	60.0	60.0	28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	127	598	39	21	311	49	17	41	12	29	260	130
Future Volume (veh/h)	127	598	39	21	311	49	17	41	12	29	260	130
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	1415	1401	1501	2027	2055	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	132	623	41	22	324	51	18	43	12	30	271	135
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	3	0	5	3	2	0	2	2	2	2	2
Cap, veh/h	515	870	790	620	1277	1089	125	379	106	423	311	155
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.27	0.28	0.28	0.27
Sat Flow, veh/h	805	1401	1272	883	2055	1754	1015	1361	380	1349	1116	556
Grp Volume(v), veh/h	132	623	41	22	324	51	18	0	55	30	0	406
Grp Sat Flow(s),veh/h/ln	805	1401	1272	883	2055	1754	1015	0	1740	1349	0	1672
Q Serve(g_s), s	2.5	0.0	0.0	1.0	7.1	1.1	1.7	0.0	2.4	1.7	0.0	23.1
Cycle Q Clear(g_c), s	9.6	0.0	0.0	1.0	7.1	1.1	24.4	0.0	2.4	3.5	0.0	23.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.33
Lane Grp Cap(c), veh/h	515	870	790	620	1277	1089	125	0	485	423	0	466
V/C Ratio(X)	0.26	0.72	0.05	0.04	0.25	0.05	0.14	0.00	0.11	0.07	0.00	0.87
Avail Cap(c_a), veh/h	515	870	790	620	1277	1089	136	0	505	438	0	485
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.49	0.49	0.49	0.18	0.18	0.18	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	7.4	8.5	7.4	45.7	0.0	26.9	28.0	0.0	34.5
Incr Delay (d2), s/veh	0.6	2.5	0.1	0.0	0.1	0.0	0.5	0.0	0.1	0.1	0.0	15.4
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(95%),veh/ln	0.2	1.1	0.0	0.3	3.8	0.7	0.8	0.0	1.8	1.0	0.0	16.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1.1	2.5	0.1	7.4	8.6	7.4	46.2	0.0	27.0	28.1	0.0	49.9
LnGrp LOS	A	A	A	A	A	A	D	A	C	C	A	D
Approach Vol, veh/h		796			397			73			436	
Approach Delay, s/veh		2.2			8.4			31.8			48.4	
Approach LOS		A			A			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.1		32.9		67.1		32.9				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		60.0		28.0		60.0		28.0				
Max Q Clear Time (g_c+I1), s		12.1		25.1		9.6		26.9				
Green Ext Time (p_c), s		3.4		0.7		1.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay 16.7
HCM 6th LOS B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981				0.850			0.850		0.993	
Flt Protected	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Flt Permitted	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	338	227	45	218	259	69	65	1720	132	101	1366	71
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	253	357	0	218	259	69	65	1720	132	101	1437	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	25.0	25.0		22.0	22.0	22.0	14.0	58.0	58.0	15.0	59.0	
Total Split (%)	20.8%	20.8%		18.3%	18.3%	18.3%	11.7%	48.3%	48.3%	12.5%	49.2%	
Maximum Green (s)	18.0	18.0		15.0	15.0	15.0	8.0	52.0	52.0	9.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

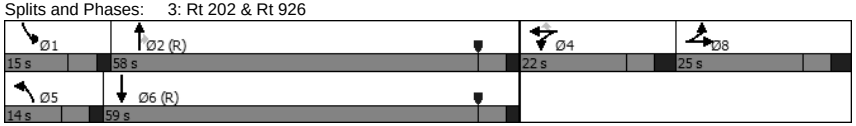
McMahon Associates, Inc. Robinson Tract
3: Rt 202 & Rt 926 2030 with Dev Weekday Afternoon Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 with Dev\S8 Scenario 2A\W Synchro 8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	305	273	45	218	259	69	65	1720	132	101	1366	71
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	278	301	8	247	258	222	106	1600	748	143	1555	31
Arrive On Green	0.16	0.16	0.15	0.13	0.13	0.13	0.06	0.44	0.44	0.08	0.47	0.46
Sat Flow, veh/h	1753	1640	270	1856	1935	1668	1856	3622	1693	1714	3204	166
Grp Volume(v), veh/h	305	0	318	218	259	69	65	1720	132	101	705	732
Grp Sat Flow(s),veh/h/ln	1753	0	1910	1856	1935	1668	1856	1811	1693	1714	1657	1714
Q Serve(g_s), s	19.0	0.0	19.0	13.8	16.0	4.5	4.1	53.0	5.7	6.9	47.3	47.6
Cycle Q Clear(g_c), s	19.0	0.0	19.0	13.8	16.0	4.5	4.1	53.0	5.7	6.9	47.3	47.6
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	278	0	309	247	258	222	106	1600	748	143	775	810
V/C Ratio(X)	1.10	0.00	1.03	0.88	1.00	0.31	0.61	1.08	0.18	0.71	0.91	0.90
Avail Cap(c_a), veh/h	278	0	302	247	258	222	139	1600	748	143	775	802
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)	0.80	0.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	50.5	51.1	52.0	47.0	55.3	33.5	20.3	53.6	31.9	31.9
Incr Delay (d2), s/veh	77.6	0.0	53.7	28.5	57.0	0.8	5.6	45.7	0.5	14.8	16.6	15.4
Initial Q Delay(d3),s/veh	38.9	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	330.9	312.0
%ile BackOfQ(95%),veh/ln	23.5	0.0	24.3	12.9	17.2	3.4	3.7	43.2	4.1	6.3	103.5	103.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	167.0	0.0	162.5	79.6	109.0	47.8	60.9	79.2	20.8	68.4	379.4	359.3
LnGrp LOS	F	A	F	E	F	D	E	F	C	E	F	F
Approach Vol, veh/h		623			546			1917			1538	
Approach Delay, s/veh		164.7			89.5			74.6			349.4	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	15.0	58.0		22.0	11.9	61.1		25.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gmax), s	9.0	52.0		15.0	8.0	53.0		18.0				
Max Q Clear Time (g_c+I1), s	9.4	55.5		18.5	6.6	49.8		21.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.7		0.0				

Intersection Summary			
HCM 6th Ctrl Delay		179.9	
HCM 6th LOS		F	

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3223	1810	0	1693	1901	1616	0	3256	1616	0	3370	1709
Flt Permitted	0.950			0.623								
Satd. Flow (perm)	3223	1810	0	1110	1901	1616	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	367	151	65	62	47	68	0	2029	79	0	1961	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	216	0	62	47	68	0	2029	79	0	1961	394
Number of Detectors	1	1		1	1	1		5	1		5	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	69		40	69	40		40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	20.0	45.0		25.0	25.0	25.0		75.0	75.0		75.0	75.0
Total Split (%)	16.7%	37.5%		20.8%	20.8%	20.8%		62.5%	62.5%		62.5%	62.5%
Maximum Green (s)	14.0	37.0		17.0	17.0	17.0		68.0	68.0		68.0	68.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	0.0		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	3.0	5.0		5.0	5.0	8.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
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	1958	2066	2066	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	367	151	65	62	47	68	0	2029	79	0	1961	394
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	0	0	0	0	4	0	0	3	3
Cap, veh/h	512	365	157	176	184	117	0	2127	1019	0	2310	1071
Arrive On Green	0.14	0.27	0.27	0.10	0.10	0.07	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3617	1370	590	1169	1849	1567	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	367	0	216	62	47	68	0	2029	79	0	1961	394
Grp Sat Flow(s),veh/h/ln	1809	0	1960	1169	1849	1567	0	1635	1567	0	1776	1647
Q Serve(g_s), s	11.6	0.0	10.9	6.1	2.8	5.0	0.0	68.5	2.2	0.0	51.7	13.2
Cycle Q Clear(g_c), s	11.6	0.0	10.9	6.1	2.8	5.0	0.0	68.5	2.2	0.0	51.7	13.2
Prop In Lane	1.00		0.30	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	512	0	522	176	184	117	0	2127	1019	0	2310	1071
V/C Ratio(X)	0.72	0.00	0.41	0.35	0.26	0.58	0.00	0.95	0.08	0.00	0.85	0.37
Avail Cap(c_a), veh/h	512	0	653	255	308	222	0	2127	1019	0	2310	1071
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	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	49.2	0.0	36.2	51.4	49.9	53.7	0.0	19.3	7.7	0.0	16.4	9.6
Incr Delay (d2), s/veh	4.7	0.0	0.5	1.2	0.7	4.5	0.0	11.3	0.1	0.0	4.1	1.0
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(95%),veh/ln	9.5	0.0	9.1	3.3	2.4	3.9	0.0	33.2	1.3	0.0	26.2	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.9	0.0	36.7	52.6	50.6	58.2	0.0	30.6	7.9	0.0	20.5	10.6
LnGrp LOS	D	A	D	D	D	E	A	C	A	A	C	B
Approach Vol, veh/h		583			177			2108			2355	
Approach Delay, s/veh		47.6			54.2			29.8			18.8	
Approach LOS		D			D			C			B	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		83.1	20.0	16.9		83.1		36.9				
Change Period (Y+Rc), s		7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gmax), s		68.0	14.0	17.0		68.0		37.0				
Max Q Clear Time (g_c+I1), s		54.2	14.1	8.6		71.0		12.9				
Green Ext Time (p_c), s		13.8	0.0	0.4		0.0		1.0				

Intersection Summary	
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Future Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	44	52	2016	63	112	1537	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	44	52	2079	0	112	1537	381
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373
Future Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	57	0	0	44	52	2016	63	112	1537	381

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	769	-	-	1040	1918	0	0	2079	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*532	0	0	*289	447	-	-	*361	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*532	-	-	*289	447	-	-	*361	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	19.7	0.3	1.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	447	-	-	532	289	* 361	-	-
HCM Lane V/C Ratio	0.116	-	-	0.107	0.152	0.311	-	-
HCM Control Delay (s)	14.1	-	-	12.6	19.7	19.4	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.4	0.5	1.3	-	-

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

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	52	0	5	418	1	4
Future Volume (vph)	52	0	5	418	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	69	0	7	557	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	564	1	5
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

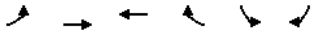
Intersection	
Int Delay, s/veh	0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	0	5	418	1	4
Future Vol, veh/h	52	0	5	418	1	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	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	69	0	7	557	1	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	69	0	640	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-	-	571	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1137	-	462	1058
Stage 1	-	-	-	-	1105	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1137	-	458	1058
Mov Cap-2 Maneuver	-	-	-	-	458	-
Stage 1	-	-	-	-	1105	-
Stage 2	-	-	-	-	596	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	458	1058	-	-	1137	-
HCM Lane V/C Ratio	0.003	0.005	-	-	0.006	-
HCM Control Delay (s)	12.9	8.4	-	-	8.2	0
HCM Lane LOS	B	A	-	-	A	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	195	36	399	21	20	235
Future Volume (vph)	195	36	399	21	20	235
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.875	
Flt Protected		0.959			0.996	
Satd. Flow (prot)	0	1664	1795	0	1538	0
Flt Permitted		0.959			0.996	
Satd. Flow (perm)	0	1664	1795	0	1538	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	217	40	443	23	22	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	257	466	0	283	0
Sign Control		Free	Free		Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	195	36	399	21	20	235
Future Vol, veh/h	195	36	399	21	20	235
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, %	-	4	-3	-	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	0	1	2	2	2
Mvmt Flow	217	40	443	23	22	261

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	466	0	-	0	929	455
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	4.3	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuver	830	-	-	-	329	639
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	712	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	830	-	-	-	241	639
Mov Cap-2 Maneuver	-	-	-	-	241	-
Stage 1	-	-	-	-	533	-
Stage 2	-	-	-	-	712	-

Approach	EB	WB	SB
HCM Control Delay, s	9.2	0	17.6
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	830	-	-	-	566
HCM Lane V/C Ratio	0.261	-	-	-	0.501
HCM Control Delay (s)	10.9	0	-	-	17.6
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	1	-	-	-	2.8

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	227	0	0	634	0	0
Future Volume (vph)	227	0	0	634	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	228			300	323	
Travel Time (s)	4.4			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	303	0	0	845	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	303	0	0	845	0	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	227	0	0	634	0	0
Future Vol, veh/h	227	0	0	634	0	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, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	303	0	0	845	0	0

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	-	-	1148	303
Stage 1	-	-	-	-	303	-
Stage 2	-	-	-	-	845	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	-	0	0	-	252	754
Stage 1	-	0	0	-	780	-
Stage 2	-	0	0	-	466	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	-	-	252	754
Mov Cap-2 Maneuver	-	-	-	-	252	-
Stage 1	-	-	-	-	780	-
Stage 2	-	-	-	-	466	-

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

Minor Lane/Major Mvmt	NBLn1	EBT	WBT
Capacity (veh/h)	-	-	-
HCM Lane V/C Ratio	-	-	-
HCM Control Delay (s)	0	-	-
HCM Lane LOS	A	-	-
HCM 95th %tile Q(veh)	-	-	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	65	4	414	220	3	162
Future Volume (vph)	65	4	414	220	3	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.867	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1528	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1528	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	552	293	4	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	845	220	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	7.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	65	4	414	220	3	162
Future Vol, veh/h	65	4	414	220	3	162
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, %	3	-	-	-3	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	2	2	1	2	2
Mvmt Flow	87	5	552	293	4	216

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	92	0	1487	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	1397	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1117	-	148	1033
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	248	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1117	-	61	1033
Mov Cap-2 Maneuver	-	-	-	-	61	-
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	102	-

Approach	EB	WB	NB
HCM Control Delay, s	0	7.4	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	801	-	-	1117	-
HCM Lane V/C Ratio	0.275	-	-	0.494	-
HCM Control Delay (s)	11.2	-	-	11.3	0
HCM Lane LOS	B	-	-	B	A
HCM 95th %tile Q(veh)	1.1	-	-	2.8	-

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	74	2	14	234	1	9
Future Volume (vph)	74	2	14	234	1	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	6%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.996				0.875	
Flt Protected				0.997	0.996	
Satd. Flow (prot)	1680	0	0	1742	1538	0
Flt Permitted				0.997	0.996	
Satd. Flow (perm)	1680	0	0	1742	1538	0
Link Speed (mph)	35			35	25	
Link Distance (ft)	787			1811	415	
Travel Time (s)	15.3			35.3	11.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	99	3	19	312	1	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	102	0	0	331	13	0
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	74	2	14	234	1	9
Future Vol, veh/h	74	2	14	234	1	9
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, %	6	-	-	-3	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	2	2	1	2	2
Mvmt Flow	99	3	19	312	1	12

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	102	0	451	101
Stage 1	-	-	-	-	101	-
Stage 2	-	-	-	-	350	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	1108	-	644	1018
Stage 1	-	-	-	-	1075	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1108	-	630	1018
Mov Cap-2 Maneuver	-	-	-	-	630	-
Stage 1	-	-	-	-	1075	-
Stage 2	-	-	-	-	800	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.5	8.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	959	-	-	1108	-
HCM Lane V/C Ratio	0.014	-	-	0.017	-
HCM Control Delay (s)	8.8	-	-	8.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0.1	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	3	69	13	10	213	12	7	0	6	1	0	2
Future Volume (vph)	3	69	13	10	213	12	7	0	6	1	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.993			0.936			0.899	
Flt Protected		0.998			0.998			0.974			0.988	
Satd. Flow (prot)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Flt Permitted		0.998			0.998			0.974			0.988	
Satd. Flow (perm)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		591			787			452			385	
Travel Time (s)		11.5			15.3			12.3			10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	2%	2%	1%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	4	92	17	13	284	16	9	0	8	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	313	0	0	17	0	0	4	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	69	13	10	213	12	7	0	6	1	0	2
Future Vol, veh/h	3	69	13	10	213	12	7	0	6	1	0	2
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, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	2	2	1	0	2	2	2	0	2	0
Mvmt Flow	4	92	17	13	284	16	9	0	8	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	300	0	0	109	0	0	429	435	101	431	435	292
Stage 1	-	-	-	-	-	-	109	109	-	318	318	-
Stage 2	-	-	-	-	-	-	320	326	-	113	117	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.3
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Follow-up Hdwy	3	-	-	3	-	-	3.5	4.018	3.1	3.5	4.018	3.1
Pot Cap-1 Maneuver	948	-	-	1102	-	-	611	514	1018	596	502	788
Stage 1	-	-	-	-	-	-	1043	805	-	783	642	-
Stage 2	-	-	-	-	-	-	793	648	-	1032	794	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	948	-	-	1102	-	-	600	504	1018	583	492	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	600	504	-	583	492	-
Stage 1	-	-	-	-	-	-	1038	801	-	779	633	-
Stage 2	-	-	-	-	-	-	779	639	-	1019	790	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.3	0.4	10	10.1
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	740	948	-	-	1102	-	-	705
HCM Lane V/C Ratio	0.023	0.004	-	-	0.012	-	-	0.006
HCM Control Delay (s)	10	8.8	0	-	8.3	0	-	10.1
HCM Lane LOS	B	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	167	56	151	56	29	178
Future Volume (vph)	167	56	151	56	29	178
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966		0.963			
Flt Protected	0.964					0.993
Satd. Flow (prot)	1655	0	1721	0	0	1757
Flt Permitted	0.964					0.993
Satd. Flow (perm)	1655	0	1721	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	188	63	170	63	33	200
Shared Lane Traffic (%)						
Lane Group Flow (vph)	251	0	233	0	0	233
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	5.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	167	56	151	56	29	178
Future Vol, veh/h	167	56	151	56	29	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	188	63	170	63	33	200

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	468	202	0	0	233	0
Stage 1	202	-	-	-	-	-
Stage 2	266	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	530	892	-	-	1000	-
Stage 1	962	-	-	-	-	-
Stage 2	897	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	507	892	-	-	1000	-
Mov Cap-2 Maneuver	507	-	-	-	-	-
Stage 1	962	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	660	1000	-
HCM Lane V/C Ratio	-	-	0.38	0.033	-
HCM Control Delay (s)	-	-	13.8	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-

Base

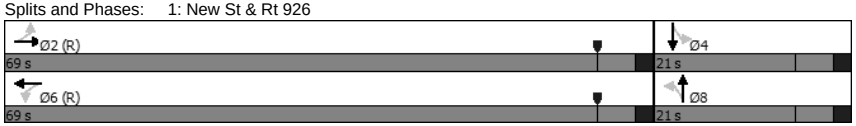
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.988			0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1550	0	0	1586	0	0	1530	0
Flt Permitted		0.901			0.979			0.910			0.991	
Satd. Flow (perm)	0	1472	0	0	1519	0	0	1448	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			13							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	776	0	0	456	0	0	164	0	0	306	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	148	1089	8	52	1062	100	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	146	1532	11	15	1493	141	47	1240	487	17	756	859
Grp Volume(v), veh/h	776	0	0	456	0	0	164	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	1688	0	0	1650	0	0	1773	0	0	1632	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	0.0	2.2	0.0	0.0	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		0.09	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	1226	0	0	1196	0	0	338	0	0	313	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.38	0.00	0.00	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1226	0	0	1196	0	0	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	0.8	0.0	0.0	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.9	0.0	0.0	1.1	0.0	0.0	44.5	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(95%),veh/ln	10.3	0.0	0.0	1.2	0.0	0.0	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.2	0.0	0.0	1.7	0.0	0.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	C	A	A	F	A	A
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		9.2			1.7			34.8			82.2	
Approach LOS		A			A			C			F	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+I1), s		22.9		17.0		4.2		9.6				
Green Ext Time (p_c), s		7.8		0.0		3.7		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		22.8
HCM 6th LOS		C

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	44	0	0	34	33	2141	71	54	1778	265
Future Volume (vph)	0	0	44	0	0	34	33	2141	71	54	1778	265
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.981	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	46	0	0	35	34	2230	74	56	1852	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	35	34	2304	0	56	2128	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	44	0	0	34	33	2141	71	54	1778	265
Future Vol, veh/h	0	0	44	0	0	34	33	2141	71	54	1778	265
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3
Mvmt Flow	0	0	46	0	0	35	34	2230	74	56	1852	276

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	1064	-	-	1152	2128	0	0	2304	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*386	0	0	*197	382	-	-	*255	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*386	-	-	*197	382	-	-	*255	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.6	27.2	0.2	0.6
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	382	-	-	386	197 *	255	-	-
HCM Lane V/C Ratio	0.09	-	-	0.119	0.18	0.221	-	-
HCM Control Delay (s)	15.4	-	-	15.6	27.2	23.1	-	-
HCM Lane LOS	C	-	-	C	D	C	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.4	0.6	0.8	-	-

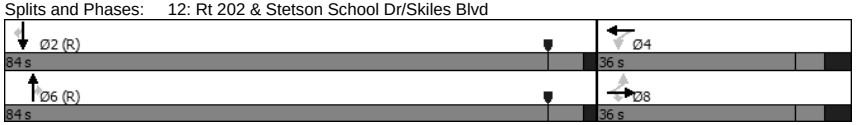
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.511			0.611								
Satd. Flow (perm)	860	1765	1434	1047	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	256	161	37	92	149	65	0	2206	60	0	2114	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	161	37	92	214	0	0	2206	60	0	2114	331
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		Cl+Ex			Cl+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		Cl+Ex			Cl+Ex							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0			84.0	84.0		84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0			77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 120	
Control Type: Actuated-Coordinated	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
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	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	256	161	37	92	149	65	0	2206	60	0	2114	331
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	224	471	370	259	274	120	0	2109	1018	0	2221	1054
Arrive On Green	0.24	0.24	0.23	0.24	0.24	0.23	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	1252	1947	1588	1151	1134	495	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	256	161	37	92	0	214	0	2206	60	0	2114	331
Grp Sat Flow(s),veh/h/ln	1252	1947	1588	1151	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	15.7	8.2	2.2	8.6	0.0	13.8	0.0	78.0	1.7	0.0	68.2	10.8
Cycle Q Clear(g_c), s	29.0	8.2	2.2	16.8	0.0	13.8	0.0	78.0	1.7	0.0	68.2	10.8
Prop In Lane	1.00		1.00	1.00		0.30	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	224	471	370	259	0	394	0	2109	1018	0	2221	1054
V/C Ratio(X)	1.14	0.34	0.10	0.35	0.00	0.54	0.00	1.05	0.06	0.00	0.95	0.31
Avail Cap(c_a), veh/h	224	471	370	259	0	394	0	2109	1018	0	2221	1054
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	54.3	37.6	36.1	44.6	0.0	39.9	0.0	21.0	7.6	0.0	19.3	9.2
Incr Delay (d2), s/veh	104.1	0.4	0.1	0.8	0.0	1.5	0.0	33.0	0.1	0.0	10.7	0.8
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(95%),veh/ln	20.7	7.2	1.6	4.6	0.0	9.7	0.0	45.4	1.0	0.0	34.1	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	158.4	38.0	36.2	45.4	0.0	41.4	0.0	54.0	7.8	0.0	30.0	10.0
LnGrp LOS	F	D	D	D	A	D	A	F	A	A	C	B
Approach Vol, veh/h		454			306			2266			2445	
Approach Delay, s/veh		105.8			42.6			52.7			27.3	
Approach LOS		F			D			D			C	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	84.0	36.0	84.0	36.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	77.0	28.0	77.0	28.0
Max Q Clear Time (g_c+I1), s	70.7	19.3	80.5	31.5
Green Ext Time (p_c), s	6.3	0.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

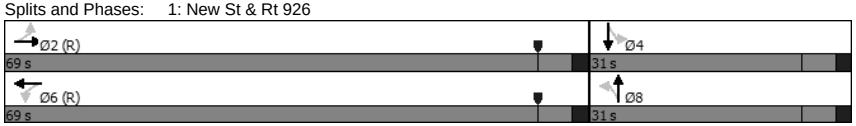
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.990			0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1552	0	0	1579	0	0	1547	0
Flt Permitted		0.925			0.944			0.970			0.928	
Satd. Flow (perm)	0	1510	0	0	1469	0	0	1536	0	0	1448	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	789	0	0	452	0	0	149	0	0	345	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%		31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
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	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	113	1049	20	68	962	78	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	111	1577	30	46	1446	118	53	1184	518	197	930	507
Grp Volume(v), veh/h	789	0	0	452	0	0	149	0	0	345	0	0
Grp Sat Flow(s),veh/h/ln	1718	0	0	1610	0	0	1755	0	0	1634	0	0
Q Serve(g_s), s	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	0.09		0.02	0.05		0.07	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1199	0	0	1124	0	0	469	0	0	442	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.40	0.00	0.00	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	1199	0	0	1124	0	0	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	7.4	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(95%),veh/ln	13.3	0.0	0.0	0.6	0.0	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	0.0	0.0	1.0	0.0	0.0	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	C	A	A	D	A	A
Approach Vol, veh/h		789			452			149			345	
Approach Delay, s/veh		12.8			1.0			32.4			44.3	
Approach LOS		B			A			C			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		71.5		28.5		71.5		28.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gmax), s		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+I1), s		28.8		22.1		2.5		9.0				
Green Ext Time (p_c), s		7.7		0.4		3.7		0.4				

Intersection Summary		
HCM 6th Ctrl Delay		17.7
HCM 6th LOS		B

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Future Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	44	52	2016	63	112	1537	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	44	52	2079	0	112	1537	381
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373
Future Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373
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	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325
Veh in Median Storage, #		0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	57	0	0	44	52	2016	63	112	1537	381

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	769	-	-	1040	1918	0	0	2079	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuver	0	0	*532	0	0	*289	447	-	-	*361	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %			1			1	1	-	-	1	-	-
Mov Cap-1 Maneuver	-	-	*532	-	-	*289	447	-	-	*361	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	19.7	0.3	1.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	447	-	-	532	289	* 361	-	-
HCM Lane V/C Ratio	0.116	-	-	0.107	0.152	0.311	-	-
HCM Control Delay (s)	14.1	-	-	12.6	19.7	19.4	-	-
HCM Lane LOS	B	-	-	B	C	C	-	-
HCM 95th %tile Q(veh)	0.4	-	-	0.4	0.5	1.3	-	-

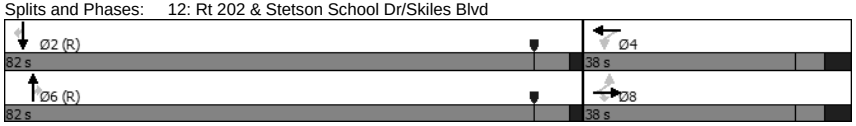
Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.911				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1732	0	0	3256	1616	0	3370	1709
Flt Permitted	0.664			0.602								
Satd. Flow (perm)	1161	1906	1589	1073	1732	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	367	151	65	62	47	68	0	2029	79	0	1961	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	151	65	62	115	0	0	2029	79	0	1961	394
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								Cl+Ex			Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								Cl+Ex			Cl+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0			82.0	82.0		82.0	82.0
Total Split (%)	31.7%	31.7%	31.7%	31.7%	31.7%			68.3%	68.3%		68.3%	68.3%
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0			75.0	75.0		75.0	75.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max		C-Max	C-Max

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow	
Natural Cycle: 110	
Control Type: Actuated-Coordinated	
Description: Signal	

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
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	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	367	151	65	62	47	68	0	2029	79	0	1961	394
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	377	568	489	315	188	272	0	2099	1005	0	2279	1057
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.25	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	1411	2066	1726	1169	683	988	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	367	151	65	62	0	115	0	2029	79	0	1961	394
Grp Sat Flow(s),veh/h/ln	1411	2066	1726	1169	0	1671	0	1635	1567	0	1776	1647
Q Serve(g_s), s	27.0	6.9	3.4	5.3	0.0	6.5	0.0	70.3	2.3	0.0	53.0	13.5
Cycle Q Clear(g_c), s	33.0	6.9	3.4	12.1	0.0	6.5	0.0	70.3	2.3	0.0	53.0	13.5
Prop In Lane	1.00		1.00	1.00		0.59	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	377	568	489	315	0	460	0	2099	1005	0	2279	1057
V/C Ratio(X)	0.97	0.27	0.13	0.20	0.00	0.25	0.00	0.97	0.08	0.00	0.86	0.37
Avail Cap(c_a), veh/h	377	568	489	315	0	460	0	2099	1005	0	2279	1057
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	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	34.0	32.0	38.8	0.0	34.6	0.0	20.3	8.1	0.0	17.2	10.1
Incr Delay (d2), s/veh	39.1	0.2	0.1	0.3	0.0	0.3	0.0	13.2	0.2	0.0	4.5	1.0
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(95%),veh/ln	21.8	6.4	2.6	2.8	0.0	4.9	0.0	34.7	1.3	0.0	27.1	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.4	34.3	32.1	39.1	0.0	34.9	0.0	33.5	8.3	0.0	21.7	11.1
LnGrp LOS	F	C	C	D	A	C	A	C	A	A	C	B
Approach Vol, veh/h		583			177			2108			2355	
Approach Delay, s/veh		67.5			36.3			32.6			20.0	
Approach LOS		E			D			C			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	82.0	38.0	82.0	38.0
Change Period (Y+Rc), s	7.0	8.0	7.0	8.0
Max Green Setting (Gmax), s	75.0	30.0	75.0	30.0
Max Q Clear Time (g_c+I1), s	55.5	14.6	72.8	35.5
Green Ext Time (p_c), s	19.5	0.6	2.2	0.0

Intersection Summary	
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

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Appendix T

Future (2030) Collector Road Internal Intersection Analysis

INTERSECTION VOLUME SUMMARY
Connector Road/Road N

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road N			NORTHBOUND Connector Road			WESTBOUND Road N			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**8**	**0**	**8**	**2**	**89**	**0**	**0**	**0**	**0**	**0**	**163**	**3**
Robinson Tract	8	0	8	2	35	0	0	0	0	0	11	3
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**8**	**0**	**8**	**2**	**89**	**0**	**0**	**0**	**0**	**0**	**163**	**3**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road N

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component	EASTBOUND Road N			NORTHBOUND Connector Road			WESTBOUND Road N			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**5**	**0**	**5**	**8**	**160**	**0**	**0**	**0**	**0**	**0**	**410**	**8**
Robinson Tract	5	0	5	8	22	0	0	0	0	0	37	8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**5**	**0**	**5**	**8**	**160**	**0**	**0**	**0**	**0**	**0**	**410**	**8**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road D

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road D			NORTHBOUND Connector Road			WESTBOUND Road D			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**21**	**0**	**52**	**16**	**70**	**0**	**0**	**0**	**0**	**0**	**164**	**7**
Robinson Tract	21	0	52	16	16	0	0	0	0	0	12	7
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**21**	**0**	**52**	**16**	**70**	**0**	**0**	**0**	**0**	**0**	**164**	**7**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road D

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Road D L	EASTBOUND Road D S	EASTBOUND Road D R	NORTHBOUND Connector Road L	NORTHBOUND Connector Road S	NORTHBOUND Connector Road R	WESTBOUND Road D L	WESTBOUND Road D S	WESTBOUND Road D R	SOUTHBOUND Connector Road L	SOUTHBOUND Connector Road S	SOUTHBOUND Connector Road R
EXISTING TRAFFIC		0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor	1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth	0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**13**	**0**	**34**	**57**	**155**	**0**	**0**	**0**	**0**	**0**	**392**	**23**
Robinson Tract		13	0	34	57	17	0	0	0	0	0	19	23
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202		0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**13**	**0**	**34**	**57**	**155**	**0**	**0**	**0**	**0**	**0**	**392**	**23**
"New" Site Traffic % of Total	####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road B (North)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road B (North)			NORTHBOUND Connector Road			WESTBOUND Road B (North)			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**4**	**0**	**2**	**1**	**82**	**0**	**0**	**0**	**0**	**0**	**215**	**1**
Robinson Tract	4	0	2	1	28	0	0	0	0	0	63	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
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**4**	**0**	**2**	**1**	**82**	**0**	**0**	**0**	**0**	**0**	**215**	**1**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road B (North)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component	EASTBOUND Road B (North) L	S	R	NORTHBOUND Connector Road L	S	R	WESTBOUND Road B (North) L	S	R	SOUTHBOUND Connector Road L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**3**	**0**	**2**	**3**	**209**	**0**	**0**	**0**	**0**	**0**	**421**	**5**
Robinson Tract	3	0	2	3	71	0	0	0	0	0	48	5
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**3**	**0**	**2**	**3**	**209**	**0**	**0**	**0**	**0**	**0**	**421**	**5**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road C

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road C			NORTHBOUND Connector Road			WESTBOUND Road C			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**78**	**1**	**3**	**0**	**5**	**0**	**217**	**0**
Robinson Tract	0	0	0	0	24	1	3	0	5	0	65	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
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**0**	**0**	**78**	**1**	**3**	**0**	**5**	**0**	**217**	**0**
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	0.0	100.0	0.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road C

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component	EASTBOUND Road C			NORTHBOUND Connector Road			WESTBOUND Road C			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**0**	**0**	**0**	**0**	**209**	**4**	**2**	**0**	**3**	**5**	**418**	**0**
Robinson Tract	0	0	0	0	71	4	2	0	3	5	45	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
Diversion A - EBL 926 to NB 202	0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**0**	**0**	**0**	**0**	**209**	**4**	**2**	**0**	**3**	**5**	**418**	**0**
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road B (South)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road B (South)			NORTHBOUND Connector Road			WESTBOUND Road B (South)			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**3**	**0**	**4**	**1**	**76**	**0**	**0**	**0**	**0**	**0**	**219**	**1**
Robinson Tract	3	0	4	1	22	0	0	0	0	0	67	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
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**3**	**0**	**4**	**1**	**76**	**0**	**0**	**0**	**0**	**0**	**219**	**1**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road B (South)

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component		EASTBOUND Road B (South) L	S	R	NORTHBOUND Connector Road L	S	R	WESTBOUND Road B (South) L	S	R	SOUTHBOUND Connector Road L	S	R
EXISTING TRAFFIC		0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor	1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth	0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND		0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC		**2**	**0**	**3**	**5**	**211**	**0**	**0**	**0**	**0**	**0**	**417**	**3**
Robinson Tract		2	0	3	5	73	0	0	0	0	0	44	3
		0	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202		0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New		0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202		0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202		0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926		0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic		0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT		**2**	**0**	**3**	**5**	**211**	**0**	**0**	**0**	**0**	**0**	**417**	**3**
"New" Site Traffic % of Total	####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road A

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM**
Design Year (2030)

Traffic Component	EASTBOUND Road A			NORTHBOUND Connector Road			WESTBOUND Road A			SOUTHBOUND Connector Road		
	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**1**	**0**	**2**	**0**	**76**	**0**	**0**	**0**	**0**	**0**	**223**	**0**
Robinson Tract	1	0	2	0	22	0	0	0	0	0	71	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
Diversion A - EBL 926 to NB 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	55	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	27	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	97	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**1**	**0**	**2**	**0**	**76**	**0**	**0**	**0**	**0**	**0**	**223**	**0**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0

INTERSECTION VOLUME SUMMARY
Connector Road/Road A

Robinson Tract
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ **Weekday 4-6 PM**
Design Year (2030)

Traffic Component	EASTBOUND Road A L	S	R	NORTHBOUND Connector Road L	S	R	WESTBOUND Road A L	S	R	SOUTHBOUND Connector Road L	S	R
EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Seasonal Adjustment Factor 1.000	0	0	0	0	0	0	0	0	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Background Growth 0.00 %	0	0	0	0	0	0	0	0	0	0	0	0
EXISTING W/ BACKGROUND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL "NEW" SITE TRAFFIC	**1**	**0**	**1**	**2**	**215**	**0**	**0**	**0**	**0**	**0**	**418**	**2**
Robinson Tract	1	0	1	2	77	0	0	0	0	0	45	2
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	54	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	24	0	0	0	0	0	0	0
Diversion F - EBR Stetson to SB 202	0	0	0	0	0	0	0	0	0	0	250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	69	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	**1**	**0**	**1**	**2**	**215**	**0**	**0**	**0**	**0**	**0**	**418**	**2**
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	8	8	2	89	163	3
Future Volume (vph)	8	8	2	89	163	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.997	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1605	0	0	1763	1759	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1605	0	0	1763	1759	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	174			133	261	
Travel Time (s)	4.7			3.0	5.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	10	10	3	111	204	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	114	208	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
1: Collector Road & Road N

Robinson Tract
2030 with Dev Weekday AM

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	8	2	89	163	3
Future Vol, veh/h	8	8	2	89	163	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	10	3	111	204	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	323	206	208	0	-	0
Stage 1	206	-	-	-	-	-
Stage 2	117	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	769	888	1019	-	-	-
Stage 1	958	-	-	-	-	-
Stage 2	1056	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	767	888	1019	-	-	-
Mov Cap-2 Maneuver	767	-	-	-	-	-
Stage 1	955	-	-	-	-	-
Stage 2	1056	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1019	-	823	-	-
HCM Lane V/C Ratio	0.002	-	0.024	-	-
HCM Control Delay (s)	8.5	0	9.5	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	21	52	16	70	164	7
Future Volume (vph)	21	52	16	70	164	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904				0.994	
Flt Protected	0.986			0.991		
Satd. Flow (prot)	1573	0	0	1749	1754	0
Flt Permitted	0.986			0.991		
Satd. Flow (perm)	1573	0	0	1749	1754	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	209			58	104	
Travel Time (s)	5.7			1.3	2.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	26	65	20	88	205	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	91	0	0	108	214	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
2: Collector Road & Road D

Robinson Tract
2030 with Dev Weekday AM

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	52	16	70	164	7
Future Vol, veh/h	21	52	16	70	164	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	65	20	88	205	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	338	210	214	0	-	0
Stage 1	210	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	754	883	1015	-	-	-
Stage 1	953	-	-	-	-	-
Stage 2	1043	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	738	883	1015	-	-	-
Mov Cap-2 Maneuver	738	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	1043	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.8	1.6	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1015	-	836	-	-
HCM Lane V/C Ratio	0.02	-	0.109	-	-
HCM Control Delay (s)	8.6	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	4	2	1	82	215	1
Future Volume (vph)	4	2	1	82	215	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.949				0.999	
Flt Protected	0.970					
Satd. Flow (prot)	1624	0	0	1765	1763	0
Flt Permitted	0.970					
Satd. Flow (perm)	1624	0	0	1765	1763	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			123	121	
Travel Time (s)	5.6			2.8	2.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	5	3	1	103	269	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	8	0	0	104	270	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	2	1	82	215	1
Future Vol, veh/h	4	2	1	82	215	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	3	1	103	269	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	375	270	270	0	-	0
Stage 1	270	-	-	-	-	-
Stage 2	105	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	716	816	971	-	-	-
Stage 1	892	-	-	-	-	-
Stage 2	1070	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	715	816	971	-	-	-
Mov Cap-2 Maneuver	715	-	-	-	-	-
Stage 1	891	-	-	-	-	-
Stage 2	1070	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.9	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	971	-	746	-	-
HCM Lane V/C Ratio	0.001	-	0.01	-	-
HCM Control Delay (s)	8.7	0	9.9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	5	78	1	0	217
Future Volume (vph)	3	5	78	1	0	217
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.999			
Flt Protected	0.980					
Satd. Flow (prot)	1589	0	1763	0	0	1765
Flt Permitted	0.980					
Satd. Flow (perm)	1589	0	1763	0	0	1765
Link Speed (mph)	25		30			30
Link Distance (ft)	251		324			216
Travel Time (s)	6.8		7.4			4.9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	6	98	1	0	271
Shared Lane Traffic (%)						
Lane Group Flow (vph)	10	0	99	0	0	271
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
4: Collector Road & Road C

Robinson Tract
2030 with Dev Weekday AM

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	5	78	1	0	217
Future Vol, veh/h	3	5	78	1	0	217
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	6	98	1	0	271

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	370	99	0	0	99	0
Stage 1	99	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	721	1021	-	-	1111	-
Stage 1	1077	-	-	-	-	-
Stage 2	891	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	721	1021	-	-	1111	-
Mov Cap-2 Maneuver	721	-	-	-	-	-
Stage 1	1077	-	-	-	-	-
Stage 2	891	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	883	1111	-
HCM Lane V/C Ratio	-	-	0.011	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	4	1	76	219	1
Future Volume (vph)	3	4	1	76	219	1
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.925					
Flt Protected	0.978			0.999		
Satd. Flow (prot)	1596	0	0	1763	1765	0
Flt Permitted	0.978			0.999		
Satd. Flow (perm)	1596	0	0	1763	1765	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	289			253	222	
Travel Time (s)	7.9			5.8	5.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	5	1	95	274	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	0	0	96	275	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	4	1	76	219	1
Future Vol, veh/h	3	4	1	76	219	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	5	1	95	274	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	372	275	275	0	-	0
Stage 1	275	-	-	-	-	-
Stage 2	97	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	719	811	967	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	1079	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	718	811	967	-	-	-
Mov Cap-2 Maneuver	718	-	-	-	-	-
Stage 1	887	-	-	-	-	-
Stage 2	1079	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	967	-	768	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Control Delay (s)	8.7	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	2	0	76	223	0
Future Volume (vph)	1	2	0	76	223	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.899					
Flt Protected	0.988					
Satd. Flow (prot)	1567	0	0	1765	1765	0
Flt Permitted	0.988					
Satd. Flow (perm)	1567	0	0	1765	1765	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	170			97	98	
Travel Time (s)	4.6			2.2	2.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	1	3	0	95	279	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	0	0	95	279	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

McMahon Associates, Inc.
6: Collector Road & Road A

Robinson Tract
2030 with Dev Weekday AM

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	2	0	76	223	0
Future Vol, veh/h	1	2	0	76	223	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	3	0	95	279	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	374	279	279	0	-	0
Stage 1	279	-	-	-	-	-
Stage 2	95	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	717	807	964	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	1082	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	717	807	964	-	-	-
Mov Cap-2 Maneuver	717	-	-	-	-	-
Stage 1	884	-	-	-	-	-
Stage 2	1082	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.7	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	964	-	775	-	-
HCM Lane V/C Ratio	-	-	0.005	-	-
HCM Control Delay (s)	0	-	9.7	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	5	8	160	410	8
Future Volume (vph)	5	5	8	160	410	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.997	
Flt Protected	0.976			0.998		
Satd. Flow (prot)	1605	0	0	1761	1759	0
Flt Permitted	0.976			0.998		
Satd. Flow (perm)	1605	0	0	1761	1759	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	174			133	261	
Travel Time (s)	4.7			3.0	5.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	6	10	200	513	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	0	0	210	523	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
1: Collector Road & Road N

Robinson Tract
2030 with Dev Weekday PM

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	5	8	160	410	8
Future Vol, veh/h	5	5	8	160	410	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	6	6	10	200	513	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	738	518	523	0	-	0
Stage 1	518	-	-	-	-	-
Stage 2	220	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	431	588	793	-	-	-
Stage 1	677	-	-	-	-	-
Stage 2	943	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	425	588	793	-	-	-
Mov Cap-2 Maneuver	425	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	943	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.5	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	793	-	493	-	-
HCM Lane V/C Ratio	0.013	-	0.025	-	-
HCM Control Delay (s)	9.6	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	34	57	155	392	23
Future Volume (vph)	13	34	57	155	392	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.992	
Flt Protected	0.987			0.987		
Satd. Flow (prot)	1571	0	0	1742	1751	0
Flt Permitted	0.987			0.987		
Satd. Flow (perm)	1571	0	0	1742	1751	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	209			58	104	
Travel Time (s)	5.7			1.3	2.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	16	43	71	194	490	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	59	0	0	265	519	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	13	34	57	155	392	23
Future Vol, veh/h	13	34	57	155	392	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	43	71	194	490	29

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	841	505	519	0	-	0
Stage 1	505	-	-	-	-	-
Stage 2	336	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	373	598	795	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	830	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	336	598	795	-	-	-
Mov Cap-2 Maneuver	336	-	-	-	-	-
Stage 1	618	-	-	-	-	-
Stage 2	830	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.3	2.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	795	-	492	-	-
HCM Lane V/C Ratio	0.09	-	0.119	-	-
HCM Control Delay (s)	10	0	13.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.4	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	3	2	3	209	421	5
Future Volume (vph)	3	2	3	209	421	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.942				0.998	
Flt Protected	0.972			0.999		
Satd. Flow (prot)	1616	0	0	1763	1761	0
Flt Permitted	0.972			0.999		
Satd. Flow (perm)	1616	0	0	1763	1761	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			123	121	
Travel Time (s)	5.6			2.8	2.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	3	4	261	526	6
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	265	532	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	2	3	209	421	5
Future Vol, veh/h	3	2	3	209	421	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	3	4	261	526	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	798	529	532	0	-	0
Stage 1	529	-	-	-	-	-
Stage 2	269	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	296	580	787	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	294	580	787	-	-	-
Mov Cap-2 Maneuver	294	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	893	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.1	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	787	-	452	-	-
HCM Lane V/C Ratio	0.005	-	0.014	-	-
HCM Control Delay (s)	9.6	0	13.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	2	3	209	4	5	418
Future Volume (vph)	2	3	209	4	5	418
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923		0.997			
Flt Protected	0.979					0.999
Satd. Flow (prot)	1595	0	1759	0	0	1763
Flt Permitted	0.979					0.999
Satd. Flow (perm)	1595	0	1759	0	0	1763
Link Speed (mph)	25		30			30
Link Distance (ft)	251		324			216
Travel Time (s)	6.8		7.4			4.9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	4	261	5	6	523
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	266	0	0	529
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	3	209	4	5	418
Future Vol, veh/h	2	3	209	4	5	418
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	261	5	6	523

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	799	264	0	0	266	0
Stage 1	264	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.3	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuver	395	823	-	-	974	-
Stage 1	898	-	-	-	-	-
Stage 2	665	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	391	823	-	-	974	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	659	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	571	974	-
HCM Lane V/C Ratio	-	-	0.011	0.006	-
HCM Control Delay (s)	-	-	11.4	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	2	3	5	211	417	3
Future Volume (vph)	2	3	5	211	417	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923				0.999	
Flt Protected	0.979			0.999		
Satd. Flow (prot)	1595	0	0	1763	1763	0
Flt Permitted	0.979			0.999		
Satd. Flow (perm)	1595	0	0	1763	1763	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	289			253	222	
Travel Time (s)	7.9			5.8	5.0	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	4	6	264	521	4
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	0	0	270	525	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type:	Unsignalized

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	3	5	211	417	3
Future Vol, veh/h	2	3	5	211	417	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	4	6	264	521	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	799	523	525	0	-	0
Stage 1	523	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	395	584	791	-	-	-
Stage 1	674	-	-	-	-	-
Stage 2	887	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	391	584	791	-	-	-
Mov Cap-2 Maneuver	391	-	-	-	-	-
Stage 1	668	-	-	-	-	-
Stage 2	887	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	791	-	488	-	-
HCM Lane V/C Ratio	0.008	-	0.013	-	-
HCM Control Delay (s)	9.6	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	1	1	2	215	418	2
Future Volume (vph)	1	1	2	215	418	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.999	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1605	0	0	1763	1763	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1605	0	0	1763	1763	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	170			97	98	
Travel Time (s)	4.6			2.2	2.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	1	1	3	269	523	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	0	0	272	526	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

McMahon Associates, Inc.
6: Collector Road & Road A

Robinson Tract
2030 with Dev Weekday PM

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	2	215	418	2
Future Vol, veh/h	1	1	2	215	418	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	3	269	523	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	800	525	526	0	-	0
Stage 1	525	-	-	-	-	-
Stage 2	275	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.3	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	295	583	791	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	293	583	791	-	-	-
Mov Cap-2 Maneuver	293	-	-	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	888	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.1	0
HCM LOS	B		

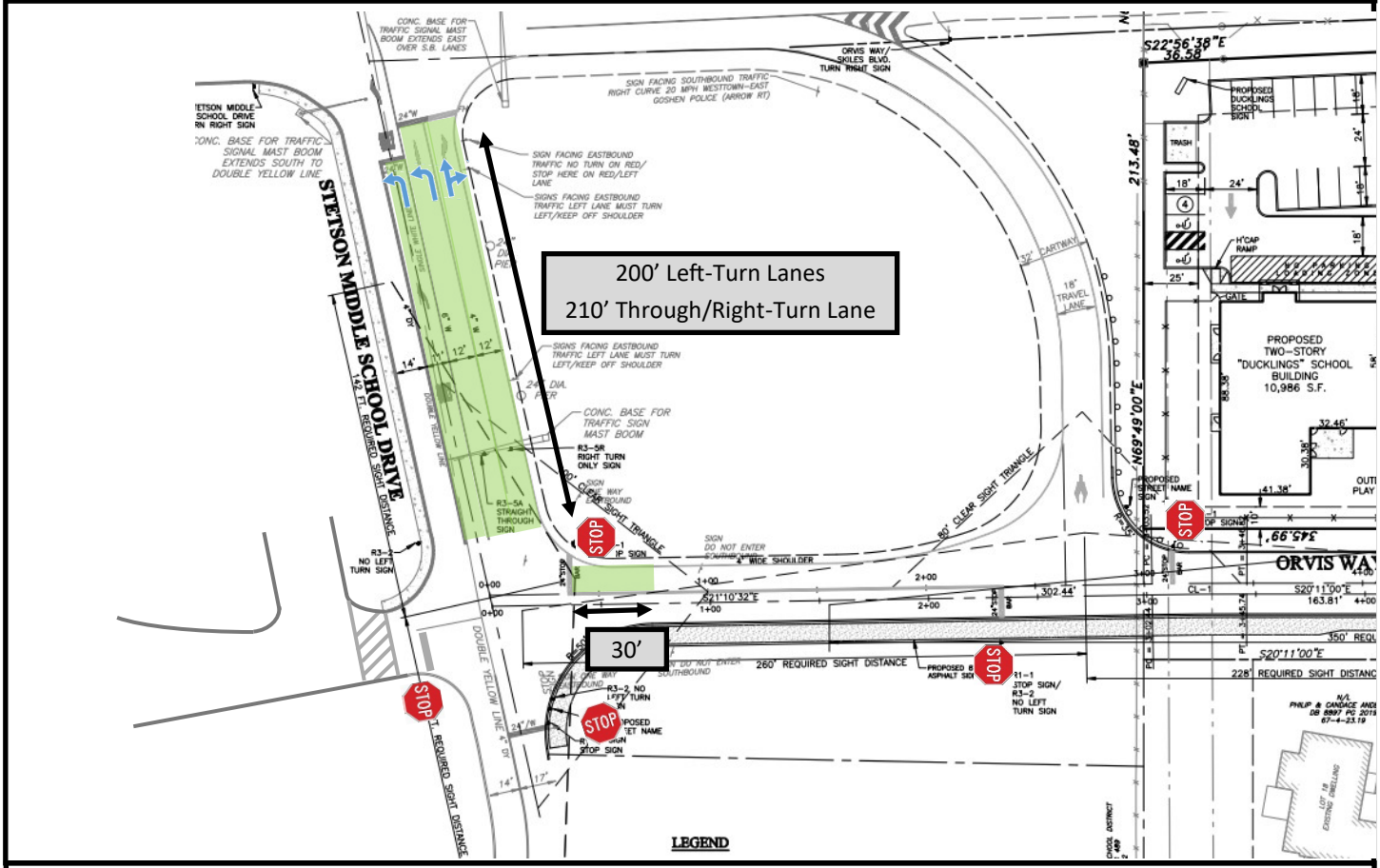
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	791	-	470	-	-
HCM Lane V/C Ratio	0.003	-	0.005	-	-
HCM Control Delay (s)	9.6	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

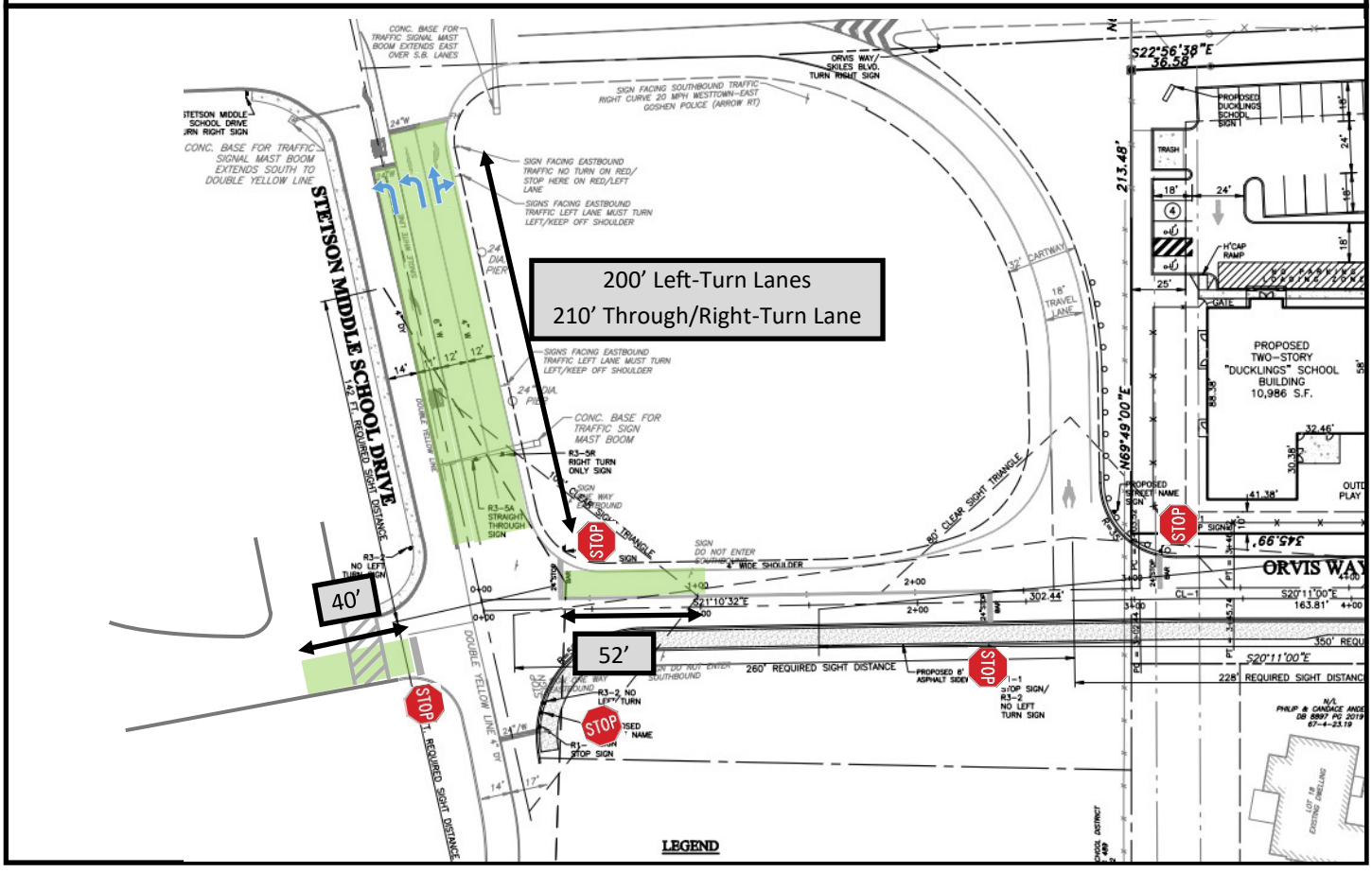
Appendix U

Wilmington Pike (U.S. Route 202) and Skiles Boulevard / Stetson Queue Illustration

FUTURE YEAR 2030 WITH DEV WEEKDAY MORNING PEAK HOUR RESULTANT QUEUES (IN FEET, BASED ON 95th PERCENTILE)



FUTURE YEAR 2030 WITH DEV WEEKDAY AFTERNOON PEAK HOUR RESULTANT QUEUES (IN FEET, BASED ON 95th PERCENTILE)



McMAHON
TRANSPORTATION ENGINEERS & PLANNERS

Appendix V

U.S. Route 202 and Street Road (S.R. 0926)
PennDOT Improvement Project
Analysis Worksheets

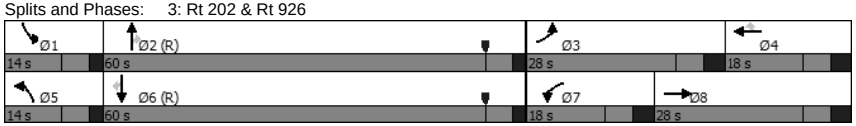
2025 Future with Development

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305		170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.983				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3051	1808	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3051	1808	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									218			218
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	499	243	32	151	172	58	23	1680	161	66	1593	98
Shared Lane Traffic (%)												
Lane Group Flow (vph)	499	275	0	151	172	58	23	1680	161	66	1593	98
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	30
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	28.0	28.0		18.0	18.0	18.0	14.0	60.0	60.0	14.0	60.0	60.0
Total Split (%)	23.3%	23.3%		15.0%	15.0%	15.0%	11.7%	50.0%	50.0%	11.7%	50.0%	50.0%
Maximum Green (s)	21.0	21.0		11.0	11.0	11.0	8.0	54.0	54.0	8.0	54.0	54.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	499	243	32	151	172	58	23	1680	161	66	1593	98
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	604	317	26	180	189	163	44	1659	784	98	1626	714
Arrive On Green	0.17	0.17	0.16	0.10	0.10	0.10	0.03	0.48	0.48	0.06	0.52	0.51
Sat Flow, veh/h	3453	1657	218	1802	1892	1630	1626	3541	1655	1514	3180	1418
Grp Volume(v), veh/h	499	0	275	151	172	58	23	1680	161	66	1593	98
Grp Sat Flow(s),veh/h/ln	1727	0	1875	1802	1892	1630	1626	1771	1655	1514	1590	1418
Q Serve(g_s), s	16.8	0.0	17.1	9.9	10.8	4.0	1.7	56.4	6.7	5.1	58.1	4.4
Cycle Q Clear(g_c), s	16.8	0.0	17.1	9.9	10.8	4.0	1.7	56.4	6.7	5.1	58.1	4.4
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	604	0	333	180	189	163	44	1659	784	98	1626	714
V/C Ratio(X)	0.83	0.00	0.83	0.84	0.91	0.36	0.52	1.01	0.21	0.67	0.98	0.14
Avail Cap(c_a), veh/h	633	0	344	180	189	163	122	1698	794	114	1645	722
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)	0.85	0.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	48.5	53.0	53.5	50.4	57.6	31.9	18.4	54.9	28.7	15.9
Incr Delay (d2), s/veh	7.3	0.0	12.8	27.9	40.8	1.3	9.3	25.2	0.6	12.0	18.0	0.4
Initial Q Delay(d3),s/veh	7.2	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.1	0.0	16.3	9.7	11.5	3.0	1.4	36.9	4.7	4.0	32.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.8	0.0	79.5	80.9	94.3	51.7	67.0	57.1	19.0	66.9	46.7	16.3
LnGrp LOS	E	A	E	F	F	D	E	F	B	E	D	B
Approach Vol, veh/h		774			381			1864			1757	
Approach Delay, s/veh		68.8			82.5			54.0			45.7	
Approach LOS		E			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.8	62.5	26.7	18.0	8.2	67.1	18.0	26.7
Change Period (Y+Rc), s	6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	8.0	54.0	21.0	11.0	8.0	54.0	11.0	21.0
Max Q Clear Time (g_c+I1), s	7.6	58.9	19.3	13.3	4.2	60.6	12.4	19.1
Green Ext Time (p_c), s	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

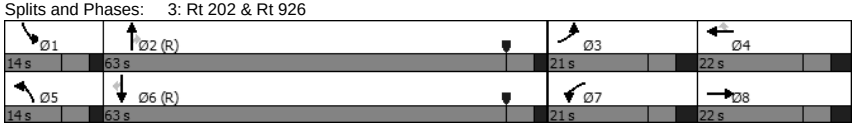
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305		170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155			155
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	330	221	44	211	253	68	64	1676	129	98	1326	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	330	265	0	211	253	68	64	1676	129	98	1326	69
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	30
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	21.0	22.0		21.0	22.0	22.0	14.0	63.0	63.0	14.0	63.0	63.0
Total Split (%)	17.5%	18.3%		17.5%	18.3%	18.3%	11.7%	52.5%	52.5%	11.7%	52.5%	52.5%
Maximum Green (s)	14.0	15.0		14.0	15.0	15.0	8.0	57.0	57.0	8.0	57.0	57.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

McMahon Associates, Inc. Robinson Tract
3: Rt 202 & Rt 926 2025 with Dev Weekday Afternoon Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B - 2025 with Dev with PennDOT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1730
Adj Flow Rate, veh/h	330	221	44	211	253	68	64	1676	129	98	1326	69
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	5
Cap, veh/h	421	241	6	232	259	223	105	1751	818	129	1663	723
Arrive On Green	0.12	0.13	0.13	0.13	0.13	0.13	0.06	0.48	0.48	0.08	0.50	0.49
Sat Flow, veh/h	3401	1586	316	1856	1935	1668	1856	3622	1693	1714	3313	1466
Grp Volume(v), veh/h	330	0	265	211	253	68	64	1676	129	98	1326	69
Grp Sat Flow(s),veh/h/ln	1700	0	1902	1856	1935	1668	1856	1811	1693	1714	1657	1466
Q Serve(g_s), s	11.3	0.0	16.0	13.5	15.6	4.4	4.0	53.4	5.1	6.7	39.9	3.0
Cycle Q Clear(g_c), s	11.3	0.0	16.0	13.5	15.6	4.4	4.0	53.4	5.1	6.7	39.9	3.0
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	421	0	260	232	259	223	105	1751	818	129	1663	723
V/C Ratio(X)	0.78	0.00	1.02	0.91	0.98	0.30	0.61	0.96	0.16	0.76	0.80	0.10
Avail Cap(c_a), veh/h	425	0	254	232	261	225	139	1751	818	129	1663	723
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)	0.82	0.00	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	52.0	51.8	51.8	46.9	55.3	29.8	17.3	54.5	29.9	16.2
Incr Delay (d2), s/veh	7.7	0.0	55.5	35.6	49.2	0.8	5.6	13.5	0.4	23.1	4.1	0.3
Initial Q Delay(d3),s/veh	1.7	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	255.3	0.0
%ile BackOfQ(95%),veh/ln	8.9	0.0	21.8	13.1	16.3	3.3	3.6	32.7	3.6	6.6	89.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.6	0.0	176.7	87.5	101.0	47.7	60.9	43.3	17.7	77.6	289.3	16.4
LnGrp LOS	E	A	F	F	F	D	E	D	B	E	F	B
Approach Vol, veh/h		595			532			1869			1493	
Approach Delay, s/veh		112.3			88.8			42.2			262.8	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	63.0	20.8	22.2	11.8	65.2	21.0	22.0
Change Period (Y+Rc), s	6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	8.0	57.0	14.0	15.0	8.0	57.0	14.0	15.0
Max Q Clear Time (g_c+I1), s	9.2	55.9	13.8	18.1	6.5	42.4	16.0	18.0
Green Ext Time (p_c), s	0.0	1.0	0.0	0.0	0.0	10.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	130.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

2030 Future with Development

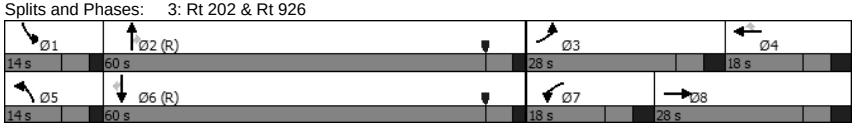
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305		170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.983				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3051	1809	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3051	1809	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									218			218
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	512	249	32	155	176	60	24	1724	165	67	1634	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	512	281	0	155	176	60	24	1724	165	67	1634	100
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	30
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	28.0	28.0		18.0	18.0	18.0	14.0	60.0	60.0	14.0	60.0	60.0
Total Split (%)	23.3%	23.3%		15.0%	15.0%	15.0%	11.7%	50.0%	50.0%	11.7%	50.0%	50.0%
Maximum Green (s)	21.0	21.0		11.0	11.0	11.0	8.0	54.0	54.0	8.0	54.0	54.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

McMahon Associates, Inc. Robinson Tract
3: Rt 202 & Rt 926 2030 with Dev Weekday Morning Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B - 2030 with Dev.pdf with PennDOT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Initial Q (Qb), veh	8	7	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	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	512	249	32	155	176	60	24	1724	165	67	1634	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	613	326	25	180	189	163	45	1656	779	99	1607	709
Arrive On Green	0.18	0.18	0.17	0.10	0.10	0.10	0.03	0.48	0.48	0.07	0.51	0.51
Sat Flow, veh/h	3453	1662	214	1802	1892	1630	1626	3541	1655	1514	3180	1418
Grp Volume(v), veh/h	512	0	281	155	176	60	24	1724	165	67	1634	100
Grp Sat Flow(s),veh/h/ln	1727	0	1876	1802	1892	1630	1626	1771	1655	1514	1590	1418
Q Serve(g_s), s	17.2	0.0	17.4	10.2	11.1	4.1	1.7	57.1	7.0	5.2	61.6	4.5
Cycle Q Clear(g_c), s	17.2	0.0	17.4	10.2	11.1	4.1	1.7	57.1	7.0	5.2	61.6	4.5
Prop In Lane	1.00		0.11	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	613	0	337	180	189	163	45	1656	779	99	1607	709
V/C Ratio(X)	0.84	0.00	0.83	0.86	0.93	0.37	0.53	1.04	0.21	0.67	1.02	0.14
Avail Cap(c_a), veh/h	633	0	344	180	189	163	122	1684	787	114	1633	716
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)	0.84	0.00	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.2	0.0	48.4	53.2	53.6	50.5	57.6	31.9	18.7	54.8	29.7	16.2
Incr Delay (d2), s/veh	7.9	0.0	13.5	31.8	45.9	1.4	9.3	33.6	0.6	12.4	26.7	0.4
Initial Q Delay(d3),s/veh	7.5	0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	13.4	0.0	16.6	10.1	12.0	3.1	1.5	40.0	4.9	4.1	36.0	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.6	0.0	80.4	85.0	99.5	51.8	66.8	65.5	19.3	67.2	56.3	16.6
LnGrp LOS	E	A	F	F	F	D	E	F	B	E	F	B
Approach Vol, veh/h		793			391			1913			1801	
Approach Delay, s/veh		69.5			86.4			61.5			54.5	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.9	62.1	27.0	18.0	8.3	66.6	18.0	27.0
Change Period (Y+Rc), s	6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	8.0	54.0	21.0	11.0	8.0	54.0	11.0	21.0
Max Q Clear Time (g_c+I1), s	7.7	59.6	19.7	13.6	4.2	64.1	12.7	19.4
Green Ext Time (p_c), s	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	62.2
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

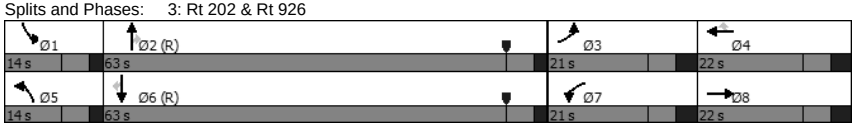
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305		170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.975				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155			155
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	338	227	45	218	259	69	65	1720	132	101	1366	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	338	272	0	218	259	69	65	1720	132	101	1366	71
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	30
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	40
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2		1	6	
Permitted Phases						4			2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	21.0	22.0		21.0	22.0	22.0	14.0	63.0	63.0	14.0	63.0	63.0
Total Split (%)	17.5%	18.3%		17.5%	18.3%	18.3%	11.7%	52.5%	52.5%	11.7%	52.5%	52.5%
Maximum Green (s)	14.0	15.0		14.0	15.0	15.0	8.0	57.0	57.0	8.0	57.0	57.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

McMahon Associates, Inc. Robinson Tract
3: Rt 202 & Rt 926 2030 with Dev Weekday Afternoon Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 135	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B - 2030 with Dev with PennDOT

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	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	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1730
Adj Flow Rate, veh/h	338	227	45	218	259	69	65	1720	132	101	1366	71
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	5
Cap, veh/h	425	245	6	232	258	222	106	1751	818	129	1660	722
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.06	0.48	0.48	0.08	0.50	0.49
Sat Flow, veh/h	3401	1587	315	1856	1935	1668	1856	3622	1693	1714	3313	1466
Grp Volume(v), veh/h	338	0	272	218	259	69	65	1720	132	101	1366	71
Grp Sat Flow(s),veh/h/ln	1700	0	1902	1856	1935	1668	1856	1811	1693	1714	1657	1466
Q Serve(g_s), s	11.6	0.0	16.0	14.0	16.0	4.5	4.1	56.1	5.2	6.9	42.0	3.1
Cycle Q Clear(g_c), s	11.6	0.0	16.0	14.0	16.0	4.5	4.1	56.1	5.2	6.9	42.0	3.1
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	425	0	260	232	258	222	106	1751	818	129	1660	722
V/C Ratio(X)	0.80	0.00	1.05	0.94	1.00	0.31	0.61	0.98	0.16	0.79	0.82	0.10
Avail Cap(c_a), veh/h	425	0	254	232	258	222	139	1751	818	129	1660	722
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)	0.80	0.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.2	0.0	52.0	52.1	52.0	47.0	55.3	30.5	17.4	54.6	29.9	16.2
Incr Delay (d2), s/veh	8.2	0.0	62.5	42.6	57.0	0.8	5.6	17.7	0.4	26.7	4.7	0.3
Initial Q Delay(d3),s/veh	1.7	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	267.1	0.0
%ile BackOfQ(95%),veh/ln	9.0	0.0	22.6	14.0	17.2	3.4	3.7	35.1	3.7	7.0	92.3	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.2	0.0	183.7	94.6	109.0	47.8	60.9	48.2	17.8	81.2	301.8	16.5
LnGrp LOS	E	A	F	F	F	D	E	D	B	F	F	B
Approach Vol, veh/h		610			546			1917			1538	
Approach Delay, s/veh		115.8			95.5			46.6			274.1	
Approach LOS		F			F			D			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.0	63.0	21.0	22.0	11.9	65.1	21.0	22.0
Change Period (Y+Rc), s	6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0
Max Green Setting (Gmax), s	8.0	57.0	14.0	15.0	8.0	57.0	14.0	15.0
Max Q Clear Time (g_c+I1), s	9.4	58.6	14.1	18.5	6.6	44.5	16.5	18.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	9.4	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	137.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.