96 South George Street, Suite 520, York, Pennsylvania 17401
Tel: (717) 845-1524 • Fax: (717) 854-6999 • www.mpl-law.com

Cory J. Dillinger, Direct E-mail:
cdillinger@mpl-law.com

September 14, 2026

York Township Zoning Hearing Board
Attn: Lisa Frye, Zoning Officer
190 Oak Road
Dallastown, PA 17313

Via FedEx Overnight and Email to:
l.frye@yorktownshippa.gov

Re: Heritage Hills Associates – Special Exception Application – Heritage Hills Residential Development, Chestnut Hill Road, Allen Road, And Camp Betty Washington Road, York Township, York County, Pennsylvania (the "**Project**")

Dear Zoning Hearing Board:

On behalf of Heritage Hills Associates (the "***Applicant***"), please find the attached Special Exception Application in connection with the Project. For ease of reference, the Special Exception Application package, in addition to a MPL Law Firm Check No. 11956 in the amount of $450.00, includes the following:

1. **Exhibit A** – Special Exception Application;
2. **Exhibit B** – Supplemental Narrative - A narrative which comprehensively outlines the background of the Project, the Special Exception request and all other applicable regulations ;
3. **Exhibit C** – Property Deeds;
4. **Exhibit D** – Heritage Hills Residential Development Sketch Plan, prepared by David Miller Associates, Job No. 25-163.1, dated September 10, 2026; and
5. **Exhibit E** – Traffic Impact Study, prepared by TPD, Inc., dated August 31, 2026, as revised.

We would like to be placed on the next available Planning Commission Agenda. If any other materials are needed, or you have any other questions concerning the application packet or agenda scheduling, please contact me at (717) 845-1524 or cdillinger@mpl-law.com.

Very truly yours,

Cory Dillinger

MPL LAW FIRM, LLP

Cory J. Dillinger, Esquire

Cc: Client (via email)

Case No. _____

YORK TOWNSHIP
190 Oak Road
Dallastown, PA 17313-9300
Phone 717-741-3861 Fax 717-741-5009

APPLICATION FOR SPECIAL EXCEPTION

APPLICANT INFORMATION

Name: Heritage Hills Associates

Address: 820 Heritage Hills Drive City/State/Zip York, PA 17402

Phone: 717-324-0706 Fax: _____

► *If applicant is not the owner, owner must also provide consent by signing this application where indicated on pg. 3.*

PROPERTY OWNER INFORMATION

Name: Heritage Hill Associates

Address: 820 Heritage Hills Drive City/State/Zip York, PA 17402

Phone: 717-324-0706 Fax: _____

PROPERTY INFORMATION

Property Address: 54-000-IJ-0262.00-00000, Chestnut Hill Road and 54-000-IJ-0044.A0-00000, Camp Betty Washington Road, 54-000-IJ-0258.00-00000, Chestnut Hill Road, and 54-000-54-0153.00-00000, Allen Road

City/State/Zip York, PA 17402

Existing Use Vacant - Former Quarry/Golf Course Proposed Use Mix of Single-Family Homes, and Multi-Family Dwellings (both townhouses and apartments)

Total property (lot) area (square feet or acres): 52.545 acres

A copy of a survey or site plan drawn to scale showing all existing and proposed building structures, driveways, parking, landscaping, property lines, etc. MUST BE SUBMITTED WITH APPLICATION.

FOR OFFICE USE ONLY – APPLICATION SUBMITTAL CHECKLIST

Date Received _____ Fees Paid _____

Map and Parcel _____ **Existing Zoning District** _____

F:\USERS\GARY\Web\YorkTwp\Departments\building-zoning\SPECIALEXCEPTION APPLICATION.DOC
Last printed 12/3/2008 11:37 AM

REQUEST FOR SPECIAL EXCEPTION-ZONING ORDINANCE SECTION # 265-403.C.7 and 265-405.C.1

1. SPECIAL EXCEPTION(S) REQUESTED: Applicant is proposing Multi-Family dwellings (both townhouses and apartments) in the Township's Residential High Density and Mixed Residential Commercial zoning districts.

2.THE SPECIFIC SITE IS AN APPROPRIATE LOCATION FOR THE USE OR STRUCTURE BECAUSE: See Applicant's Supplemental Narrative attached as Exhibit B. Additionally, Applicant submits Exhibit A-E.

3. HOW WILL THE REQUEST AFFECT ADJACENT PROPERTIES noise, odor, dust, fumes, effect on traffic, character of neighborhood, etc?

See Applicant's Supplemental Narrative attached as Exhibit B. Additionally, Applicant submits Exhibit A-E.

4. NONCONFORMITIES: DIMENSIONAL N/A **LOT** N/A **USE** N/A

EXISTING SETBACKS Vacant lot

FRONT Vacant lot **REAR** Vacant lot **SIDES** Vacant lot

PROPOSED SETBACKS Listed as Residential High Density/Mixed Residential Commercial

FRONT 20/20 **REAR** 25/15 **SIDES** 10/10

EXISTING SQUARE FOOTAGE OF STRUCTURE N/A

PROPOSED ADDITIONAL SQUARE FOOTAGE See Applicant's Sketch Plan as Exhibit D.

PERCENTAGE (%) OF EXPANSION See Applicant's Sketch Plan as Exhibit D.

5. GENERAL INFORMATION:

What type of business is proposed? Mix of Single-Family Homes, and Multi-Family Dwellings (both townhouses and apartments)

What are the days and hours of operation? Typical home hours

What is the # of employees employed by the business? N/A

Do employees work on the premises or off-site? N/A

What is the finished gross floor area of the primary dwelling? N/A sq.ft.

If the existing dwelling will be utilized by the proposed use, what is the gross floor area of the area to be used within the primary dwelling? N/A sq.ft.

If an accessory structure is being utilized by the proposed use, what is the gross floor area of the structure? N/A sq.ft.

Will there be a necessity to maintain outside storage? N/A

If yes, provide a general list of materials, equipment, and/or supplies.

Will the storage be placed within a structure or will it be screened from adjoining properties or roadways? N/A

Does screening currently exist or is it proposed? Screening proposed. See Applicant's Sketch Plan as Exhibit D.

If proposed, indicate location, type proposed, and maximum height See Applicant's Sketch Plan as Exhibit D.

Will the business require fleet parking? N/A

If so, provide # of vehicles

How many off-street parking spaces will be provided on the premises? See Applicant's Sketch Plan attached as Exhibit D which depicts proposed parking.

What is the anticipated volume of traffic expected on a daily basis? See Applicant's Traffic Impact Study attached as Exhibit E.

Provide information for signs and proposed exterior lighting as to glare, traffic safety, economic effect, compatibility and harmony with properties in the district.

See Applicant's Supplemental Narrative attached as Exhibit B. Additionally, Applicant submits Exhibit A-E.

YOU OR YOUR REPRESENTATIVE NEED TO PRESENT YOUR REQUEST TO THE PLANNING COMMISSION AND ZONING HEARING BOARD AND BE AVAILABLE TO ANSWER QUESTIONS, IF NEEDED. IF YOU OR YOUR REPRESENTATIVE AREN'T AT THE MEETING, YOUR REQUEST WILL BE TABLED/DENIED.

PLEASE NOTE: It is your responsibility to locate your property lines and to check your deed for easements and restrictive covenants.

CERTIFICATION: I/we, the undersigned, do hereby certify that:

1. The information submitted herein is true and correct to the best of my/our knowledge and upon submittal becomes public record;

2. Fees are not refundable and payment does not guarantee approval; and

3. All additional required written and graphic materials are attached.

Property Owner(s): Matthew J. DeRose **Date:** 09/14/2026

Applicant/Agent: Matthew J. DeRose **Date:** 09/14/2026

THIS SECTION FOR USE BY THE ZONING OFFICER ONLY:

RECORD OF ZONING HEARING BOARD, MOTION MADE TO: GRANT:_____ DENY:_____

MEETING DATE:_____

MOTION BY:_____ SECOND:_____ VOTE:_____

EXHIBIT B
Supplemental Narrative

HERITAGE HILLS ASSOCIATES
HERITAGE HILLS RESIDENTIAL DEVELOPMENT
SUPPLEMENTAL NARRATIVE STATEMENT

Parcels: 54-000-IJ-0262.00-00000, 54-000-IJ-0044.A0-00000, 54-000-IJ-0258.00-00000 and 54-000-54-0153.00-00000
Chestnut Hill Road, Allen Road, and Camp Betty Washington Road
York Township, York County, Pennsylvania

Background

Heritage Hills Associates (the "***Applicant***") submits this Supplemental Narrative Statement in support of its request for special exception approval for multifamily dwellings, *inter alia*, proposed as part of the Heritage Hills Residential Development (the "***Development***") in York Township, York County, Pennsylvania (the "***Township***"). The Project Sketch Plans submitted as Exhibit D show the location, layout and dimensions of the Project (the "***Sketch Plan***"). The Project will be subject to a land development plan following special exception approval at which time the full details of the Project will be developed.

The Development is proposed on the properties identified as York County Tax Parcel Nos. 54-000-IJ-0262.00-00000, 54-000-IJ-0044.A0-00000, 54-000-IJ-0258.00-00000 and 54-000-54-0153.00-00000, located along Chestnut Hill Road, Allen Road, and Camp Betty Washington Road (collectively, the "***Property***"), pursuant to a Deed dated March 14, 2011, recorded in the York County Recorder of Deeds Office at Record Book 2119, Page 4589, a Deed dated March 9, 2009, recorded in the York County Recorder of Deeds Office at Record Book 2009, Page 0146 and a Deed dated January 23rd, 2004, recorded in the York County Recorder of Deeds Office at Record Book 1654, Page 7763. The Applicant is also the Property owner. A copy of the deeds have been provided as Exhibit C and is incorporated herein by reference. The Property is located in both the Township's Residential High Density ("***RHD***") Zone and the Township's Mixed Residential-Commercial ("***MR-C***") Zone.

The Property formerly operated as a golf course and includes landforms affected by prior quarrying and grading activities. The Applicant proposes to redevelop the Property as a coordinated residential community containing 27 single-family detached dwelling units, 120 single-family attached dwelling units, and 300 multifamily low-rise dwelling units, for a total of 447 dwelling units, together with internal streets, parking areas, utilities, stormwater management facilities, open space, landscaping, and related improvements.

Approximately 95% of the Property is located principally in the Township's RHD Zone, and the remainder is located in the MR-C Zone, but the multifamily component for which the special exception approval is requested is proposed almost entirely within the RHD Zone.

Development Information

The Development is designed as a single, coordinated residential community. The western portion will contain 121 single-family attached dwelling units and 25 single-family detached dwelling units generally located near the perimeter of the site. The eastern portion will contain the 300 multifamily low-rise dwelling units that are the subject of this Application. The overall Development will also include common open space, landscaping, internal streets, parking facilities, pedestrian connections, utilities, stormwater management facilities, and related site improvements.

Primary vehicular access is proposed through two connections: one full-movement local road connection to Shawna Avenue and the extension of Alexis Drive into the site, which will connect with the existing Bridgewater residential community.

Traffic Planning and Design, Inc. ("***TPD***") prepared a Transportation Impact Study for the Development dated August 31, 2026, TPD Project No. INCH.00013, attached to the Application as Exhibit E (the "***TIS***"). The TIS evaluates the anticipated traffic effects of the full 447-unit Development, including 27 single-family detached units, 120 single-family attached units, and 300 multifamily low-rise units, on the surrounding roadway network. The study area and scope were developed based on the July 23, 2026 scoping request and feedback from the Township Engineer.

The TIS projects that the Development will generate 198 total vehicle trips during the weekday morning peak hour and 241 total vehicle trips during the weekday afternoon peak hour at full build-out. The TIS further concludes that all study-area intersections are projected to operate at overall Level of Service D or better under 2035 build conditions. At the intersection of Chestnut Hill Road and Camp Betty Washington Road, the TIS identifies a projected afternoon peak-hour increase from overall Level of Service C under no-build conditions to Level of Service D under build conditions. The TIS evaluates the Township Capital Improvement Plan recommendation for all-way stop control at that intersection and concludes that, with that improvement, the intersection would operate at overall Level of Service C and no additional improvement would be required.

The TIS recommends that the proposed Shawna Avenue site access be designed as a full-movement local road in accordance with Township standards, with one entering lane, one exiting lane, stop control on the egress approach, and perpetually maintained sight distance. The TIS also provides for payment of the applicable Township transportation impact fee.

The proposed multifamily dwellings will be served by public water and public sanitary sewer. The Development will include stormwater management facilities designed in accordance with applicable Township and other regulatory requirements. Detailed utility, grading, stormwater, landscaping, and engineering plans will be provided and reviewed through the subdivision and land development process.

Legal Standard

Applicant's request for a Special Excerption is made pursuant to Section 265-1009 of the Township's Zoning Ordinance (the "***Zoning Ordinance***[1]"). The standard applied to a special exception is as follows:

> An application for a special exception is to be granted or denied by the [governing board] pursuant to the express standards and criteria of the ordinance. An applicant for a special exception has both the duty of presenting evidence and the burden of persuading the zoning hearing board that his or her proposed use satisfies the objective requirements of zoning ordinance for the grant of special exception. Once an applicant for a special exception establishes compliance with the specific objective criteria of the zoning ordinance, it is presumed that the use is consistent with the promotion of the public health, safety, and welfare.
>
> After an applicant for a special exception to a zoning ordinance has met his or her burden of proving that his or her proposed use satisfies the objective requirements of the zoning ordinance, the burden shifts to the objector to the application. The burden placed on objectors to rebut a proposed special exception to a zoning ordinance is a heavy one, and has been characterized as requiring the objector to:
>
> - prove to a high degree of probability that the impact from the proposed use will substantially affect the health, safety, and welfare of the community to a greater extent than would be expected normally from that type of use.
> - present evidence and persuade the zoning hearing board that the proposed use will have a generally detrimental effect on health, safety, and welfare.
> - prove that the special exception use would have an adverse effect on the general public that is not normally associated with the proposed use or that it would conflict with the expressions of general policy contained in the ordinance.
>
> In order to meet their burden, objectors cannot merely speculate as to possible harm. Testimony based on specific past experiences can satisfy this burden, but bald assertions, personal opinions, and speculation will not.
>
> Summary Pa. Jur. Property § 24:159.

Furthermore, aesthetics alone cannot be the sole basis for denying zoning relief. See White Advert. Metro, Inc. v. Zoning Hearing Bd. of Susquehanna Twp., 453 A.2d 29, 35 (Pa. Cmwlth. 1982) ("[W]hile we recognize the legitimate interest of the Township to advance its aesthetic goals as part of its protection of the general welfare, purely aesthetic judgments are far too subjective to alone carry the burden of showing detriment to the public interest.") See also,

[1] All references are made to the Township's Zoning Ordinance unless otherwise indicated.

Republic First Bank v. Marple Township Zoning Hearing Board, 242 A.3d 999 (Pa. Cmwlth. 2020); Heck v. Zoning Hearing Bd. for Harvey's Lake Borough, 397 A.2d 15, 19 (Pa. Cmwlth. 1979). When reviewing specific ordinance criteria, Section 603.1 of the Municipalities Planning Code provides that to the extent that a provision in the ordinance is ambiguous, the ordinance should be construed in favor of the landowner. 53 P.S. § 10603.1. Moreover, "in resolving a conflict between provisions in a zoning ordinance, the more specific provisions control over the more general ones." Latimore Twp. v. Latimore Twp. Zoning Hearing Bd., 58 A.3d 883, 887 (Pa. Cmwlth. 2013).

Summary of Requested Zoning Relief

The Applicant requests special exception approval pursuant to Section 265-649 of the Zoning Ordinance to permit Multi-Family Dwellings, within the portions of the Property located in the RH and MR-C Districts.

The proposed multifamily component is located on the eastern portion of the Development and consists of 300 low-rise multifamily dwelling units, with associated parking, internal circulation, pedestrian facilities, landscaping, utilities, stormwater management facilities, play areas, open space, and related improvements, as generally depicted on the Sketch Plan.

No variance is requested as part of this application. The Applicant's separate request for modification of the Township Subdivision and Land Development Ordinance ("***SALDO***") concerning precautionary and prohibitive steep slopes is not a request for zoning variance relief and will be considered separately through the Township's SALDO modification process and then subsequently through the Township's subdivision and land development process.

Specific Multi-Family Dwelling Standards - Section 265-649

The Township has determined through its enactment of Section 265-649 that Multi-Family Dwellings are an appropriate use in both the RH and MR-C Districts when the standards of that section are satisfied. The Applicant addresses the specific standards of Section 265-649 as follows (responses italicized):

A. The minimum lot area shall be one acre, calculated on Net Lot Area, and the total lot area shall provide at least 1,000 square feet per efficiency unit, 1,500 square feet per one-bedroom unit, 2,000 square feet per two-bedroom unit, and 2,500 square feet per unit containing three or more bedrooms.

The multifamily component will be located on a lot containing at least one acre of Net Lot Area. The Sketch Plan demonstrates compliance with the minimum Net Lot Area requirements of Section 265-649.A. Detailed density and bedroom mix calculations will be provided as part of the subdivision and land development process.

B. All buildings shall be set back at least 50 feet from property lines or street rights-of-way, and a Type C buffer planting strip consistent with Section 610 of the SALDO shall be planted within that 50-foot area.

As reflected on the Sketch Plan, all multifamily buildings will be set back at least 50 feet from applicable property lines and street rights-of-way. A Type C buffer planting strip will be provided within the required area, with final planting details to be reviewed through the subdivision and land development process.

C. Lot width shall be at least 200 feet.

The lot containing the multifamily component will provide at least 200 feet of lot width, as reflected on the Sketch Plan.

D. The Multi-Family Dwelling complex shall have two points of access from public streets, and all units shall be accessible only from interior private streets.

The Development will have two points of access from public streets: a full-movement local road connection to Shawna Avenue and an extension of Alexis Drive connecting the site to the existing Bridgewater residential community. The multifamily units will be accessed from interior private streets and drives, as generally depicted on the Sketch Plan.

E. Minimum landscaped and equipped play areas and open space shall be provided per dwelling unit according to the schedule in Section 265-649.E.

1. Efficiency units: 5 s.f. play area and 300 s.f. open space
2. One-bedroom units: 20 s.f. play area and 500 s.f. open space
3. Two-bedroom units: 40 s.f. play area and 700 s.f. open space
4. Three or more bedroom units: 80 s.f. play area and 900 s.f. open space

The Development will provide landscaped and equipped play areas and open space meeting the applicable per-unit requirements based upon the final bedroom mix. The required and proposed calculations are identified on the first sheet of the Sketch Plan and further detailed during subdivision and land development review.

F. Maximum building height may be increased to 65 feet if each building or structure is set back a distance equal to its height. For buildings exceeding 55 feet, the Applicant must provide the additional material required by Section 265-649.F.

The multifamily buildings will comply with the applicable building-height and corresponding setback requirements of Section 265-649.F. No variance from the building-height requirements is requested.

District Requirements

In addition to satisfying the use-specific requirements of Section 265-649, the proposed Development complies with the applicable dimensional and development standards of the RHD Zone and the MR-C Zone, as reflected on the Sketch Plan.

RHD Zone:

Minimum Setbacks: *Residential uses within the RHD Zone comply with the required twenty-foot (20') front setback, ten-foot (10') side setback, and twenty-five-foot (25') rear setback requirements. Compliance with the applicable setback requirements is demonstrated on the Sketch Plan.*

Maximum Building Height: *Buildings located within the RH District comply with the applicable building height requirements of the Zoning Ordinance. Building heights, setbacks, and dimensional information are identified on the Sketch Plan.*

Lot Area, Width, Frontage and Coverage: *The proposed single-family detached dwellings, single-family attached dwellings, and other improvements located within the RH District comply with the applicable minimum lot area, lot width, lot frontage, and maximum lot coverage requirements of the Zoning Ordinance. Compliance is reflected on the zoning data and calculations included on the Sketch Plan.*

Single-Family Attached Dwellings: *No building containing single-family attached dwelling units will exceed eight (8) connected dwelling units, as required by Section 265-403.G of the Zoning Ordinance and as reflected on the Sketch Plan.*

MR-C Zone:

Minimum Setbacks: *Residential uses within the MR-C District comply with the required twenty-foot (20') front setback, ten-foot (10') side setback, and fifteen-foot (15') rear setback requirements. Compliance is demonstrated on the Sketch Plan.*

Maximum Building Height: *Buildings located within the MR-C District comply with the applicable height requirements of the Zoning Ordinance. Compliance is reflected on the Sketch Plan.*

Lot Area, Width, Frontage and Coverage: *The proposed Development complies with the applicable lot area, lot width, lot frontage, and lot coverage requirements of the MR-C District. Compliance is reflected on the zoning data and calculations included on the Sketch Plan.*

Density: *The portion of the Property located within the MR-C District consists of approximately 2.35 acres, a substantial portion of which is constrained by floodplain and steep slopes. Only a de minimis portion of the proposed residential development extends into the MR-C District, consisting of approximately 816 square feet associated with two*

single-family dwellings. During discussions with Township representatives, the environmental and topographic limitations of the MR-C area were acknowledged. Accordingly, the proposed Development complies with the intent of the MR-C District requirements, and the limited residential encroachment into the MR-C District does not warrant development of a separate commercial component within that constrained area.

General Special Exception Criteria

Section 265-1009.C sets forth the general standards to be applicable to special exception. There is a presumption that a land use permitted by a special exception is a conditionally permitted use, legislatively allowed if the objective standards set forth in the zoning ordinance are met. Marr Development Mifflinville, LLC v. Mifflin Township Zoning Hearing Board, 166 A.3d 479 (Pa. Cmwlth. 2017); Oakland Planning and Development Corp. v. City of Pittsburgh Planning Com'n, 107 A.3d 873 (Pa. Cmwlth. 2015). Applicant further meets the general special exception requirements of Section 265-1009.C of the Zoning Ordinance as follows (responses italicized):

1. Purpose. The intended purpose of the proposed use must be consistent with the Township's development objectives as established in the Comprehensive Plan.

The proposed Multi-Family Dwelling use is consistent with the Township's planning objectives and the legislative determination embodied in Section 265-649 of the Zoning Ordinance, which expressly permits Multi-Family Dwellings by special exception within the RH and MR-C Districts. The proposed Development provides a coordinated residential community consisting of multiple housing types, integrated open space, pedestrian connections, landscaping, public utilities, and transportation infrastructure, thereby furthering the Township's residential development objectives.

2. Compatibility. The proposed use shall be in the best interest of properties in the general area as well as the community at large. The proposed use shall be reviewed in relationship to and its effect upon surrounding land uses and existing environmental conditions regarding the pollution of air, land and water, noise, potential hazards and congestion, illumination and glare, restrictions to natural light and circulation.

The proposed use is residential in nature and is compatible with the surrounding residential development patterns contemplated by the RH and MR-C Districts. The Development has been designed to include substantial open space, landscaping, setbacks, buffers, internal circulation, stormwater management facilities, and utility infrastructure. The proposed use will not create unusual impacts relating to air quality, water quality, noise, glare, environmental hazards, or restrictions upon natural light and circulation beyond those ordinarily associated with residential development expressly contemplated by the Zoning Ordinance.

3. Suitability. The proposed use shall be suitable for the property in question and shall be designed, constructed, operated and maintained suitably for the anticipated activity and population served, numbers of participating population, frequency of use, adequacy of space and generation of traffic.

The Property consists of a large tract formerly utilized as a golf course and includes sufficient area to accommodate the proposed residential development. The Sketch Plan demonstrates the placement of multifamily dwellings, townhouses, detached dwellings, parking facilities, open space, stormwater facilities, internal streets, and related improvements. The Property provides adequate space to accommodate the proposed use, and the Transportation Impact Study attached as Exhibit E analyzes the anticipated traffic associated with the full Development. The Transportation Impact Study concludes that the surrounding transportation network will continue to operate acceptably with the recommended improvements identified therein.

4. Serviceability. Assurance shall be made as to the adequacy and availability of utility services and facilities such as sanitary and storm sewers, water, fire, police and other public facilities and the ability of the Township to supply such services.

The proposed Development will be served by public water and public sanitary sewer facilities. Engineered stormwater management facilities will be designed in accordance with applicable Township and regulatory requirements. The Development will be served by existing police, fire, EMS, and other public services available within the Township. Detailed utility, stormwater, and engineering plans will be prepared and reviewed as part of the subdivision and land development process.

5. Accessibility. The proposed use shall provide adequate ingress or egress, interior circulation of pedestrians and vehicles, off-street parking and accessibility to the existing or proposed Township street system.

The Development will provide two points of access from public streets consisting of a full-movement local road connection to Shawna Avenue and an extension of Alexis Drive connecting the Property to the existing Bridgewater residential community. Internal circulation will be provided through private streets, sidewalks, parking facilities, and pedestrian connections. The TIS confirms the adequacy of the proposed access system and identifies specific roadway and access recommendations that will be incorporated into the Development. Off-street parking will be provided in accordance with applicable Township requirements. The TIS concludes that all study-area intersections are projected to operate at an overall Level of Service D or better under 2035 build conditions and identifies no roadway improvements beyond those discussed therein that are necessary to accommodate the proposed Development.

6. Conformity. The proposed use shall be in conformance with all applicable requirements of this article and, where applicable, in accordance with the SALDO. When the proposed use shall require the approval of a subdivision or land development plan, demonstration of conformance with all of the applicable requirements of the SALDO, except those required by the general and specific standards of the Zoning Ordinance, shall not be required for the approval of a special exception.

The proposed Multi-Family Dwelling use complies with the specific requirements of Section 265-649 and the dimensional requirements applicable to the RHD and MR-C Districts, as described above.. Additional engineering details relating to grading, stormwater management, utilities, landscaping, recreation facilities, and other subdivision and land development matters will be addressed through the Township's subdivision and land development review process. The

Applicant will obtain all approvals required by the SALDO and all other applicable Township regulations.

7. The Zoning Hearing Board may attach whatever reasonable conditions and safeguards, in addition to those expressed in this article, it deems necessary to ensure that any proposed development will be consistent with the purposes and intent of this Ordinance.

Applicant acknowledges the authority of the Zoning Hearing Board to impose reasonable conditions and safeguards upon the grant of a special exception. Applicant is prepared to comply with any reasonable conditions imposed by the Board that are consistent with the purposes and intent of the Zoning Ordinance and supported by the record established at the hearing.

Relationship to Subdivision and Land Development Review

The Sketch Plan submitted with this application depicts the proposed Development at its current stage of design. The Applicant anticipates that engineering details may be refined through the Township's subdivision and land development review process. Such refinements may include adjustments to building footprints, unit counts, parking layout, grading, retaining walls, utilities, stormwater facilities, landscaping, pedestrian connections, and internal circulation, provided that the essential nature of the multifamily use and compliance with the Zoning Ordinance are maintained.

The Property contains precautionary and prohibitive steep slopes, many of which resulted from historical quarrying, filling, stockpiling, grading, and prior golf-course operations. The Applicant has separately requested SALDO modifications relating to disturbance of those slopes and associated cuts and fills. The grading and stabilization design will be supported by appropriate engineering and geotechnical evaluation and will be subject to Township review. That separate SALDO request does not alter the limited zoning relief requested here.

Conclusion

For the foregoing reasons, Applicant has demonstrated compliance with the specific requirements of Section 265-649, the applicable requirements of the RHD and MR-C Districts, and the general special exception standards of Section 265-1009.C. Applicant therefore respectfully requests that the York Township Zoning Hearing Board approve the requested special exception to permit Multi-Family Dwellings as part of the Heritage Hills Residential Development, subject to such reasonable conditions as the Board may determine are appropriate.

EXHIBIT C

PROPERTY DEED
(SEE ATTACHED)

BOOK PAGE

1654 7763

YORK COUNTY
ASSESSMENT OFFICE

46522

0382867 JV

4P

Deed

46-000-IJ-0019 (2700 Mt. Rose Ave.)
46-000-IJ-0020 (2690 Mt. Rose Ave.)
54-000-IJ-0021.F (2700 Mt. Rose Ave.)
54-000-IJ-0022 (2700 Mt. Rose Ave.)

This Deed, made this 23rd day of January, in the year of our Lord two thousand four (2004),

5P

Between

3P

MGM ENTERPRISES, INC., a Pennsylvania corporation, with principal offices at One Waterford Professional Center, York, York County, Pennsylvania, 17402,

GRANTOR herein

AND

HERITAGE HILLS ASSOCIATES, a Pennsylvania limited partnership, of York County, Pennsylvania

GRANTEE(S) herein

Witnesseth, that the said Grantor for and in consideration of the sum of **One and 00/100** ($1.00) Dollars, in hand paid by the said Grantee, at and before the sealing and delivery of these presents, the receipt whereof is hereby acknowledged, the said Grantor does hereby grant and convey unto the said Grantee, its successors and assigns,

4P

PARCEL NO. 1: ALL THAT CERTAIN tract of land lying and being situate partly in **YORK TOWNSHIP** and partly in **SPRINGETTSBURY TOWNSHIP**, partly in York County, Pennsylvania, being known as Lot No. 1 Golf Course, as shown on a Plan of Heritage Hills drawn for MGM Enterprises, Inc. by Devery and Assoc. bearing Sheet No. 105-042, and being more fully bounded and described as follows, to wit:

BEGINNING at a point common to the southeast property corner now or formerly of James Gable; thence North forty-five (45) degrees East, five hundred sixty-nine and ninety-six one-hundredths (569.96) feet to a point; thence North one (01) degree fifty-three (53) minutes West, three hundred fifty-five and zero one-hundredths (355.00) feet to a point; thence North eighty-eight (88) degrees forty-seven (47) minutes fifty (50) seconds East, three hundred eighty-eight and sixty-six one-hundredths (388.66) feet to a point; thence North seven (07) degrees forty-seven (47) minutes forty (40) seconds West, five hundred twenty-six and twenty-four one-hundredths (526.24) feet to a point; thence North eighty-seven (87) degrees fifteen (15) minutes twenty (20) seconds East, sixty and twenty-three one-hundredths (60.23) feet to a point; thence North eighty-six (86) degrees fifty-seven (57) minutes forty (40) seconds East, one hundred forty-three and sixty-six one-hundredths (143.66) feet to a point; thence North eighty-four (84) degrees thirty-five (35) minutes East, three hundred fifty-seven and two one-hundredths (357.02) feet to a point; thence South two (02) degrees thirty (30) minutes West, one hundred ninety and forty-two one-hundredths (190.42) feet to a point; thence North eighty-six (86) degrees thirteen (13) minutes ten (10) seconds East, five hundred forty-one and forty-eight one-hundredths (541.48) feet to a point; thence South twelve (12) degrees eight (08) minutes ten (10) seconds East, one hundred fifty-two and sixteen one-hundredths (152.16) feet to a point;

thence North sixty-nine (69) degrees forty-two (42) minutes twenty (20) seconds East, fifty (50) feet to a point; thence South eleven (11) degrees forty-seven (47) minutes forty (40) seconds East, two hundred eight (208) feet to a point; thence South twelve (12) degrees thirty-eight (38) minutes twenty (20) seconds East, five hundred thirty-six and eleven one-hundredths (536.11) feet to a point; thence South seventy-seven (77) degrees thirty (30) minutes twenty (20) seconds West, three hundred seventy (370) feet to a point; thence South twenty-five (25) degrees ten (10) minutes East, one hundred thirty-one and forty-four one-hundredths (131.44) feet to a point; thence South sixty-four (64) degrees fifty-seven (57) minutes forty (40) seconds West, five hundred sixty-five (565) feet to a point; thence South fifty-two (52) degrees fifty-seven (57) minutes forty (40) seconds West, one hundred seventy-five and sixty-one one-hundredths (175.61) feet to a point; thence South forty (40) degrees fifty-seven (57) minutes forty (40) seconds West, one hundred seventy-five and sixty-one one-hundredths (175.61) feet to a point; thence South twenty-eight (28) degrees fifty-seven (57) minutes forty (40) seconds West, one hundred seventy-five and sixty-one one-hundredths (175.61) feet to a point; thence South twenty-one (21) degrees twenty-eight (28) minutes thirty-seven (37) seconds West, one thousand sixty-eight and seventy-nine one-hundredths (1068.79) feet to a point; thence South twenty-nine (29) degrees thirty-one (31) minutes thirty (30) seconds West, four hundred (400) feet to a point; thence South fifty-nine (59) degrees two (02) minutes forty-eight (48) seconds West, one thousand one hundred ninety-seven and ninety-seven one-hundredths (1197.97) feet to a point; thence North sixty-eight (68) degrees thirty-six (36) minutes ten (10) seconds West, two hundred seventy-two and ninety-eight one-hundredths (272.98) feet to a point; thence South forty-six (46) degrees fifty-two (52) minutes forty (40) seconds West, one hundred nine and sixty-five one-hundredths (109.65) feet to a point; thence North forty-three (43) degrees thirteen (13) minutes twenty (20) seconds West, three hundred sixty-eight and thirty-two one-hundredths (368.32) feet to a point; thence North fifty (50) degrees twenty-eight (28) minutes forty (40) seconds West, sixteen (16) feet to a point; thence North fifty-five (55) degrees twelve (12) minutes forty (40) seconds East, three hundred thirteen and fifty-three one-hundredths (313.53) feet to a point; thence North fifty-eight (58) degrees East, two hundred thirty-two and thirty-nine one-hundredths (232.39) feet to a point; thence North forty-three (43) degrees fifty-seven (57) minutes twenty (20) seconds West, four hundred nine (409) feet to a point; thence South sixty-two (62) degrees six (06) minutes thirty (30) seconds West, one hundred ninety (190) feet to a point; thence North thirty-six (36) degrees seven (07) minutes fifty (50) seconds West, one hundred twenty-two and ninety one-hundredths (122.90) feet to a point; thence South fifty-eight (58) degrees sixteen (16) minutes twenty (20) seconds West, three hundred twenty-seven and seventy-six one-hundredths (327.76) feet to a point; thence North forty-three (43) degrees twenty-three (23) minutes ten (10) seconds West, one hundred seventy-nine and ninety-eight one-hundredths (179.98) feet to a point; thence North forty-four (44) degrees fifty-six (56) minutes twenty (20) seconds West, ninety and ninety-one one-hundredths (90.91) feet to a point; thence North thirty-two (32) degrees seventeen (17) minutes six (06) seconds East, one thousand two hundred thirty-nine and forty-one one-hundredths (1239.41) feet to a point; thence North fifty-one (51) degrees thirty (30) seconds East, three hundred (300) feet to a point; thence North seventy-two (72) degrees twenty-four (24) minutes twenty (20) seconds East, one thousand fifteen and eighty-five one-hundredths (1015.85) feet to a point; thence South twenty-two (22) degrees eighteen (18) minutes East, five (5) feet to the point of BEGINNING.

IT BEING part of the same premises which Charles Harry Armold and Isabella Elizabeth Armold, husband and wife, by their Deed dated November 24, 1987 and recorded in the Office of the Recorder of Deeds in and for York County, Pennsylvania in Record Book 97-P, page 780, granted and conveyed unto MGM Enterprises, Inc., a Pennsylvania corporation, the Grantor herein.

IT ALSO BEING part of the same premises which Lee M. Poorbaugh and Marianne K. Poorbaugh, husband and wife, by their Deed dated July 1, 1988 and recorded in the Office of the Recorder of Deeds in and for York County, Pennsylvania in Record Book 101-A, page 507, granted and conveyed unto MGM Enterprises, Inc., a

Pennsylvania corporation, the Grantor herein.

IT ALSO BEING part of the same premises which James L. Gable and Henrietta A. Gable, husband and wife, by their Deed dated June 28, 1988 and recorded in the Office of the Recorder of Deeds in and for York County, Pennsylvania in Record Book 99-P, page 272, granted and conveyed unto MGM Enterprises, Inc., a Pennsylvania corporation, the Grantor herein.

PARCEL NO. 2: ALL THAT CERTAIN tract of land lying and being situate in **SPRINGETTSBURY TOWNSHIP**, York County, Pennsylvania, being known as Lot No. 5 Commercial, as shown on a Plan of Heritage Hills drawn for MGM Enterprises, Inc. by Devery and Assoc., bearing Sheet No. 105-042, and being more fully bounded and described as follows, to wit:

BEGINNING at a point in the center of a public street known as Mt. Rose Avenue, said point being a corner of Parcel No. 1 herein; thence along the center of said Mt. Rose Avenue, North eighty-four (84) degrees thirty-five (35) minutes East, two hundred seven and twenty-three one-hundredths (207.23) feet to a point; thence by the same, North eighty-six (86) degrees fifty-three (53) minutes ten (10) seconds East, two hundred eighty-five and twenty-nine one-hundredths (285.29) feet to a point; thence along lands of Heritage Hills Associates, South twelve (12) degrees eight (08) minutes ten (10) seconds East, one hundred ninety-four and thirty-four one-hundredths (194.34) feet to a point; thence along Parcel No. 1 herein, South eighty-six (86) degrees thirteen (13) minutes ten (10) seconds West, five hundred forty-one and forty-eight one-hundredths (541.48) feet to a point; thence along the same, North two (02) degrees thirty (30) minutes East, one hundred ninety and forty-two one-hundredths (190.42) feet to a point and the place of BEGINNING.

IT BEING part of the same premises which Rodger M. Horn and Margaret G. Horn, husband and wife, by their Deed dated December 8, 1987 and recorded in the Office of the Recorder of Deeds in and for York County, Pennsylvania in Record Book 97-R, page 604, granted and conveyed unto MGM Enterprises, Inc., a Pennsylvania corporation, the Grantor herein.

This Deed is executed pursuant to a duly adopted resolution by the Board of Directors, and the foregoing instrument is not part of a transaction in which there is a sale, lease, exchange or other transfer of all or substantially all of the property and assets of said corporation.

Together with all and singular the ways, water, water-courses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever thereunto belonging, or in any wise appertaining, and the reversions, and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, property, claim and demand whatsoever of Grantor, in law, equity, or otherwise howsoever, of, in, and to the same and every part thereof.

To Have and To Hold the said tract of land the hereditaments and premises hereby granted or mentioned and intended so to be with the appurtenances, unto the said Grantee, its successors and assigns forever.

AND the said Grantor hereby covenants and agrees that it will warrant SPECIALLY the property hereby conveyed.

In Witness Whereof, the said MGM Enterprises, Inc., a Pennsylvania corporation, has caused this Deed to be signed in its corporate name by its President, the day and year first above written.

Signed, Sealed and Delivered
In the presence of

MGM ENTERPRISES, INC.,
a Pennsylvania corporation

by Mark E. Woolley, President

COMMONWEALTH OF PENNSYLVANIA :
: ss
COUNTY OF YORK :

On this, the 23rd day of January, 2004, before me, a Notary Public in and for the said Commonwealth, the undersigned officer, personally appeared Mark E. Woolley who acknowledged himself to be President for MGM Enterprises, Inc. and that he as such officer, being authorized to do so, executed the foregoing instrument for the purposes herein contained by signing the name of the corporation by himself as president.

In Witness Whereof, I hereunto set my hand and notarial seal.

My Commission Expires:

Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Linda L. Shaffer, Notary Public
York City, York, County
My Commission Expires Aug. 14, 2007

I Hereby Certify that the complete post office address of the within Grantee(s) is:

2700 Mt. Rose Ave
York, PA 17402

Date: 1/23/04

/s/ J. Robert Katherman, Esq
Agent for Grantee(s)

BOOK PAGE

1654 7767

RECORDER OF DEEDS
YORK COUNTY
PENNSYLVANIA

INSTRUMENT NUMBER
20040046522
RECORDED ON
May 25, 2004
2:02:53 PM

STATE TRANSFER TAX	$26,372.03
STATE WRIT TAX	$0.50
JCS/ACCESS TO JUSTICE	$10.00
RECORDING FEES	$17.00
AFFORDABLE HOUSING	$11.50
PIN NUMBER FEES	$8.00
COUNTY ARCHIVES FEE	$2.00
ROD ARCHIVES FEE	$3.00
YORK SUBURBAN SCHOOL DISTRICT	$2,637.20
DALLASTOWN AREA SCHOOL DISTRICT	$11,867.42
YORK TOWNSHIP	$11,867.41
TOTAL	$52,796.06

INV: 483969 USER: CJL
CUSTOMER
KATHERMAN & HEIM

I Certify This Document To Be
Recorded in York County, Pa.

Recorder of Deeds

COMMONWEALTH OF PENNSYLVANIA · YORK COUNTY, PA.

BOOK PAGE

RTT-183 Ex (12-87)

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF REVENUE
BUREAU OF INDIVIDUAL TAXES
DEPT. 280603
HARRISBURG, PA 17128-0603

1654 7768

REALTY TRANSFER TAX STATEMENT OF VALUE

See Reverse for Instructions

RECORDER'S USE ONLY	
State Tax Paid	26,372.09
Book Number	
Page Number	
Date Recorded	5-25-04

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) when the deed is without consideration, or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on: (1) family relationship or (2) public utility easement. If more space is needed, attach additional sheet(s).

A CORRESPONDENT - All inquiries may be directed to the following person:

Name: J. Robert Katherman, Esq.

Telephone Number: Area Code (717) 854-5124

Street Address: 345 East Market Street, York, PA 17403

City / State / Zip Code

B TRANSFER DATA

Grantor(s)/Lessor(s): MGM Enterprises, Inc.

Street Address: #1 Waterford Professional Center

City / State / Zip Code: York, PA 17402

Date of Acceptance of Document:

Grantee(s)/Lessee(s): Heritage Hills Associates

Street Address: 2700 Mt. Rose Avenue

City / State / Zip Code: York, PA 17402

C PROPERTY LOCATION

Street Address: 2690 & 2700 Mt. Rose Avenue

City, Township, Borough: York and Springettsbury Townships

County: York

School District: Dallastown & York Suburban

Tax Parcel Number: 46-IJ-19, 46-IJ-20, 54-IJ-21F and 54-IJ-22

D VALUATION DATA

1. Actual Cash Consideration	2. Other Consideration	3. Total Consideration
$1.00	+ 0.00	= $1.00
4. County Assessed Value	**5. Common Level Ratio Factor**	**6. Fair Market Value**
$7,598,800.	× 1.17	= $8,890,596.

E EXEMPTION DATA

1a. Amount of Exemption Claimed	1b. Percentage of Interest Conveyed
$6,253,393. - Improvements Only	100% of land only

2. Check Appropriate Box Below for Exemption Claimed

- ☐ Will or intestate succession _____ (Name of Decedent) _____ (Estate File Number)
- ☐ Transfer to Industrial Development Agency.
- ☐ Transfer to agent or straw party. (Attach copy of agency/straw party agreement).
- ☐ Transfer between principal and agent. (Attach copy of agency/straw trust agreement). Tax paid prior deed $ _____
- ☐ Transfers to the Commonwealth, the United States, and Instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (Attach copy of resolution).
- ☐ Transfer from mortgagor to a holder of a mortgage in default. Mortgage Book Number _____, Page Number _____.
- ☐ Corrective deed (Attach copy of the prior deed).
- ☐ Statutory corporate consolidation, merger or division. (Attach copy of articles).
- ☐ Other (Please explain exemption claimed, if other than listed above.) _____

der penalties of law, I declare that I have exam ed this Statement, including accompanying information, and to the best of my knowledge d belief, it is true, correct and complete.

gnature of Correspondent or Responsible Party: J. Robert Katherman

Date: 1-23-04

(SEE REVERSE)

13618

YORK COUNTY ASSESSMENT OFFICE
098640B

This Corrective Deed

UPI: *54-000-54-0153*
54-000-IJ-00258
54-000-IJ-00262

Made the 14th day of March, 2011

BETWEEN: *HERITAGE HILLS ASSOCIATES, a Pennsylvania limited partnership, of York County, Pennsylvania,*

--GRANTOR

and

HERITAGE HILLS ASSOCIATES, a Pennsylvania limited partnership, of York County, Pennsylvania,

--GRANTEE

THIS TRANSFER IS EXEMPT FROM REALTY TRANSFER TAX AS IT IS A CORRECTIVE DEED CORRECTING A SCRIVENERS ERROR IN THE PHYSICAL DESCRIPTION.

WITNESSETH, that in consideration of One ($1.00) Dollar, in hand paid, the receipt whereof is hereby acknowledged, the said Grantor does hereby grant and convey to the said Grantee, its successors and assigns,

SEE ATTACHED EXHIBIT "A"

1A
6P
3N

TOGETHER with all and singular the improvements, ways, streets, alleys, passages, waters, watercourses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever thereunto belonging, or in any wise appertaining, and the reversions and remainders, rents, issues and profits thereof; and all the estate, right, title, interest, property, claim and demand whatsoever of the said Grantor, in law, equity, or otherwise howsoever, of, in, and to the same and every part hereof.

TO HAVE AND TO HOLD the said lot or piece of ground described with the buildings and improvements thereon erected with and the hereditaments and premises hereby granted, or mentioned and intended so to be, with the appurtenances, unto the said Grantee, its successors and assigns, to and for the only proper use and behoof of the said Grantee, its successors and assigns, forever.

AND the said Grantor hereby covenants and agrees that it will warranty SPECIALLY the property hereby conveyed.

IN WITNESS WHEREOF, the said Grantor has hereunto caused this Deed to be executed the day and year first above written.

Signed, Sealed and Delivered
in the presence of:

HERITAGE HILLS ASSOCIATES:

By: Matthew J. DeRose L.S.
Matthew J. DeRose, General Partner

COMMONWEALTH OF PENNSYLVANIA :
: ss.
COUNTY OF YORK :

On this, the 14th day of March, 2011, before me, the undersigned officer, personally appeared Matthew J. DeRose, who acknowledged himself to be the General Partner of Heritage Hills Associates, and being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of Heritage Hills Associates by himself as General Partner.

IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
LINDA L. SHAFFER, NOTARY PUBLIC
CITY OF YORK, YORK COUNTY
MY COMMISSION EXPIRES AUG. 14, 2011

Notary Public

I Hereby Certify that the precise residence and complete post office address of the Grantee herein is 2700 Mt. Rose Avenue, York, PA 17402

Esq.

EXHIBIT "A"

PARCEL 54-000-54-0153:

ALL THAT CERTAIN tract or parcel of land being situate in YORK TOWNSHIP, York County and Commonwealth of Pennsylvania being shown as Lot No. 153 on the Final Subdivision Plan of Spring Ridge Development, Phase I as recorded in Plan Book RR, Page 680, more particularly bounded and described as follows to wit:

BEGINNING at a point on the west side of a fifty (50) foot wide street known as Shawna Drive, said point being the southwest corner of property belonging to Mill Creek Associates Limited, said point also being along the line of property belonging to Glen-Gery Shale Brick Corporation, thence along the west side of Shawna Drive, South forty-two (42) degrees twenty-two (22) minutes forty-two (42) seconds East, twenty and two one-hundredths (20.02) feet to a point; thence by the same along the arc of a curve to the left having a radius of two hundred twenty-five and zero one-hundredths (225.00) feet, a distance of ninety-two and thirty-seven one-hundredths (92.37) feet, the chord of which is South fifty-four (54) degrees eight (08) minutes twenty-three (23) seconds East, ninety-one and seventy-three one-hundredths (91.73) feet to a point; thence by the same along the arc of a curve to the right having a radius of twenty-six and zero one-hundredths (26.00) feet, a distance of thirty-five and forty-seven one-hundredths (35.47) feet, the chord of which is South twenty-six (26) degrees forty-eight (48) minutes forty-nine (49) seconds East, thirty-two and seventy-nine one-hundredths (32.79) feet to a point; thence along the west side of a fifty (50) foot wide street known as Chestnut Hill Road, along the arc of a curve to the left having a radius of two hundred thirty and zero one-hundredths (230.00) feet, a distance of sixty-six and forty one-hundredths (66.40) feet, the chord of which is South four (04) degrees two (02) minutes fifty-one (51) seconds West, sixty-five and eighty-two one-hundredths (65.82) feet to a point; thence along property belonging to the above mentioned Glen Gery Shale Brick Corporation, North thirty (30) degrees fifty-six (56) minutes thirty (30) seconds West, one hundred ninety and fifty-six one-hundredths (190.56) feet to a point, the place of BEGINNING.

SUBJECT to all easement, rights-of-way, covenants, agreements and restrictions of record.

PARCEL 54-000-IJ-0258:

ALL THAT CERTAIN piece of ground, situate in the TOWNSHIP OF YORK, County of York and Commonwealth of Pennsylvania more fully bounded and described as follows, to wit:

BEGINNING at a point in Allen Road, said point being the northeast corner of property now or formerly belonging to Eli Williams Estate; thence along property of said Eli Williams Estate, South seventy (70) degrees thirty-six (36) minutes forty-five (45) seconds West, two hundred twenty-seven and sixty-five one-hundredths (227.65) feet to a point; thence by the same North fifty-six (56) degrees twenty-six (26) minutes fifteen (15) seconds West, two hundred eighty-six and ninety-six one-hundredths (286.96) feet to a point; thence by the same South fifty-five (55) degrees twenty-eight (28) minutes fifteen (15) seconds West, three hundred twenty-four and fifty-four one-hundredths (324.54) feet to a point; thence by the same South fifty-nine (59) degrees forty-seven (47) minutes forty-five (45) seconds West, one hundred twenty-two and seventy-ix one-hundredths (122.76) feet to a point; thence by the same South seventy-two (72) degrees twenty-five (25) minutes forty-five (45) seconds West, one hundred forty-four and thirty-four one-hundredths (144.34) feet to a point; thence by the same North eleven (11) degrees fifty (50) minutes thirty (30) seconds West, two hundred fifty-six and sixty one-hundredths (256.60) feet to a point; thence along property belonging to Paul E. Newcomer, North fifty-six (56) degrees twenty-eight (28) minutes zero (00) seconds East, two hundred twenty-nine and seventy one-hundredths (229.70) feet to a point; thence by the same and other property belonging to Glen-Gery Brick Corporation, North thirty-one (31) degrees two (02) minutes zero (00) seconds East, seven hundred eighty and three one-hundredths (780.03) feet, to a point; thence along property belonging to MGM Enterprises, Inc., South twenty-six (26) degrees eighteen (18) minutes five (05) seconds East **(erroneously identified as West in prior Deed)**, four hundred fifty-five and sixteen one-hundredths (455.16) feet to a point; thence in and through the above mentioned Allen Road, South twenty-seven (27) degrees thirteen (13) minutes sixteen (16) seconds East, four hundred eighty-five and ninety-eight one-hundredths (485.98) feet to a point, the place of BEGINNING.

SUBJECT to all easement, rights-of-way, covenants, agreements and restrictions of record.

PARCEL 54-000-IJ-0262:

ALL THAT CERTAIN tract or piece of land, together with the improvements thereon erected, situate along the southeasterly side of Township Route No. 729 and along the Westerly side of Township Route No. 714, leading to Pennsylvania Legislative Route No. 66045, between York and Enterprise Station, in the TOWNSHIP OF YORK, County of York and Commonwealth of Pennsylvania, more fully bounded and described as follows, to wit:

BEGINNING at a railroad spike in Township Route No. 729, thence leaving Township Route No. 729 also known as Victoria Drive, along land now or late of Eva R. Liverant, South fifty-six (56) degrees two and one-half (2-1/2) minutes East, five hundred sixty-six and fifty-three one-hundredths (566.53) feet to an iron pin; thence partly along the same and partly along land now or late of Harold L. Gemmill and Catherine E. Gemmill, his wife, and partly crossing the Maryland and Pennsylvania Railroad Company Right-of-way, North thirty-six (36) degrees eighteen and one-quarter (18-1/4) minutes East, seventy-one and sixty-one one-hundredths (71.61) feet to an iron pin in the middle of the track; thence partly crossing said right-of-way and along land now or late of Harold L. Gemmill and Catherine E. Gemmill, his wife, the two following courses and distances: (1) North zero (00) degrees twelve and three-quarter (12-3/4) minutes West, eighty-five and twenty-three one-hundredths (85.23) feet to an iron pin; (2) South eighty-four (84) degrees one and three-quarter (1-3/4) minutes East, partly crossing Township Route 714, one hundred seven and zero one-hundredths (107.00) feet to a P. K. Nail and cross cut on a concrete wing-wall near the northerly corner of a bridge over a small stream; thence along land now or late of Paul Albert Fitz, the three following courses and distances: (1) South twenty-four (24) degrees one and three-quarter (1-3/4) minutes East, crossing said stream and following the Northeasterly side of Township Route No. 714, fifty-six and seventy-nine one-hundredths (56.79) feet to an iron pin; (2) South forty-five (45) degrees thirty-eight and three-quarter (38-3/4) minutes East, following the Northeasterly side of said Township Route No. 714, two hundred twenty six and fifty-one one-hundredths (226.51) feet to an iron pin; (3) North sixty-eight (68) degrees six and one-quarter (6-1/4) minutes East, one hundred forty-one and ninety-six one-hundredths (141.96) feet to an iron pipe; thence along land now or late of Clair E. Fitz and Gladys M. Fitz, his wife, South twenty (20) degrees twenty-three and three-quarter (23-3/4) minutes East, three hundred thirty-two and eighty one-hundredths (332.80) feet to an iron pin; thence partly along the same and partly along land now or late of Roy Jefferson Allen and Lillian Williams Allen, his wife, following the vacated portion of Route No. 714, South thirty-two (32) degrees East, five hundred and ten one-hundredths (500.10) feet to an iron pin; thence in and along the same and along land now or late of Roy Jefferson Allen and Lillian Williams Allen, his wife, the three following courses and distances: (1) South forty-five (45) degrees forty-five (45) minutes West (**this direction West was missing in prior Deed)** thirteen and twenty-hundredths (13.20) feet to an iron pin; (2) South thirty-three (33) degrees East, three hundred seventy-one and twenty-five one-hundredths (371.25) feet to an iron pin; (3) South twenty-nine (29) degrees forty-four and three quarter (44-3/4) minutes East, three hundred twenty-four and eighty-four one-hundredths (324.84) feet to an iron pin;

thence along land now or later of Glen-Gery Shale Brick Corporation, South twenty-nine (29) degrees thirty-seven (37) minutes West, six hundred fifty-four and ninety-five one-hundredths (654.95) feet to an iron pin; thence along land now or late of Paul E. Newcomer and Louise M. Newcomer, his wife, the four following courses and distances: (1) North forty-three (43) degrees twenty-seven and one-quarter (27-1/4) minutes West, one thousand eight-hundred twenty-three and forty-five one-hundredths (1,823.45) feet to a concrete monument; (2) North twenty (20) degrees thirty-six and one-half (36-1/2) minutes West, five hundred twenty and zero one-hundreds (520) feet to a railroad spike in Township Route No. 729 at its Southerly terminus, the last described line passing through an iron pin at a distance of sixteen and seventy-eight one-hundredths (16.78) feet from said railroad spike; (3) North nine (09) degrees twenty-three (23) minutes East, along Township Route No. 729, two hundred six and thirty-five one-hundredths (206.35) feet to a railroad spike; (4) North thirteen (13) degrees thirty-seven (37) minutes East, two hundred forty-three and forty-three (243.43) feet to the place of BEGINNING.

SUBJECT to all easement, rights-of-way, covenants, agreements and restrictions of record.

IT BEING the same premises which Glen-Gery Shale Brick Corporation, t/d/b/a Glen Gery Corporation, a Delaware corporation, by its Deed dated April 21, 2008, and recorded in the Office of the Recorder of Deeds in and for York County, Pennsylvania in Record Book 1960, 7922, granted and conveyed unto Heritage Hills Associates, a Pennsylvania limited partnership, Grantor herein.

REV-183 EX (04-10)

pennsylvania
DEPARTMENT OF REVENUE
Bureau of Individual Taxes
PO BOX 280603
Harrisburg, PA 17128-0603

REALTY TRANSFER TAX STATEMENT OF VALUE

See reverse for instructions.

RECORDER'S USE ONLY	
State Tax Paid	8
Book Number	2119
Page Number	4589
Date Recorded	3-15-2011

Complete each section and file in duplicate with Recorder of Deeds when (1) the full value/consideration is not set forth in the deed, (2) the deed is without consideration or by gift, or (3) a tax exemption is claimed. A Statement of Value is not required if the transfer is wholly exempt from tax based on family relationship or public utility easement. If more space is needed, attach additional sheets.

A. CORRESPONDENT – All inquiries may be directed to the following person:

Name	Telephone Number:		
J. Robert Katherman, Esq.	(717) 854-5124		
Mailing Address	**City**	**State**	**ZIP Code**
345 East Market Street	York	PA	17403

B. TRANSFER DATA

C. Date of Acceptance of Document 03/14/11

Grantor(s)/Lessor(s)			Grantee(s)/Lessee(s)		
Heritage Hills Associates			Heritage Hills Associates		
Mailing Address			**Mailing Address**		
345 East Market Street			345 East Market Street		
City	**State**	**ZIP Code**	**City**	**State**	**ZIP Code**
York	PA	17403	York	PA	17403

D. REAL ESTATE LOCATION

Street Address	City, Township, Borough	
	York Township	
County	**School District**	**Tax Parcel Number**
York	Dallastown	54-54-0153, 54-IJ-00258, 54-IJ-00262

E. VALUATION DATA - WAS TRANSACTION PART OF AN ASSIGNMENT OR RELOCATION? ☐ Y ☒ N

1. Actual Cash Consideration	2. Other Consideration	3. Total Consideration
1.00	+0.00	= 1.00
4. County Assessed Value	**5. Common Level Ratio Factor**	**6. Fair Market Value**
197,060.00	X 1.25	= 246,325.00

F. EXEMPTION DATA

1a. Amount of Exemption Claimed	1b. Percentage of Grantor's Interest in Real Estate	1c. Percentage of Grantor's Interest Conveyed
4,926.50	100%	100%

Check Appropriate Box Below for Exemption Claimed.

☐ Will or intestate succession. _____
(Name of Decedent) (Estate File Number)

☐ Transfer to a trust. (Attach complete copy of trust agreement identifying all beneficiaries.)

☐ Transfer from a trust. Date of transfer into the trust _____
If trust was amended attach a copy of original and amended trust.

☐ Transfer between principal and agent/straw party. (Attach complete copy of agency/straw party agreement.)

☐ Transfers to the commonwealth, the U.S. and instrumentalities by gift, dedication, condemnation or in lieu of condemnation. (If condemnation or in lieu of condemnation, attach copy of resolution.)

☐ Transfer from mortgagor to a holder of a mortgage in default. (Attach copy of mortgage and note/assignment.)

☒ Corrective or confirmatory deed. (Attach complete copy of the deed to be corrected or confirmed.)

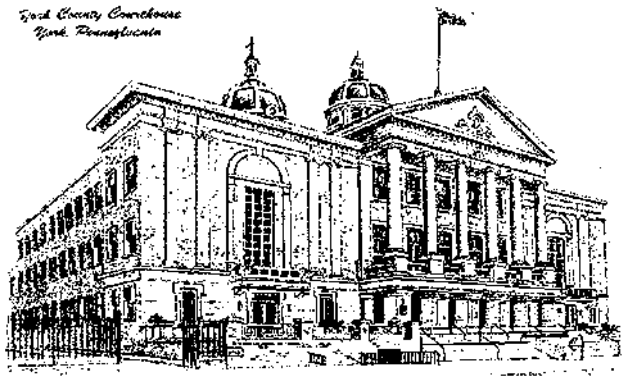
☐ Statutory corporate consolidation, merger or division. (Attach copy of articles.)

☐ Other (Please explain exemption claimed.) _____

Under penalties of law, I declare that I have examined this statement, including accompanying information, and to the best of my knowledge and belief, it is true, correct and complete.

Signature of Correspondent or Responsible Party	Date
J. Robert Katherman	3/14/11

FAILURE TO COMPLETE THIS FORM PROPERLY OR ATTACH REQUESTED DOCUMENTATION MAY RESULT IN THE RECORDER'S REFUSAL TO RECORD THE DEED.



YORK COUNTY RECORDER OF DEEDS
28 EAST MARKET STREET
YORK, PA 17401

Randi L. Reisinger - Recorder
Gloria A. Fleming - Deputy

Instrument Number - 2011013678
Recorded On 3/15/2011 At 3:01:38 PM
*** Instrument Type - DEED**
Invoice Number - 930271
*** Grantor - HERITAGE HILLS ASSOCIATES**
*** Grantee - HERITAGE HILLS ASSOCIATES**
User - MAG
*** Customer - KATHERMAN HEIM - DEAN**

Book - 2119 Starting Page - 4589
*** Total Pages - 8**

*** Received By: COUNTER**

*** FEES**

STATE WRIT TAX	$0.50
JCS/ACCESS TO JUSTICE	$23.50
RECORDING FEES	$19.00
AFFORDABLE HOUSING	$11.50
PIN NUMBER FEES	$30.00
COUNTY ARCHIVES FEE	$2.00
ROD ARCHIVES FEE	$3.00
TOTAL PAID	$89.50

PARCEL IDENTIFICATION NUMBER
540005401530000000
54000IJ02580000000
54000IJ02620000000
Total Parcels: 3

I Certify This Document To Be Recorded In York County, Pa.

RANDI L. REISINGER • RECORDER'S OFFICE • YORK COUNTY, PA •

Randi L. Reisinger
Recorder of Deeds

THIS IS A CERTIFICATION PAGE

PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

*** - Information denoted by an asterisk may change during the verification process and may not be reflected on this page.**

12174

YORK COUNTY
ASSESSMENT OFFICE
0851746

This Deed

UPI: 54-000-IJ-0042A-0000000 and 54-000-IJ-0044A-0000000
PROPERTY ADDRESS: 1563 Camp Betty Washington Rd. & Camp Betty Washington Rd.

Made the 9th day of March, in the year Two Thousand Nine (2009)

BETWEEN RICHARD A. DELLINGER and TINA M. DELLINGER, husband and wife, of York County, Pennsylvania,

--GRANTORS

and

HERITAGE HILLS ASSOCIATES, a Pennsylvania limited partnership, of York County, Pennsylvania,

--GRANTEE

WITNESSETH, that in consideration of Two Hundred Thirty Thousand ($230,000.00) Dollars, in hand paid, the receipt whereof is hereby acknowledged, the said Grantor does hereby grant and convey to the said Grantee, its successors and/or assigns,

ALL the following two tracts of land situate in YORK TOWNSHIP, York County, Pennsylvania, being described in accord with a survey prepared by Joseph W. Shaw, Land Surveyor, dated December 15, 1989, Drawing No. K57-43, recorded in York County, Plan Book KK, Page 117, being known as Lots 4 and 5 and being more fully described as follows, to wit:

LOT NO. 4: BEGINNING at a point in Camp Betty Washington Road, State Route 2005 at corner of Lot No. 5; thence in and through said State Route 2005, south twenty-five (25) degrees zero (00) minutes fifty-four (54) seconds West, sixteen and twenty-six one-hundredths (16.26) feet to a point; thence continuing in and through the same, South seventy-four (74) degrees sixteen (16) minutes nine (09) seconds East, one hundred eleven and twenty-three one-hundredths (111.23) feet to a rebar set; thence continuing in and through the same, South seventy-seven (77) degrees twenty-seven (27) minutes thirty-five (35) seconds West, forty-two and sixteen one-hundredth (42.16) feet to an iron pipe; thence continuing along the same, South twenty-four (24) degrees forty-four (44) minutes six (06) seconds East, ninety-eight and seventeen one-hundredths (98.17) feet to an iron pipe; thence continuing along the same, North eighty-nine (89) degrees twenty-five (25) minutes twelve (12) seconds West, one hundred six and forty-nine one-hundredths (106.49) feet to a point; thence continuing along the same, South six (06) degrees thirty-two (32) minutes thirteen (13) seconds West, forty-two and seventy one-hundredths (42.70) feet to an axle set; thence continuing along the same, South twenty-five (25) degrees eight (08) minutes forty-nine (49) seconds West, twenty-three and thirty-six one hundredths (23.36) feet to an iron pipe; thence continuing along the same, South thirty-two (32) degrees forty-seven(47) minutes seven (07) seconds West, seventy-one and forty-seven one-hundredths (71.47) feet to an iron pipe; thence continuing along the same, North fifty-nine (59) degrees forty (40) minutes three (03) seconds West, five hundred sixty-six and seven one-hundredths (556.07) feet to an iron pipe; thence continuing along the same, North thirty-three (33) degrees forty-one (41) minutes East, one hundred thirty-nine and fifty-eight one-

hundredths (139.58) feet to an axle set at Lot No. 5; thence along Lot No. 5, South fifty-two (52) degrees thirty-nine (39) minuets twenty-five (25) seconds East, one hundred sixty-seven and nineteen one-hundredths (167.19) feet to an axle set; thence continuing along the same, South eighty-four (84) degrees seven (07) minutes thirteen (13) seconds East, three hundred thirty-nine and ninety one-hundredths (339.90) feet to the point and place of BEGINNING.

LOT NO. 5: BEGINNING at a point in Camp Betty Washington Road, State Route 2005, at corner of Lot No. 2; thence along Lot No. 2, North eighty-four (84) degrees seven (07) minutes thirteen (13) seconds West, three hundred thirty-nine and ninety-one-hundredths (339.90) feet to a point; thence continuing along the same, and through the Pennsylvania Railroad abandoned right-of-way, North fifty-two (52) degrees thirty-nine (39) minutes twenty-five (25) seconds West, three hundred eighty-eight and eighty-five one-hundredths (388.85) feet to a point at Lot No.6; thence along Lot No. 6, North sixteen (16) degrees forty-six (46) minutes zero (00) seconds East, three hundred twenty-one and thirty-eight one-hundredths (321.38) feet to a point at the Camp Betty Washington Road, State Route 2005; thence along the Camp Betty Washington Road, State Route 2005, by a curve to the right having a radius of five hundred seventy-eight and thirty-seven one-hundredths (578.37) feet, the chord of which is South, fifty-nine (59) degrees zero (00) minutes thirty-six (36) seconds East, one hundred nineteen and one one-hundredths (119.01) feet, a distance of one hundred nineteen and twenty-two one-hundredths (119.22) feet to a point; thence continuing along the same by a curve to the right having a radius of one thousand two hundred fifty and zero one-hundredths (1,250.00) feet the chord of which is South, forty-one (41) degrees forty-eight (48) minutes eight (08) seconds East, four hundred eighty-nine and ninety-six one-hundredths (489.96) feet, an arc distance of our hundred ninety-three and sixteen one-hundredths (493.16) feet to a point; thence continuing along the same, South thirty (30) degrees thirty (30) minutes zero (00) seconds East, eighty and ten one-hundredths (80.10) feet to a point; thence continuing along the same by a curve to the left having a radius of which is two hundred twenty-five and zero one-hundredths (225.00) feet, the chord of which is South forty-five (45) degrees forty-nine (49) minutes seventeen (17) seconds East, one hundred eighteen and ninety one-hundredths (118.90) feet, an arc distance of one hundred twenty and thirty-three one-hundredths (120.33) feet to the point and place of BEGINNING.

IT BEING the same premises which Jesse D. Englar and Florence L. Englar, his wife, by their Deed dated February 1, 2007 and recorded February 1, 2007 in the in the Office of the Recorder of Deeds in and for York County, Pennsylvania, in Record Book 1872, page 5591 granted and conveyed unto Richard A. Dellinger and Tina M. Dellinger, husband and wife.

IT ALSO BEING the same premises which Heritage Hills Associates and Carl A. Naylor, single man, by Quit Claim Deed dated January 30, 2009 and recorded February 6, 2009 in the Office of the Recorder of Deeds in and for York County, Pennsylvania, in Record Book 2004, page 1156 quit claimed unto Richard A. Dellinger and Tina M. Dellinger, husband and wife, Grantors herein.

TOGETHER with all and singular the ways, water, water-courses, rights, liberties, privileges, hereditaments and appurtenances, whatsoever thereunto belonging, or in any wise appertaining, and the reversions, and remainders, rents, issues and profits thereof, and all the estate, right, title, interest, property, claim and demand whatsoever of Grantors, in law, equity, or otherwise howsoever, of, in, and to the same and every part thereof.

TO HAVE AND TO HOLD the said tract of land the hereditaments and premises hereby granted or mentioned and intended so to be with the appurtenances, unto the said Grantee, its successors and/or assigns forever.

AND the said Grantor will Warrant Specially the property hereby conveyed.

IN WITNESS WHEREOF, the said Grantor has hereunto caused this Deed to be executed the day and year first above written.

Signed, Sealed and Delivered
in the presence of:

Richard A. Dellinger
RICHARD A. DELLINGER

Tina M. Dellinger
TINA M. DELLINGER

COMMONWEALTH OF PENNSYLVANIA :
: SS.
COUNTY OF YORK :

ON THIS 9th *day of* March, *2009, before me, a Notary Public, the undersigned officer, personally appeared Richard A. Dellinger and Tina M. Dellinger, known to me, or satisfactorily proven, to be the persons whose names are subscribed to the foregoing instrument, and acknowledge that they executed the same for the purpose therein.*

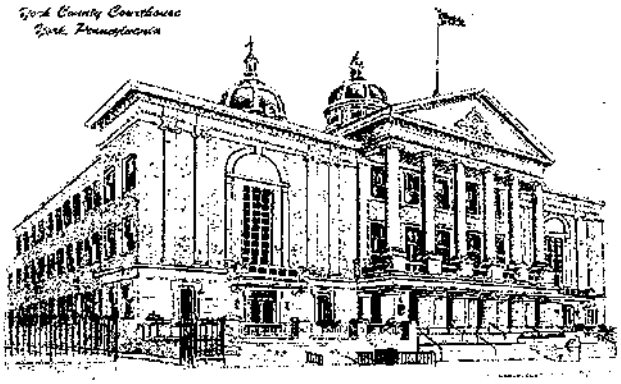
IN WITNESS WHEREOF, I have hereunto set my hand and notarial seal.

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
LINDA L. SHAFFER, NOTARY PUBLIC
CITY OF YORK, YORK COUNTY
MY COMMISSION EXPIRES AUG. 14, 2011

Linda L. Shaffer

Hereby Certify that the precise residence and complete post office address of the Grantee herein is 2700 Mt Rose Ave
York PA 17402

J. Robert Dellinger



YORK COUNTY RECORDER OF DEEDS
28 EAST MARKET STREET
YORK, PA 17401

Randi L. Reisinger - Recorder
Gloria A. Fleming - Deputy

Instrument Number - 2009012174
Recorded On 3/9/2009 At 2:17:30 PM
*** Instrument Type - DEED**
Invoice Number - 816154
*** Grantor - DELLINGER, RICHARD A**
*** Grantee - HERITAGE HILLS ASSOICATES**
User - MAG
*** Customer - KATHERMAN HEIM**

Book - 2009 Starting Page - 146
*** Total Pages - 4**

*** Received By: COUNTER**

*** FEES**

STATE TRANSFER TAX	$2,300.00
STATE WRIT TAX	$0.50
JCS/ACCESS TO JUSTICE	$10.00
RECORDING FEES	$13.00
AFFORDABLE HOUSING	$11.50
PIN NUMBER FEES	$4.00
COUNTY ARCHIVES FEE	$2.00
ROD ARCHIVES FEE	$3.00
DALLASTOWN AREA SCHOOL REALTY TAX	$1,150.00
YORK TOWNSHIP	$1,150.00
TOTAL PAID	$4,644.00

PARCEL IDENTIFICATION NUMBER
54000IJ0042A000000
54000IJ0044A000000
Total Parcels: 2

I Certify This Document To Be Recorded In York County, Pa.

RANDI L. REISINGER · RECORDER'S OFFICE · YORK COUNTY PA ·

Recorder of Deeds

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PLEASE DO NOT DETACH

THIS PAGE IS NOW PART OF THIS LEGAL DOCUMENT

*** - Information denoted by an asterisk may change during the verification process and may not be reflected on this page.**

EXHIBIT D

SPECIAL EXCEPTION SKETCH PLAN
(SEE ATTACHED)

SPECIAL EXCEPTION EXHIBIT
FOR
HERITAGE HILLS RESIDENTIAL DEVELOPMENT
YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA

NOTES

GENERAL DESIGN NOTES:

1. SITE PLANING AND DESIGN DETAILS ARE SUBJECT TO YORK TOWNSHIP SUBDIVISION AND LAND DEVELOPMENT ORDINANCE.
2. BOUNDARY AND TOPOGRAPHIC SURVEY PREPARED BY DAVID MILLER ASSOCIATES. TOPOGRAPHY OBTAINED BY FIELD SURVEY COMPLETED ON MARCH 10, 2006.
3. BENCHMARK: CENTER OF CAP, IRON REBAR. ELEVATION 607.47 NAVD88.
4. SOILS INFORMATION SHOWN HAS BEEN TAKEN FROM THE YORK COUNTY GIS.
5. ANY REVISIONS TO THIS PLAN AFTER THE DATE OF PLAN PREPARATION OR THE LATEST REVISION SHALL NOT BE THE RESPONSIBILITY OF DAVID MILLER ASSOCIATES, INC. SUBSTITUTIONS FOR ANY MATERIAL NOTED ON THESE PLANS REQUIRES PRIOR WRITTEN APPROVAL OF DAVID MILLER ASSOCIATES, INC. AND YORK TOWNSHIP.
6. THESE PLANS HAVE BEEN PREPARED AS AN INSTRUMENT OF SERVICE FOR THE CLIENT OF RECORD OF DAVID MILLER ASSOCIATES, INC. DAVID MILLER ASSOCIATES, INC. ASSUMES NO LIABILITY FOR THE USE OR REUSE OF THESE PLANS BY ANY INDIVIDUAL OR ENTITY OTHER THAN THE CLIENT, OR FOR THE USE OF THESE PLANS FOR ANY PURPOSE OTHER THAN THAT FOR WHICH THEY HAVE BEEN PREPARED.
7. NO ONE SHALL SCALE FROM THESE PLANS FOR CONSTRUCTION PURPOSES.
8. ALL DIMENSIONS SHOWN ON THE PLANS ARE TAKEN FROM THE FACE OF CURB AND EXTERIOR FACE OF BUILDINGS UNLESS OTHERWISE NOTED ON THE PLAN.
9. UPRIGHT TEXT REPRESENTS PROPOSED INFORMATION AND FEATURES. *SLANTED TEXT REPRESENTS EXISTING INFORMATION AND FEATURES.*
10. TOTAL UNIT MIX
    - MULTI-FAMILY: 300 UNITS
    - TOWN HOMES: 121 UNITS
    - SINGLES: 25 LOTS
11. MULTI-FAMILY PARKING REQUIREMENTS
    - 1 BEDROOM: 1.5 PARKING SPACES PER UNIT
    - 2 OR 3 BEDROOM: 2 PARKING SPACES PER UNIT
    - REQUIRED PARKING (150 UNIT): 55 PARKING SPACES PER BUILDING X 5 BUILDINGS = 265 SPACES
    - REQUIRED PARKING (150 UNIT): 86 PARKING SPACES PER BUILDING X 3 BUILDINGS = 258 SPACES
    - 524 SPACES REQUIRED
    - PARKING PROVIDED: 575 PARKING SPACES
12. REQUIRED LOT WIDTH
    - SINGLE FAMILY DETACHED: 50 LF MINIMUM,70 LF PROVIDED
    - SINGLE FAMILY ATTACHED: 20 LF MINIMUM, 20 LF PROVIDED
    - MULTI-FAMILY: 200 LF MINIMUM, GREATER THAN 200 LF PROVIDED
13. REQUIRED LOT AREA
    - SINGLE FAMILY DETACHED: 5,000 SF MINIMUM, 5,000 SF PROVIDED
    - SINGLE FAMILY ATTACHED: 2,000 SF MINIMUM, 2,000 SF PROVIDED
    - MULTI-FAMILY: ONE ACRE MINIMUM GREATER THAN ONE ACRE PROVIDED
14. ALL MULTIFAMILY BUILDINGS SHALL BE SETBACK A MINIMUM OF FIFTY (50) FEET FROM THE PROPERTY LINES OR STREET RIGHTS-OF-HAT. A BUFFER PLANTING STRIP, TYPE C SECTION 640 SALDO, SHALL BE PLANTED WITHIN THE 50-FOOT SETBACK.

MULTI-FAMILY OPEN SPACE REQUIREMENTS

UNIT TYPE	NO. UNITS	REQUIRED LOT AREA PER UNIT (SF.)	REQUIRED PLAY AREA PER UNIT (SF.)	REQUIRED OPEN SPACE AREA PER UNIT (SF.)	REQUIRED LOT AREA TOTAL (SF.)	REQUIRED PLAY AREA TOTAL (SF.)	REQUIRED OPEN SPACE AREA TOTAL (SF.)	TOTAL (SF.)
STUDIO	12	1,000	5	300	12,000	60	3,600	15,660
ONE BEDROOM	147	1,500	20	500	220,500	2,940	73,500	296,940
TWO BEDROOM	108	2,000	40	700	216,000	4,320	75,600	295,920
THREE OR MORE BEDROOM	33	2,500	80	900	82,500	2,640	29,700	114,840
TOTAL	300	N/A	N/A	N/A	531,000 SF	9,960 SF	182,400 SF	723,360 SF
				TOTAL	12.19 AC	0.23 AC	4.19 AC	16.61 AC

ZONING DATA

RESIDENTIAL HIGH DENSITY (RH)

SETBACK FRONT:	20 FEET
SETBACK SIDE:	10 FEET
SETBACK REAR:	25 FEET
MAXIMUM BUILDING HEIGHT:	35 FT. THE HEIGHT MAY BE INCREASED BY ONE (1) FOOT FOR EACH ADDITIONAL FOOT THAT ALL FRONT, SIDE, AND REAR SETBACKS ARE INCREASED, BUT NOT BE INCREASED BY MORE THAN TEN (10) FEET

SINGLE FAMILY DETACHED

MINIMUM LOT AREA:	5,000 SF
MINIMUM LOT WIDTH:	50 FEET
MINIMUM LOT FRONTAGE:	40 FEET
MAXIMUM LOT COVERAGE:	60%

SINGLE FAMILY ATTACHED

MINIMUM LOT AREA:	2,000 SF
MINIMUM LOT WIDTH:	20 FEET
MINIMUM LOT FRONTAGE:	20 FEET
MAXIMUM LOT COVERAGE:	60%

MIXED RESIDENTIAL COMMERCIAL (MRC)

SETBACK FRONT:	20 FEET
SETBACK SIDE:	10 FEET
SETBACK REAR:	15 FEET
MAXIMUM BUILDING HEIGHT:	45 FT, 3 STORIES MAX. THE HEIGHT MAY BE INCREASED BY ONE (1) FOOT FOR EACH ADDITIONAL FOOT THAT ALL FRONT, SIDE, AND REAR SETBACKS ARE INCREASED,BUT NOT BE INCREASED BY MORE THAN TEN (10) FEET

SINGLE FAMILY DETACHED

MINIMUM LOT AREA:	4,000 SF
MINIMUM LOT WIDTH:	40 FEET
MINIMUM LOT FRONTAGE:	40 FEET
MAXIMUM LOT COVERAGE:	60%

SINGLE FAMILY ATTACHED

MINIMUM LOT AREA:	2,000 SF
MINIMUM LOT WIDTH:	20 FEET
MINIMUM LOT FRONTAGE:	20 FEET
MAXIMUM LOT COVERAGE:	60%

SITE DATA

TOTAL ACREAGE:	52.55 ACRES
EXISTING USE:	VACANT
PROPOSED USE:	DWELLING, SINGLE-FAMILY ATTACHED / PERMITTED DWELLING, SINGLE-FAMILY DETACHED / PERMITTED DWELLING, MULTI-FAMILY / SPECIAL EXCEPTION
NUMBER OF LOTS:	147
NUMBER OF DWELLING UNITS:	446
LOT COVERAGE:	50%
DENSITY:	8.49 UNITS PER ACRE, GROSS

UTILITY LIST

COMPANY: CABLE PROTECTION SERVICES INC
ADDRESS: PO BOX 4614
HOUSTON, TX 77210
CONTACT: DEBBIE KING
EMAIL: debbie.king@cablerae.com
PHONE: 844-540-5267

COMPANY: COLUMBIA GAS OF PA INC
ADDRESS: 1600 DUBLIN RD
COLUMBUS, OH 43215
CONTACT: LISA COLLINS
EMAIL: lcollins@nisource.com
PHONE: 614-525-1761

COMPANY: PROPERTY MANAGEMENT INC
ADDRESS: PO BOX 8899
CAMP HILL, PA 17001
CONTACT: ASHLEY RUSSELL
EMAIL: arussell@pmiyork.com
PHONE: 717-426-3459

COMPANY: VERIZON NORTH
ADDRESS: 17 W 4TH STREET
ATGLEN, PA 19464
CONTACT: RONALD GLISINGE
EMAIL: RONALD.GLISINGER@VERIZON.COM
PHONE: 570-966-8369

COMPANY: YORK WATER COMPANY
ADDRESS: 130 E MARKET ST
YORK, PA 17401
CONTACT: JASON HEITMAN
EMAIL: jheitman@yorkwater.com
PHONE: 717-845-3601

COMPANY: YORK TWP PUBLIC WORKS
ADDRESS: 190 UNA RD
DALLASTOWN, PA 17313
CONTACT: CASEY BAKER
EMAIL: cbaker@yorktownshippa.gov
PHONE: 717-324-3493

COMPANY: PENNSYLVANIA ELECTRIC CO
ADDRESS: 320 WHITE PINE DRIVE
MASON, PA 48857
CONTACT: TELLITSHA ADAMS
EMAIL: madams@firstenergycorp.com
PHONE: 330-252-4013

COMPANY: GRP MANAGEMENT
ADDRESS: 992 SARLING DR
YORK, PA 17404
CONTACT: LORETTA BAILEY
EMAIL: lbailey@grpmanagement.com
PHONE: 717-755-1566

COMPANY: USIC
ADDRESS: 9045 N RIVER RD SUITE 300
INDIANAPOLIS, IN 46240
CONTACT: JEFFREY TROPSCHER
EMAIL: jeffrey.tropscher@usicllc.com
PHONE: 317-610-5254

COMPANY: VERIZON NORTH
ADDRESS: 37 W 8TH ST
ATGLEN, PA 19464
CONTACT: RONALD GLISINGE
EMAIL: RONALD.GLISINGER@verizon.com
PHONE: 570-966-4265

ACT NO. 287 / 50

DAVID MILLER ASSOCIATES, INC. HEREBY STATES THAT, PURSUANT TO THE PROVISIONS OF ACT NO. 287 OF DECEMBER 10, 1974, AS AMENDED BY ACT 50 OF 2017 OF THE PENNSYLVANIA LEGISLATURE, IT HAS PERFORMED THE FOLLOWING IN PREPARING THESE DRAWINGS REQUIRING EXCAVATION OR DEMOLITION WORK AT SITES WITHIN THE POLITICAL SUBDIVISION(S) SHOWN ON THE DRAWINGS.

1. PURSUANT TO SECTION 4, CLAUSE (C) OF SAID ACT, DAVID MILLER ASSOCIATES, INC. REQUESTED FROM A ONE-CALL SYSTEM THE LINE AND FACILITY INFORMATION PRESCRIBED BY SECTION 2, CLAUSE (4) OF SAID ACT.
2. PURSUANT TO SECTION 4, CLAUSE (5) OF SAID ACT, DAVID MILLER ASSOCIATES, INC. HAS SHOWN UPON THESE DRAWINGS, THE POSITION AND TYPE OF EACH LINE, AS DERIVED PURSUANT TO THE REQUEST MADE AS REQUIRED BY CLAUSE (3.1) OF SECTION 4 OF SAID ACT, AND THE USER'S NAMES, DESIGNATED OFFICE ADDRESSES AND TELEPHONE NUMBERS, AS SHOWN ON THE LIST DESCRIBED IN SECTION 3.
3. PURSUANT TO SECTION 4, CLAUSE (A) OF SAID ACT, DAVID MILLER ASSOCIATES, INC. HAS MADE "A REASONABLE EFFORT TO PREPARE THE CONSTRUCTION DRAWINGS TO AVOID DAMAGE TO AND PREVENT INTERFERENCE WITH A USER'S FACILITIES IN THE CONSTRUCTION AREA"
AND DAVID MILLER ASSOCIATES, INC. DOES NOT MAKE ANY REPRESENTATION, WARRANTY, ASSURANCE OR GUARANTY THAT THE INFORMATION RECEIVED PURSUANT TO SAID REQUEST AND AS REFLECTED ON THESE DRAWINGS IS CORRECT OR ACCURATE, BUT ONLY IS REFLECTING SAID INFORMATION ON THESE DRAWINGS ONLY DUE TO THE REQUIREMENTS OF SAID ACT 287 OF DECEMBER 10, 1974, AS AMENDED BY ACT 50 OF 2017.

DATE: DURING SERVICE NO. DESIGNATED BY: DAVID MILLER ASSOCIATES



LOCATION MAP

SCALE: 1"=2,000'

OWNER

HERITAGE HILLS ASSOCIATES
820 HERITAGE HILLS DRIVE
YORK, PA 17402
(717) 324-0706

SOURCE OF TITLE/ ACCOUNT NUMBER

ACCOUNT NUMBERS:	AREA:
54-000-LI-0044.A0-00000	1.45 ACRES
54-000-LI-0062.00-00000	39.9555 ACRES
54-000-LI-0058.00-00000	10.045 ACRES
54-000-LI-0053.00-00000	0.090 ACRES

APPLICANT/DEVELOPER

HERITAGE HILLS ASSOCIATES
820 HERITAGE HILLS DRIVE
YORK, PA 17402
(717) 324-0706

INDEX OF PLANS

1. COVER SHEET
2. EXISTING CONDITIONS PLAN
3. PROPOSED IMPROVEMENTS PLAN

REVISIONS

NUMBER	BY:	DATE:	DESCRIPTION:

OTHER APPLICABLE PLAN SETS

N/A

DMA
LANDSCAPE ARCHITECTURE | CIVIL ENGINEERING | PLANNING
SURVEYING | GEOLOGICAL SERVICES
2079 CENTERVILLE ROAD, LANCASTER, PA 17601 | (717) 898-9600 | DMA.COM

PROJECT TITLE: SPECIAL EXCEPTION EXHIBIT FOR HERITAGE HILLS RESIDENTIAL DEVELOPMENT YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA	CLIENT: ECHO HOLDCO, LLC 2950 LEWISBERRY ROAD YORK, PA 17404 (717) 507-2753

DATE:	PROJECT MANAGER:	DRAWN BY:	CHECKED BY:
08/10/26	B. DETTER	M. WAPLES	
JOB NO.:	DRAWING NO.:	FILE NO.:	SHEET:
25-163.1	25-163.8	25163COVER	1 OF 3

GRAPHIC SCALE

100 0 100 200

(IN FEET)

MIXED RESIDENTIAL - COMMERCIAL

RESIDENTIAL HIGH DENSITY

MOBILE HOME PARK

MOBILE HOME PARK

LEGEND

- RIGHT-OF-WAY
- TRACT BOUNDARY
- CURB
- EDGE OF PAVEMENT
- CENTERLINE
- LOT LINE
- EASEMENT LINE
- 100 YEAR FLOODPLAIN
- SIGN
- CORNER
- CONCRETE MONUMENT
- DECIDUOUS TREES
- EVERGREEN TREES
- UTILITY POLE
- OVERHEAD ELECTRIC
- OVERHEAD TELEPHONE
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- STORM LINE/INLET
- ENDWALL
- RIP-RAP OUTLET PROTECTION
- GAS LINE
- SEWER LINE/MANHOLE
- SEWER LATERAL
- FORCE MAIN
- WATERLINE/FIRE HYDRANT/VALVE
- WATERLINE LATERAL
- EXISTING SLOPES 25% - 33%
- EXISTING SLOPES 33%+

PLANS SUBJECT TO APPROVAL - NOT INTENDED FOR BID OR CONSTRUCTION PURPOSES

DM/A

AMERICAN ARCHITECTURAL CIVIL ENGINEERING PLANNING
SURVEYING / GEOLOGIC SERVICES
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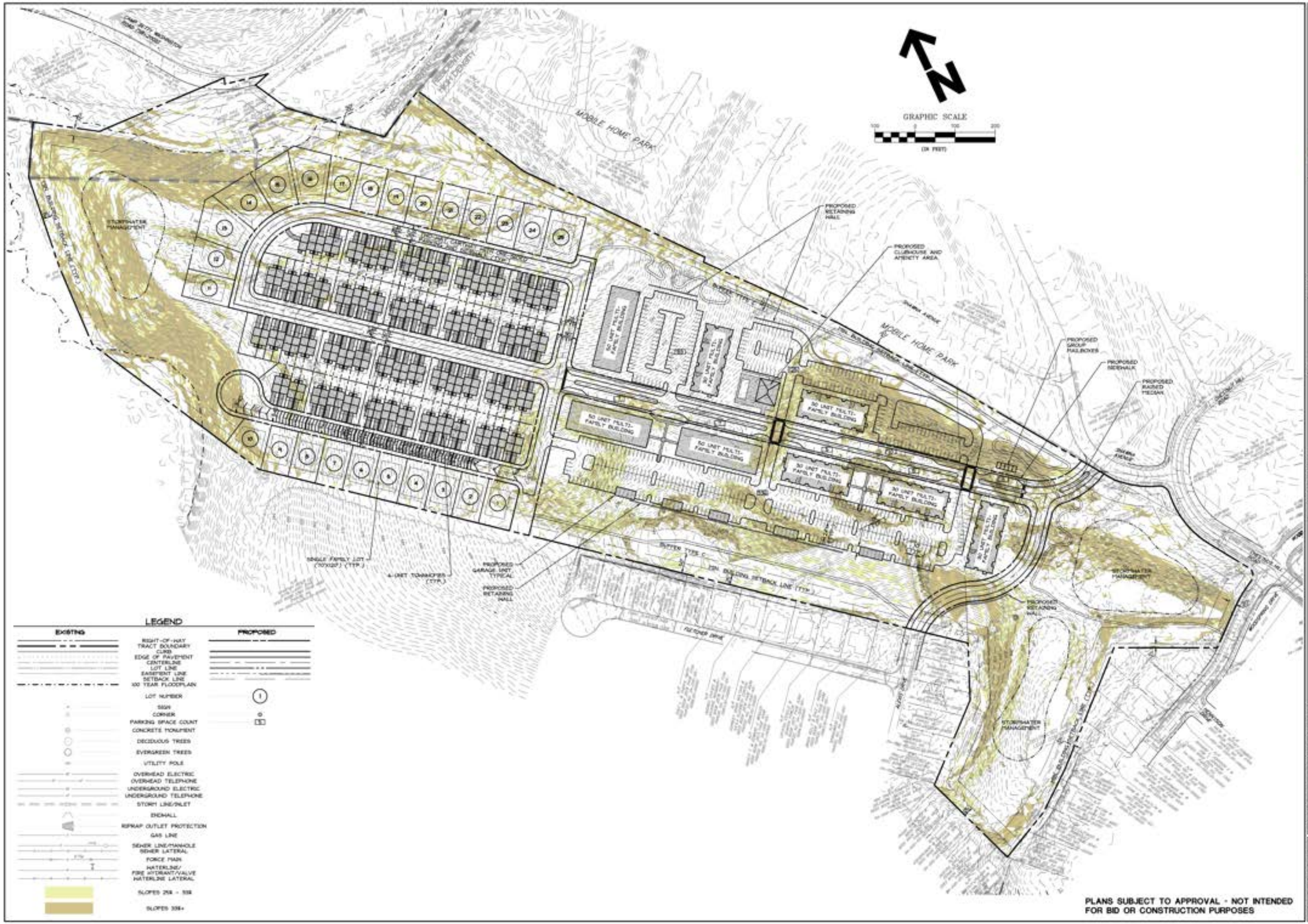
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EXISTING CONDITIONS PLAN

HERITAGE HILLS RESIDENTIAL DEVELOPMENT

YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA

PRINCIPAL: J. BOYER	PROJECT MANAGER: R. DETTER
DRAWN BY: M. WAPLES	CHECKED BY:
JOB NO.: 25-163.1	DRAWING NO.: 25-163.8
FILE NO.: 25163.08 EXISTINGCOND	
DATE: 09/10/20	SCALE: 1"=100'
SHEET NO.: 2 OF 3	



PLANS SUBJECT TO APPROVAL - NOT INTENDED FOR BID OR CONSTRUCTION PURPOSES

DM/A

PROPOSED IMPROVEMENTS PLAN

HERITAGE HILLS RESIDENTIAL DEVELOPMENT

YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA

ECHO HOLDCO, LLC
2950 LEWISBERRY ROAD
YORK, PA 17404
(717) 507-2763

PRINCIPAL: J. BOYER	PROJECT MANAGER: R. DETTER
DRAWN BY: W. WAPLES	CHECKED BY:
JOB NO.: 25-163.1	DRAWING NO.: 25-163.8
FILE NO.: 25163LAYOUT	
DATE: 09/10/25	SCALE: 1"=100'
SHEET NO.: 3 OF 3	

EXHIBIT E

TRAFFIC IMPACT STUDY

(SEE ATTACHED)

August 31, 2026
TPD# INCH.00013

Info@TPDinc.com

Transportation Impact Study

HERITAGE HILLS RESIDENTIAL DEVELOPMENT

York Township, York County, PA

For Submission To:

York Township, York County, PA

Moving ***Forward*** **Together®**

HERITAGE HILLS RESIDENTIAL DEVELOPMENT
TRANSPORTATION IMPACT STUDY

FOR SUBMISSION TO:

York Township, York County, PA

Prepared For:
Echo, LLC
2590 Lewisberry Road
York, PA 17404

August 31, 2026

TPD # INCH.00013

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8/31/2026

Jarred L. Neal, P.E.
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EXECUTIVE SUMMARY

The purpose of this Transportation Impact Study (TIS) is to examine the potential traffic impact associated with the proposed Heritage Hills Residential Development on the roadway network in York Township, York County, PA. Based on this evaluation, the following conclusions were reached:

1. This report has been prepared in accordance with *Appendix A – Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits* of PennDOT *Publication 282*, dated June 2025, and the York Township Subdivision and Land Development Ordinances (SALDO).

2. The project scope and the extent of the study area were based on the contents of the Traffic Impact Study (TIS) Scope Determination Request, dated July 23, 2026, and associated feedback from the York Township Engineer (related documentation provided in **Appendix A**). The study area consists of the following intersections:

   - Chestnut Hill Road & Shawna Avenue;
   - Chestnut Hill Road & Woodspring Drive;
   - Chestnut Hill Road & Alperton Drive;
   - Chestnut Hill Road & Springwood Road (SR 2002);
   - Chestnut Hill Road & Camp Betty Washington Road (SR 2005);
   - Chestnut Hill Road & Dustin Road;
   - Shawna Avenue & Proposed Site Access.

3. The site is located on the northwestern quadrant of the Chestnut Hill Road and Shawna Avenue intersection adjacent to the existing Bridgewater residential community.

4. At full build-out, the development is proposed to consist of the following:

   - Single-Family Detached Housing – 27 dwelling units;
   - Single-Family Attached Housing – 120 dwelling units;
   - Multifamily (low-rise) Housing – 300 dwelling units.

5. Access to the site is proposed via one (1) full-movement local road connection to Shawna Avenue and the extension of Alexis Drive into the site which will provide a connection to the existing Bridgewater residential community.

6. Upon full build-out, the proposed development is anticipated to generate 198 total vehicle-trips during the weekday A.M. peak hour and 241 total vehicle-trips during the weekday P.M. peak hour.

7. Capacity analyses were conducted to determine the quality of operation (LOS) at the study area intersections for the 2026 existing, 2035 base (no-build) and 2035 projected (build) conditions. The capacity analyses were conducted in accordance with the standards contained in *Appendix A – Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits* of PennDOT *Publication 282*, dated June 2025 and §316-E of the York Township's Subdivision and Land Development Ordinance (SALDO) requirements.

8. Levels of Service (LOS) for the study area intersections have been summarized in matrix form. The overall intersection LOS for each study area intersection and condition is detailed in **Table I**.

TABLE I - OVERALL INTERSECTION LEVEL OF SERVICE SUMMARY

Intersection	Time Period	2026 Existing	2035 Opening Year			Meet LOS Requirements?
			Base	Projected	Projected w/ Imp[1]	
Chestnut Hill Road & Shawna Avenue	AM	A (0.6)	A (0.6)	A (2.7)	--	Yes
	PM	A (0.6)	A (0.6)	A (2.1)	--	Yes
Chestnut Hill Road & Woodspring Drive	AM	A (1.4)	A (1.4)	A (1.7)	--	Yes
	PM	A (1.4)	A (1.4)	A (1.8)	--	Yes
Chestnut Hill Road & Alperton Drive	AM	A (1.0)	A (1.0)	A (1.6)	--	Yes
	PM	A (1.4)	A (1.4)	A (1.9)	--	Yes
Chestnut Hill Road & Springwood Road (SR 2002)	AM	A (9.6)	A (9.9)	B (11.7)	--	Yes
	PM	B (11.1)	B (11.4)	B (13.7)	--	Yes
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)	AM	A (7.6)	A (8.0)	B (12.1)	C (16.7)	Yes
	PM	C (15.3)	C (17.3)	D (33.3)	C (23.9)	Yes
Chestnut Hill Road & Dustin Road	AM	A (0.9)	A (0.9)	A (1.3)	--	Yes
	PM	A (0.6)	A (0.6)	A (0.8)	--	Yes
Shawna Avenue & Proposed Site Access	AM	--	--	A (7.1)	--	Yes
	PM	--	--	A (6.1)	--	Yes

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
1= Projected conditions with implementation of recommended improvements following Township's CIP

9. Under the 2035 projected (build) conditions, all overall intersections will operate at LOS D or better with the following exceptions:

Chestnut Hill Road & Camp Betty Washington Road (SR 2005)

- During the PM peak hour, the overall intersection is forecasted to decrease level of service from ILOS C (17.3 seconds) to ILOS D (33.3 seconds) during the afternoon PM peak hour with an overall intersection delay increase that exceeds 10 seconds.
- TPD conducted a traffic signal warrant evaluation at this intersection and based on the results traffic signal warrants are not anticipated to be satisfied through the 2035 projected (build) condition.
- As part of PennDOT Project ID: 20652 roadway widening and the installation of a dedicated westbound left turn lane on Camp Betty Washington Road (SR 2005) approaching Chestnut Hill Road is currently under design. The project is anticipated to be let in fall 2027.
- The York Township Capital Improvement Plan (CIP) dated January 2025, recommends that the intersection be converted from Two-Way Stop Control (TWSC) control type to an All-Way Stop Control (AWSC). With the implementation of the improvements identified in the CIP the overall intersection level of service be improved and no additional improvements are required.

10. Traffic Planning and Design Inc. (TPD) recommends the following roadway improvements as outlined at the study area intersections.

Shawna Avenue & Proposed Site Access

- Design the site driveway as a full-movement local road in accordance with Township Standards.
- Provide one entering and one exiting lane for the site access approach.
- Provide a stop sign (PennDOT designation R1-1) on the egress site access approach.
- Provide and perpetually maintain required sight distances for the site access.

ACT 209 Transportation Impact Fee

- Contribute to off-site road improvements through appropriate application of the York Township Transportation Impact Fee. The subject tract is located within the Transportation Service Area #1 TSA, which has an associated fee of $2,009.00 per site-generated weekday P.M. peak hour vehicular trip. This TIS identifies a total PM peak hour trip generation of 241 trips at full build-out, which amounts to a total impact fee of $484,169.00.

INTRODUCTION

Traffic Planning and Design, Inc. (TPD) has completed a Transportation Impact Study (TIS) for the proposed Heritage Hills Residential Development in York Township, York County, PA. As shown in **Figure 1**, the proposed development is located on the northwestern quadrant of the Chestnut Hill Road and Shawna Avenue intersection adjacent to the existing Bridgewater residential community. At full build-out, the development is proposed to consist of 27 single family detached housing dwelling units, 120 single family attached housing dwelling units, and 300 multifamily (low-rise) housing dwelling units. A site plan is provided in **Figure 2**.

This report has been prepared in accordance with Section 316-E of the York Township Subdivision and Land Development Ordinance (SALDO). The project scope and the extent of the study area were based on correspondence with the York Township Engineer, (JMT).

EXISTING ROADWAY NETWORK

A field review of the existing roadway system in the study area was conducted. The existing roadway characteristics within the study area are summarized in **Table 1**. Photographs of the study area intersections are included in **Appendix A**.

TABLE 1
ROADWAY CHARACTERISTICS WITHIN STUDY AREA

Roadway	Ownership	Functional Classification/ Roadway Type	Predominant Directional Orientation	Average Daily Traffic	Posted Speed Limit
Springwood Road	State (SR 2002)	Minor Arterial	East-West	16,320	35 mph
Camp Betty Washington Road	State (SR 2005)	Major Collector	East-West	5,895	35 mph
Chestnut Hill Road	Township	Local Road	North-South	--	30/35[1] mph
Shawna Avenue	Township	Local Road	East-West	--	25 mph
Woodspring Drive	Township	Local Road	East-West	--	25 mph
Alperton Drive	Township	Local Road	East-West	--	25 mph
Dustin Road	Township	Local Road	East-West	--	25 mph

1 = Posted speed limit 35 mph south of Springwood Road (SR 2002)

The existing intersection controls, lane configurations, lane widths, shoulder widths and approach grades for the study area intersections are summarized in **Table 2**.

TABLE 2
EXISTING INTERSECTION CONTROLS, LANE WIDTHS, SHOULDER WIDTHS, AND APPROACH GRADES

Intersection	Control	Lane Configuration	Lane Width	Shoulder Width	Approach Grade
Chestnut Hill Road & Shawna Avenue	Stop	EB L/R	15′	0′	-1%
	Free	NB L/T	11′	4′ curb	2%
		SB T/R	11′	4′ curb	5%
Chestnut Hill Road & Woodspring Drive	Stop	EB L/T/R	13′	0′ curb	2%
		WB L/T/R	16′	0′ curb	-1%
	Free	NB L/T/R	11′	4′ curb	0%
		SB L/T/R	11′	4′ curb	-1%
Chestnut Hill Road & Alperton Drive	Stop	EB L/R	16′	0′ curb	-1%
	Free	NB L/T	11′	4′ curb	4%
		SB T/R	11′	4′ curb	3%
Chestnut Hill Road & Springwood Road (SR 2002)	Signal	EB L	10′	--	-2%
		EB T/R	11′	0′	
		WB L	10′	--	4%
		WB T/R	12′	2′	
		NB L	11′	--	-3%
		NB T/R	15′	0′ curb	
		SB L/T	11′	0′	6%
		SB R	12′	--	
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)	Free	EB T/R	10′	3′	-1%
		WB L/T	10′	3′	0%
	Stop	NB L	11′	--	2%
		NB R	11′	0′	
Chestnut Hill Road & Dustin Road	Stop	EB L/R	18′	0′	2%
	Free	NB L/T	10′	2′	-2%
		SB T/R	10′	2′	2%

Land Use Context

In *Publication 13 Design Manual Part 2 (Contextual Roadway Design)*, there is guidance pertaining to defining the land use context(s) for a given area. Based upon review of this information, the given study area surrounding the proposed site best fits the Suburban designation, as described below:

- ***Suburban***, in which its characteristics are defined as "*Medium density; mixed residential neighborhood and commercial clusters; varied setbacks with some sidewalks*".

Roadway Type

PennDOT *Publication 13, Design Manual Part 2 (Contextual Roadway Design), contains* guidance pertaining to defining the transportation context(s) for a given area. Comparing the existing condition roadway characteristics to the various options presented in this document, the study area roadways best fit the following designations:

Minor Arterial, corridors of regional or community important connecting center centers of activity.

- Springwood Road (SR 2002).

Collector, roadways of lower community importance providing connections between arterials and local roads.

- Camp Betty Washington Road (SR 2005).

Local Road, roadways with no regional importance, providing local circulation and access:

- Chestnut Hill Road;
- Shawna Avenue;
- Woodspring Drive;
- Alperton Drive;
- Dustin Road.

Bicycle and Pedestrian Facilities

Based on field observations at the study area intersections, paved shoulders and/or travel lanes currently accommodate bicycle traffic. Crosswalks are located throughout the study area within the existing Bridgewater community. The traffic signals are generally equipped with pedestrian signals, crosswalks, and ADA accommodations. The proposed development will not adversely impact existing pedestrian or bicycle facilities.

Mass Transit Facilities

York County and York Township are provided with mass-transit accommodation via Rabbit Transit. There are no scheduled stops within the vicinity of the site. Additionally, there are no rail centers within ½ mile of the site.

Crash Data Investigation

Crash data was obtained from PennDOT along the Springwood Road (SR 2002) & Camp Betty Washington Road (SR 2005) within the vicinity of the study area intersections. PennDOT defines a reportable crash as follows, "A reportable (crash) is one in which an injury or fatality occurs or if at least one of the vehicles involved requires towing from the scene." Reportable crashes were tabulated for the most recent five-year time period beginning 1/1/2021 and ending 12/31/2025. For a given intersection, PennDOT considers a crash occurrence of 5 reportable, correctable crashes over a continuous twelve-month period during the past five years to be a threshold value, above which the intersection design should be reviewed to examine if corrective measures can be taken to enhance safety. Based on a review of the crash data there was not a crash occurrence of 5 reportable, correctable crashes over a continuous twelve-month period along the subject corridor, and thus corrective measures are not necessary to enhance safety.

EXISTING TRAFFIC CONDITIONS

Average Daily Traffic

The existing Average Daily Traffic (ADT) volumes are based on data obtained from PennDOT Traffic Information Repository (TIRe) website. The traffic volume map contained on the PennDOT TIRe website was reviewed in August 2026 to determine the Average Daily Traffic (ADT) for a typical weekday along the State-maintained roadways in the vicinity of the proposed site. The existing ADT volumes are shown on **Table 1** and the traffic volume maps from PennDOT TIRe website are provided in **Appendix B.**

Manual Turning Movement Counts

Manual traffic counts were conducted in 15-minute intervals during the weekday morning (6:00 to 9:00 A.M.) and weekday evening (3:00 to 6:00 P.M) peak hours. Data pertaining to heavy vehicles, pedestrians and right turn on reds were observed during the manual counts. Peak hours and count dates for the study area intersections are identified in **Table 3**.

TABLE 3
MANUAL TRAFFIC COUNT INFORMATION

Intersection	Date of Traffic Counts	Time Period	Intersection Peak Hour[1]
Chestnut Hill Road & Shawna Avenue	Wednesday, August 5, 2026	Weekday A.M.	8:00 to 9:00 A.M.
		Weekday P.M.	4:45 to 5:45 P.M.
Chestnut Hill Road & Woodspring Drive	Wednesday, August 5, 2026	Weekday A.M.	8:00 to 9:00 A.M.
		Weekday P.M.	4:45 to 5:45 P.M.
Chestnut Hill Road & Alperton Drive	Wednesday, August 5, 2026	Weekday A.M.	8:00 to 9:00 A.M.
		Weekday P.M.	4:45 to 5:45 P.M.
Chestnut Hill Road & Springwood Road (SR 2002)	Wednesday, August 5, 2026	Weekday A.M.	7:30 to 8:30 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)	Wednesday, August 5, 2026	Weekday A.M.	7:00 to 8:00 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.
Chestnut Hill Road & Dustin Road	Wednesday, August 5, 2026	Weekday A.M.	7:30 to 8:30 A.M.
		Weekday P.M.	4:30 to 5:30 P.M.

[1]Peak Hour consists of the four consecutive 15-minute intervals where the highest traffic volumes occur.

The unadjusted existing condition traffic volumes for the weekday A.M. and weekday P.M. peak hours are illustrated in **Figure 3A.** As part of the TIS Scope Determination Request York Township has allowed for the data collection to be completed during the summer months with the implementation of the seasonal adjustment. TPD utilized the 2024 Traffic Pattern Group (TPG) adjustment factors following the Bureau of Planning and Research data for TPG 5 (Urban - Minor Arterials, Collectors, and Local Roads) rates to adjust the August count data. The seasonal adjusted existing condition traffic volumes for the weekday A.M. and weekday P.M. peak hours are illustrated in **Figure 3B.** Manual traffic count data sheets are provided in **Appendix D**.

BASE (NO-BUILD) CONDITIONS

Annual Background Growth

A background growth factor for the roadways in the study area was developed based on growth factors for August 2025 to July 2026 obtained from the PennDOT Bureau of Planning and Research (BPR). The PennDOT BPR suggests using a background growth trend factor of 0.33% per year in York County for urban non-interstate roadways. As such, a background growth factor was applied annually to yield overall growth percentages of 3.01% (0.33% per year, compounded over 9 years) for the 2035 design year of the development.

Nearby Proposed Developments

Base (no-build) traffic conditions were calculated to include traffic volumes from proposed developments, which, though not operating under existing conditions, may be operating by the opening year (2035) of the proposed development. Based on discussion with the township the following nearby developments were included in this analysis:

- **Bridgewater Age Restricted Community** is a proposed senior adult detached housing development with 150 units along the northern side of Springwood Road (SR 2002). Trip generation and distributions for the proposed site were obtained from TRG's TIA, dated September 2022. Trip distributions for this background development are shown in **Appendix C**.

The nearby development trips are shown on **Figure 4**. The additional traffic volumes due to background growth and nearby developments were added to the existing traffic data to produce 2035 base (no-build) condition traffic volumes. Base condition volumes for the weekday A.M. and weekday P.M. peak hours are illustrated in **Figure 5** for the 2035 design year conditions.

SCHEDULED ROADWAY IMPROVEMENTS

Programmed Improvements

Based on a review of PennDOT One Map website the Transportation Improvement Program (TIP), the following transportation improvement program was identified within the vicinity of the study area:

- **Project ID: 20652**, Camp Betty Washington Rd/Haines Rd: widen and resurface, two bridge replacements, and safety improvements. Project Narrative: This project consists of roadway shoulder widths from 1' to 4', overlay and safety improvements on State Route 2005 (Camp Betty Washington Road/Haines Road) from SR 2002 (Springwood Road) to approximately 1500' south of SR 0124 in Springettsbury and York Townships, York County. Other improvements along SR 2005 include a bridge replacement over an unnamed tributary of Mill Creek (BR 37694) and bridge replacement over Mill Creek (BRKEY 37693), addition of an unsignalized northbound left turn lane on SR 2005 at Chestnut Hill Road, drainage, guide rail, signing and pavement marking upgrades. Additional safety improvements under evaluation along the corridor may include laying back slopes and/or trimming trees to improve sight distance, minor curve realignment and roadway slope corrections, and removal of rock outcrops or other hazardous features along key locations along the corridor. For purposes of this study, this proposed westbound left turn lane along SR 2005 roadway improvement at Chestnut Hill Road was implemented within the 2035 base (no-build) and 2035 projected (build) condition scenarios. The programmed roadway improvements are provided within **Appendix B**.

York Township Capital Improvements Plan

Based upon the York Township Capital Improvements Plan (CIP) dated January 14, 2025, the following roadway improvements are identified at the study area intersections located within Transportation Service Area 1.

- **Camp Betty Washington Road (SR 2005) & Chestnut Hill Road**
  - Existing Improvements – None
  - Base Improvements – Convert to All-way Stop Control
  - Projected Improvements - None
- **Springwood Road (SR 2002) & Chestnut Hill Road**
  - Existing Improvements – None
  - Base Improvements – None
  - Projected Improvements – Add EB and WB Thru Lanes; Add EB/WB left-turn phasing

PROPOSED SITE ACCESS

Access to the site is proposed via one (1) full-movement local road connection to Shawna Avenue and the extension of Alexis Drive into the site which will provide a connection to the existing Bridgewater residential community.

Sight Distance Analysis

A sight distance analysis was prepared for the proposed site driveways. In general, recommended safe sight distances depend upon the posted speed limit and roadway grades. The existing sight distances at the proposed driveways were measured in accordance with PennDOT Publication 282 Highway Occupancy Permit Operations Manual and compared to AASHTO's intersection sight distance standard, which is identified Chapter 9.5 of the "A Policy on Geometric Design of Highways and Streets, 2018 7th Edition". In addition, measured sight distances at the proposed driveways were compared to PennDOT's safe stopping sight distance standard, which is calculated by the following equation:

$$\mathbf{SSSD = 1.47VT + V^2/[30(f \pm g)]}$$

SSSD = safe stopping sight distance (acceptable sight distance)
V = Vehicle Speed
T = Perception Reaction Time of Driver (2.5 seconds)
f = Coefficient of Friction for Wet Pavements
g = Percent of Roadway Grade Divided by 100

Table 4 shows the measured (EXIST), AASHTO's Intersection Sight Distance (ISD), and acceptable (SSSD) sight distances at the site driveway for vehicles entering and exiting the site.

TABLE 4
SIGHT DISTANCE ANALYSIS

Movement	Direction	Posted Speed	Grade[1]	Sight Distances (feet)		
				ISD	SSSD	EXIST
Shawna Avenue & Proposed Site Access						
Exiting Movements	To the left	25 mph	-1%	280'	148'	350'+
	To the right	25 mph	3%	280'	143'	200'[2]
Entering Left Turns	Approaching same direction	25 mph	3%	N/A	143'	155'[2]
	Approaching opposite direction	25 mph	-1%	205'	148'	250'

ISD = AASHTO's Intersection Sight Distance
SSSD = PennDOT Acceptable Sight Distance
EXIST = Existing (Measured) Sight Distance
1 = Roadway Grade Approaching Driveway
2 = Distance to Chestnut Hill Road intersection

As shown in **Table 4** above, the measured sight distances at the site driveway locations exceed AASHTO or Township standards, except for the following:

Shawna Avenue & Proposed Site Access - Available sight distances for vehicles exiting to the right are limited due to the proximity of the Chestnut Hill Road and Shawna Avenue intersection. However, sight distances extend to the intersection with Chestnut Hill Road, and vehicles turning onto Shawna Avenue from Chestnut Hill Road will immediately achieve sight of the proposed site access at turning speeds, thus available sight distances are adequate. Additionally, PennDOT's acceptable sight distance (SSSD) criteria are met in all directions.

TRIP GENERATION

The trip generation rates for the proposed development were obtained from the manual *Trip Generation*, Twelfth Edition, 2025, an Institute of Transportation Engineers (ITE) Informational Report. The data are categorized by Land Use Codes, with total vehicular trips for a given land use estimated using an independent variable and statistically generated rates or equations.

The data for Land Use Code 210 (Single Family Detached Homes), 215 (Single Family Attached Homes), and 220 (Multifamily Housing (Low-Rise)) was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour and (3) weekday P.M. peak hour.

Table 5 shows the trip generation rates or equations and directional split for the analyzed time periods.

TABLE 5
ITE TRIP GENERATION DATA – TOTAL SITE TRIPS

Land Use	ITE #	Time Period	Equations/Rates	Directional Split	
				Entering %	Exiting %
Single Family Detached Homes	210	Average Weekday	T = 8.07*(X) + 265.45	50%	50%
		Weekday A.M. Peak Hour	T = 0.67*(X) + 5.59	27%	73%
		Weekday P.M. Peak Hour	Ln(T) = 0.92*Ln(X) + 0.33	62%	38%
Single Family Attached Homes	215	Average Weekday	T = 6.57*(X)	50%	50%
		Weekday A.M. Peak Hour	T = 0.59*(X) – 15.25	25%	75%
		Weekday P.M. Peak Hour	T = 0.57*(X) – 7.84	57%	43%
Multifamily (Low-Rise) Housing	220	Average Weekday	T = 5.63*(X) + 120.45	50%	50%
		Weekday A.M. Peak Hour	T = 0.35*(X) + 12.93	24%	76%
		Weekday P.M. Peak Hour	T = 0.48*(X) + 7.35	62%	38%

T = number of site-generated vehicular trips
X = independent variable (of dwelling units)

The calculated trip generation for the proposed development is shown in **Table 6.**

TABLE 6
TRIP GENERATION SUMMARY

Land Use	Size	New Trips		
		Total	Enter	Exit
Average Weekday				
Single Family – Detached	27 Units	483	242	241
Single Family – Attached	120 Units	788	394	394
Multifamily (Low-Rise)	300 Units	1809	905	904
Total	**447 Units**	**3,080**	**1,541**	**1,539**
Weekday A.M. Peak Hour				
Single Family – Detached	27 Units	24	6	18
Single Family – Attached	120 Units	56	14	42
Multifamily (Low-Rise)	300 Units	118	28	90
Total	**447 Units**	**198**	**48**	**150**
Weekday P.M. Peak Hour				
Single Family – Detached	27 Units	29	18	11
Single Family – Attached	120 Units	61	35	26
Multifamily (Low-Rise)	300 Units	151	94	57
Total	**447 Units**	**241**	**147**	**94**

Based on the trip generation analysis summarized in **Table 6**, the Heritage Hills Residential Development will generate approximately **198** total vehicle-trips during the weekday A.M. peak hour and **241** total vehicle-trips during the weekday P.M. peak hour at full build out.

TRIP DISTRIBUTION

The distribution and assignment of new trips generated by the proposed development will be based on (1) existing traffic patterns and (2) the site access locations/configurations. Given the location of the proposed development and the residential context of the surrounding area, TPD believes that evaluation of existing traffic patterns is appropriate in lieu of a gravity model. The new vehicle trips for the proposed development will be distributed to the local roadway network based on the percentages shown in **Table 7**.

TABLE 7
TRIP DISTRIBUTION PERCENTAGES

Direction To/From	Assignment (To/From)	New Trips Distribution Percentage (%)
East	via Camp Betty Washington Road (SR 2005)	17%
	via Springwood Road (SR 2002)	25%
West	via Camp Betty Washington Road (SR 2005)	21%
	via Springwood Road (SR 2002)	28%
South	Via Chestnut Hill Road	9%

The distribution percentages and assignments for site-generated trips for the proposed development are shown in **Figure 6 and 7.**

PROJECTED (BUILD) CONDITION TRAFFIC VOLUMES

The site-generated trips for the proposed development were added to the 2035 base (no-build) condition traffic volumes to calculate 2035 projected (build) condition traffic volumes. Projected condition traffic volumes are shown in **Figure 8** for the 2035 design year for the weekday A.M. and weekday P.M. peak hours. Traffic volume development worksheets for the study area intersections are contained in **Appendix E**.

LEVELS OF SERVICE FOR AN INTERSECTION

For analysis of intersections, level of service is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS criteria is stated in terms of control delay per vehicle for a one-hour analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The criteria are shown in **Table 8**. Delay, as it relates to level of service, is a complex measure and is dependent upon a number of variables. For signalized intersections, these variables include the quality of vehicle progression, the cycle length, the green time ratio, and the volume/capacity ratio for the lane group in question. For unsignalized intersections, delay is related to the availability of gaps in the flow of traffic on the major street and the driver's discretion in selecting an appropriate gap for a particular movement from the minor street (straight across, left or right turn).

TABLE 8
LEVEL OF SERVICE CRITERIA
UNSIGNALIZED AND SIGNALIZED INTERSECTIONS [1]

Level of Service	Control Delay Per Vehicle (Seconds)	
	Signalized	Unsignalized
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80 or v/c > 1.0	> 50 or v/c > 1.0

[1] Obtained from the Transportation Research Board's Highway Capacity Manual, 7th Edition

CAPACITY ANALYSIS METHODOLOGY

Capacity analyses were conducted for the weekday A.M. and P.M. peak hours at the study area intersections. These analyses were conducted according to the methodologies contained in the *Highway Capacity Manual 7th Edition* (HCM) using *Synchro 12* software (version 12.3, build 3, revision 19), a Trafficware product.

The following conditions were analyzed, as applicable:

- 2026 Existing conditions;
- 2035 Base conditions (Design year without development);
- 2035 Projected conditions (Design year with full build-out of proposed development);
- 2035 Projected conditions with improvements.

The following items should be noted with respect to the capacity analyses:

- The Pennsylvania default values for signalized intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base saturation flow rate (1800 pcphpl),

start-up lost time (2.5 seconds), extension of effective green time (3.5 seconds), and number of left turn sneakers (2 vehicles).

- The Pennsylvania default values for two-lane and four-lane stop controlled intersections in a suburban land use context contained in Chapter 10 of PennDOT's *Publication 46* were utilized for the base critical headway and base follow-up headways, as applicable. Worksheets related to the calculated critical and follow-up headways are included at the beginning of **Appendix F**.
- Per PennDOT TIS standards, the signal timings at the study area intersections were optimized under the base (no-build) conditions. If further signal timing optimization is needed due to the impact of the proposed development, the optimized timings were applied to the projected build) with improvements conditions. The PennDOT signal permit plans are provided in **Appendix H**.

PennDOT/York Township Standards

Since the York Township SALDO does not contain specific requirements related to future condition levels of service the capacity analyses were conducted in accordance with the below noted standards contained in PennDOT's Transportation Impact Study Guidelines outlined in PennDOT's *Policies and Procedures for Transportation Impact Studies*, found in PennDOT's Publication 282, Appendix A, dated June 2025, contain the following criteria regarding levels of service:

- The guidelines state that if evaluation of the With Development Design Year Scenario to the Without Development Design Year Scenario indicates that the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase in overall intersection delay 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. If the intersection level of service meets the level of service requirements, applicants may still be required to provide mitigation to address critical lanes or approaches. For locations where the level of service of the design year without the development is LOS F and with development, the delay increases more than 10 seconds, the remedies shall provide an estimated delay which will be no worse than the delay for the design year without the development.
- The guidelines state that for mitigation scenarios, applicants are expected to mitigate the overall intersection LOS to the original Without Development LOS; the 10-second delay variance is not applied to mitigation scenarios. Applicants may be required to address available storage and queue lengths at critical movements or approaches even if the overall LOS requirements are met.
- The guidelines state that if signalization is the preferred alternative for mitigation, overall intersection LOS C in rural areas and LOS D in urban areas is acceptable.
- The guidelines states new signalized or unsignalized intersections established to serve as access to the development shall be designed to operate at minimum LOS C for rural areas, and minimum LOS D for urban areas.

LEVELS OF SERVICE IN THE STUDY AREA

Level of service (LOS) matrices for the study area intersections are shown in **Tables 9-10** for the weekday A.M. and weekday P.M. peak hours, respectively.

TABLE 9:
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY – A.M. PEAK

Intersection	Movement	Existing Conditions	2035 Horizon Year		
			Base	Projected	Proj. w/ Imp[1]
Chestnut Hill Road & Shawna Avenue	EB L/R	A	A	B	--
	NB L/T	A	A	A	--
	ILOS	**A (0.6)**	**A (0.6)**	**A (2.7)**	--
Chestnut Hill Road & Woodspring Drive	EB L/T/R	B	B	B	--
	WB L/T/R	A	B	B	--
	NB L/T/R	A	A	A	--
	SB L/T/R	A	A	A	--
	ILOS	**A (1.4)**	**A (1.4)**	**A (1.7)**	--
Chestnut Hill Road & Alperton Drive	EB L/R	A	A	B	--
	NB L/T	A	A	A	--
	ILOS	**A (1.0)**	**A (1.0)**	**A (1.6)**	--
Chestnut Hill Road & Springwood Road (SR 2002)	EB L	A	A	B	--
	EB T/R	A	A	A	--
	WB L	A	A	A	--
	WB T/R	A	A	A	--
	NB L	B	B	C	--
	NB T/R	B	B	B	--
	SB L/T	B	B	B	--
	SB R	C	C	C	--
	ILOS	**A (9.6)**	**A (9.9)**	**B (11.7)**	--
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)	**EB T/R**	--	--	--	B
	WB L/T **WB L**	A	A	A	B
	WB L/T **WB T**				C
	NB L	D	D	E	C
	NB R	A	A	A	A
	ILOS	**A (7.6)**	**A (8.0)**	**B (12.1)**	**C (16.7)**
Chestnut Hill Road & Dustin Road	EB L/R	A	A	B	--
	NB L/T	A	A	A	--
	ILOS	**A (0.9)**	**A (0.9)**	**A (1.3)**	--
Shawna Avenue & Proposed Site Access	EB L/R	--	--	A	--
	NB L/T	--	--	A	--
	ILOS	--	--	**A (7.1)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
Unsignalized ILOS calculated in accordance with Figure 5 of Policies and Procedures for Transportation Impact Studies.
1= Projected conditions with implementation of recommended improvements following Township's CIP

TABLE 10:
LEVEL OF SERVICE DELAY (SECONDS) SUMMARY – P.M. PEAK

Intersection	Movement	Existing Conditions	2035 Horizon Year		
			Base	Projected	Proj. w/ Imp[1]
Chestnut Hill Road & Shawna Avenue	EB L/R	B	B	B	--
	NB L/T	A	A	A	--
	ILOS	**A (0.6)**	**A (0.6)**	**A (2.1)**	--
Chestnut Hill Road & Woodspring Drive	EB L/T/R	B	B	C	--
	WB L/T/R	B	B	C	--
	NB L/T/R	A	A	A	--
	SB L/T/R	A	A	A	--
	ILOS	**A (1.4)**	**A (1.4)**	**A (1.8)**	--
Chestnut Hill Road & Alperton Drive	EB L/R	B	B	B	--
	NB L/T	A	A	A	--
	ILOS	**A (1.4)**	**A (1.4)**	**A (1.9)**	--
Chestnut Hill Road & Springwood Road (SR 2002)	EB L	A	B	B	--
	EB T/R	A	A	A	--
	WB L	A	A	B	--
	WB T/R	A	A	A	--
	NB L	C	C	C	--
	NB T/R	B	B	B	--
	SB L/T	B	B	C	--
	SB R	B	B	B	--
	ILOS	**B (11.1)**	**B (11.4)**	**B (13.7)**	--
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)	**EB T/R**	--	--	--	E
	WB L/T **WB L**	B	B	B	B
	WB L/T **WB T**				B
	NB L	F	F	F	C
	NB R	B	B	B	B
	ILOS	**C (15.3)**	**C (17.3)**	**D (33.3)**	**C (23.9)**
Chestnut Hill Road & Dustin Road	EB L/R	B	B	B	--
	NB L/T	A	A	A	--
	ILOS	**A (0.6)**	**A (0.6)**	**A (0.8)**	--
Shawna Avenue & Proposed Site Access	EB L/R	--	--	A	--
	NB L/T	--	--	A	--
	ILOS	--	--	**A (6.1)**	--

Base = No-Build scenario Projected = Build scenario ILOS = Overall Intersection Level of Service
Unsignalized ILOS calculated in accordance with Figure 5 of Policies and Procedures for Transportation Impact Studies.
1= Projected conditions with implementation of recommended improvements following Township's CIP

As summarized in **Table 9-10**, under the 2035 projected (build) conditions, all overall intersections will operate at LOS D or better with the following exception:

Chestnut Hill Road & Camp Betty Washington Road (SR 2005)

- During the PM peak hour, the overall intersection is forecasted to decrease level of service from ILOS C (17.3 seconds) to ILOS D (33.3 seconds) during the afternoon PM peak hour with an overall intersection delay increase that exceeds 10 seconds.
- TPD conducted a traffic signal warrant evaluation at this intersection and based on the results traffic signal warrants <u>are not</u> anticipated to be satisfied through the 2035 projected (build) condition.

- As part of PennDOT Project ID: 20652 roadway widening and the installation of a dedicated westbound left turn lane on Camp Betty Washington Road (SR 2005) approaching Chestnut Hill Road is currently under design. The project is anticipated to be let in fall 2027.
- The York Township Capital Improvement Plan (CIP) dated January 2025, recommends that the intersection be converted from Two-Way Stop Control (TWSC) control type to an All-Way Stop Control (AWSC). With the implementation of the improvements identified in the CIP the overall intersection level of service be improved and no additional improvements are required.

95TH PERCENTILE QUEUE ANALYSIS

A queue analysis was conducted that evaluated the 95th percentile queue lengths (as applicable) for the study area intersections. This analysis was completed using the *Synchro 12* software and includes both the HCM 7th Edition and Synchro Percentile queues (as applicable). The queue analysis results are summarized in **Tables 11-12** for the weekday A.M. and weekday P.M. peak hours, respectively.

TABLE 11
QUEUE ANALYSIS: WEEKDAY A.M. PEAK HOUR

Approach/ Movement	Available Storage	2026 Existing Condition		Design Year 2035: No-Build		Design Year 2035: Build		Design Year 2035: Build w Imp[1]	
		Synchro 95th	HCM 95th	Synchro 95th	Synchro 95th	HCM 95th	Synchro 95th	Synchro 95th	HCM 95th
Chestnut Hill Road & Shawna Avenue									
EB L/R	350'/**200'**	--	0'	--	0'	--	13'	--	--
NB L/T	275'	--	0'	--	0'	--	3'	--	--
Chestnut Hill Road & Woodspring Drive									
EB L/T/R	325'	--	3'	--	3'	--	5'	--	--
WB L/T/R	1,000'+	--	3'	--	3'	--	3'	--	--
NB L/T/R	675'	--	0'	--	0'	--	0'	--	--
SB L/T/R	275'	--	0'	--	0'	--	0'	--	--
Chestnut Hill Road & Alperton Drive									
EB L/R	375'	--	3'	--	3'	--	8'	--	--
NB L/T	1,000'+	--	0'	--	0'	--	3'	--	--
Chestnut Hill Road & Springwood Road (SR 2002)									
EB L	150'	15'	5'	17'	5'	29'	10'	--	--
EB T/R	775'	57'	15'	64'	18'	78'	23'	--	--
WB L	80'	9'	3'	9'	3'	11'	3'	--	--
WB T/R	1,000'+	167'	53'	185'	58'	232'	78'	--	--
NB L	100'	26'	8'	27'	8'	29'	8'	--	--
NB T/R	1,000'+	61'	25'	60'	25'	68'	28'	--	--
SB L/T	1,000'+	48'	15'	48'	18'	87'	33'	--	--
SB R	100'	42'	33'	42'	35'	48'	50'	--	--
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)									
EB T/R	1,000'	--	--	--	--	--	--	--	30'
WB L/T **WB L**	725' **175'**	--	8'	--	8'	--	10'	--	20'
WB L/T **WB T**	725' **725'**							--	148'
NB L	45'	--	88'	--	95'	--	150'	--	63'
NB R	575'	--	3'	--	3'	--	5'	--	8'
Chestnut Hill Road & Dustin Road									
EB L/R	200'	--	3'	--	3'	--	5'	--	--
NB L/T	1,000'+	--	0'	--	0'	--	0'	--	--
Shawna Avenue & Proposed Site Access									
EB L/R	**75'+**	--	--	--	--	--	8'	--	--
NB L/T	**155'**	--	--	--	--	--	3'	--	--

*Base = No-Build scenario Projected = Build scenario Existing Storage/**Proposed Storage***
1 = Projected conditions with implementation of recommended improvements

TABLE 12
QUEUE ANALYSIS: WEEKDAY P.M. PEAK HOUR

Approach/ Movement	Available Storage	2026 Existing Condition		Design Year 2035: No-Build		Design Year 2035: Build		Design Year 2035: Build w Imp[1]	
		Synchro 95th	HCM 95th	Synchro 95th	Synchro 95th	HCM 95th	Synchro 95th	Synchro 95th	HCM 95th
Chestnut Hill Road & Shawna Avenue									
EB L/R	350'/**200'**	--	3'	--	3'	--	13'	--	--
NB L/T	275'	--	3'	--	3'	--	8'	--	--
Chestnut Hill Road & Woodspring Drive									
EB L/T/R	325'	--	8'	--	8'	--	10'	--	--
WB L/T/R	1,000'+	--	5'	--	5'	--	8'	--	--
NB L/T/R	675'	--	0'	--	0'	--	3'	--	--
SB L/T/R	275'	--	0'	--	0'	--	0'	--	--
Chestnut Hill Road & Alperton Drive									
EB L/R	375'	--	8'	--	8'	--	13'	--	--
NB L/T	1,000'+	--	3'	--	5'	--	8'	--	--
Chestnut Hill Road & Springwood Road (SR 2002)									
EB L	150'	58'	20'	64'	23'	108'	43'	--	--
EB T/R	775'	175'	53'	190'	60'	223'	80'	--	--
WB L	80'	28'	8'	30'	10'	35'	13'	--	--
WB T/R	1,000'+	139'	43'	151'	50'	196'	75'	--	--
NB L	100'	22'	8'	24'	8'	25'	10'	--	--
NB T/R	1,000'+	89'	43'	91'	45'	103'	55'	--	--
SB L/T	1,000'+	119'	58'	124'	60'	150'	85'	--	--
SB R	100'	32'	18'	33'	20'	35'	30'	--	--
Chestnut Hill Road & Camp Betty Washington Road (SR 2005)									
EB T/R	1,000'	--	--	--	--	--	--	--	265'
WB L/T **WB L**	725' **175'**	--	23'	--	25'	--	30'	--	50'
WB L/T **WB T**	725' **725'**							--	50'
NB L	45'	--	170'	--	188'	--	283'	--	53'
NB R	575'	--	8'	--	8'	--	10'	--	13'
Chestnut Hill Road & Dustin Road									
EB L/R	200'	--	5'	--	5'	--	8'	--	--
NB L/T	1,000'+	--	0'	--	0'	--	0'	--	--
Shawna Avenue & Proposed Site Access									
EB L/R	**75'+**	--	--	--	--	--	5'	--	--
NB L/T	**155'**	--	--	--	--	--	8'	--	--

*Base = No-Build scenario Projected = Build scenario Existing Storage/**Proposed Storage***
1 = Projected conditions with implementation of recommended improvements

As shown in **Tables 11-12**, under the projected (build) conditions, with implementation of recommended improvements, all queues will be accommodated within the available storage length; or, if the projected condition queue cannot be accommodated within the available storage length, it will be less than or comparable to the corresponding base ("no-build") queue.

Queue analysis worksheets are included with the capacity analysis worksheets provided in **Appendix F**.

AUXILIARY TURN LANE ANALYSIS

Methodology

TPD evaluated auxiliary turn lane warrants at the proposed site access intersection and the intersection of Chestnut Hill Road and Shawna Avene. The warrant analysis methodology contained within Chapter 11 of PennDOT's *Publication 46*, Section 11.17 was utilized for this evaluation.

Findings

Table 13 summarizes the results of the auxiliary turn lane analysis at the site access intersections.

TABLE 13
AUXILIARY TURN LANE ANALYSIS SUMMARY

Intersection	Auxiliary Lane	Warrant Satisfied?	Required Lane Length	Proposed Lane Length
Shawna Avenue & Chestnut Hill Road	NB Left Turn Lane	No	--	--
	SB Right Turn Lane	No	--	--
Shawna Avenue & Proposed Site Access	NB Left Turn Lane	No	--	--
	SB Right Turn Lane	No	--	--

The calculations for the auxiliary turn lane warrants are included in **Appendix G**.

SIGNAL WARRANT ANALYSIS

A preliminary traffic signal warrant analysis was completed for the following intersections:

- Chestnut Hill Road & Camp Betty Washington Road (SR 2005)

Preliminary traffic signal warrant analyses were conducted in accordance with PennDOT Publication 212, *Official Traffic Control Devices*, Subchapter D, "Highway Traffic Signals". In order to determine the 12-hour existing traffic volumes, manual traffic counts were conducted during an average weekday (6:00 A.M.-6:00 P.M.) at the intersection of Chestnut Hill Road & Camp Betty Washington Road (SR 2005). All relevant signal warrant analyses worksheets are included in **Appendix K**.

2035 Projected (Build) Conditions Signal Warrant Analysis (Full Build-Out)

TPD examined 2035 projected (build) condition traffic volumes at the intersection of Chestnut Hill Road & Camp Betty Washington Road (SR 2005) to determine if the following MUTCD and/or PennDOT signal warrants will be satisfied:

- Warrant 2, Four-Hour Volume Warrant;

Chestnut Hill Road & Camp Betty Washington Road (SR 2005)

Based on the analyses performed, the following summarizes the results of the traffic signal warrants analyzed at the intersection of Chestnut Hill Road & Camp Betty Washington Road (SR 2005) for an average weekday:

- Warrant 2: exceeds threshold volumes for 2 hours, 4 hours needed **(not satisfied)**;

As outlined above, traffic signal warrants **are not** anticipated to be satisfied at the intersection Chestnut Hill Road & Camp Betty Washington Road (SR 2005) under full build-out 2035 projected conditions.

It is important to note that PennDOT has jurisdiction over all traffic signalization in the state of Pennsylvania; and thus, PennDOT will need to review and approve the traffic signal plans. In addition, in Pennsylvania, municipalities own and maintain the signal equipment; and thus, the municipality must be the Applicant to PennDOT for the signalization.

RECOMMENDATIONS AND CONCLUSIONS

The recommendations and conclusions for this Transportation Impact Study are identified in the Executive Summary.


STUDY AREA INTERSECTION
PROPOSED SITE ACCESS

APPENDIX A:
Project Correspondence

NOTES

1. TOTAL UNIT MIX
   - MULTI-FAMILY: 300 UNITS
   - TOWN HOMES: 120 UNITS
   - SINGLES: 27 LOTS
2. MULTI-FAMILY PARKING REQUIREMENTS
   - 1 BEDROOM: 1.5 PARKING SPACES PER UNIT
   - 2 OR 3 BEDROOM: 2 PARKING SPACES PER UNIT
   - REQUIRED PARKING (30 UNIT): 53 PARKING SPACES PER BUILDING x 5 BUILDINGS = 265 SPACES
   - REQUIRED PARKING (50 UNIT): 86 PARKING SPACES PER BUILDING X 3 BUILDINGS = 258 SPACES
     523 SPACES REQUIRED
   - PARKING PROVIDED: 575 PARKING SPACES
3. REQUIRED LOT WIDTH
   - SINGLE FAMILY DETACHED: 50 LF MINIMUM, 70 LF PROVIDED
   - SINGLE FAMILY ATTACHED: 20 LF MINIMUM, 20 LF PROVIDED
   - MULTI-FAMILY: 200 LF MINIMUM
     GREATER THAN 200 LF PROVIDED
4. REQUIRED LOT AREA
   - SINGLE FAMILY DETACHED: 5,000 SF MINIMUM, 5,000 SF PROVIDED
   - SINGLE FAMILY ATTACHED: 2,000 SF MINIMUM, 2,000 SF PROVIDED
   - MULTI-FAMILY: ONE ACRE MINIMUM
     GREATER THAN ONE ACRE PROVIDED
5. ALL MULTIFAMILY BUILDINGS SHALL BE SETBACK A MINIMUM OF FIFTY (50) FEET FROM THE PROPERTY LINES OR STREET RIGHTS-OF-WAY. A BUFFER PLANTING STRIP, TYPE C SECTION 610 SALDO, SHALL BE PLANTED WITHIN THE 50-FOOT SETBACK.

MULTI-FAMILY OPEN SPACE REQUIREMENTS

UNIT TYPE	NO. UNITS	REQIRED LOT AREA PER UNIT (SF)	REQUIRED PLAY AREA PER UNIT (SF)	REQUIRED OPEN SPACE AREA PER UNIT (SF)	REQUIRED LOT AREA TOTAL (SF)	REQUIRED PLAY AREA TOTAL (SF)	REQUIRED OPEN SPACE AREA TOTAL (SF)	TOTAL (SF)
STUDIO	12	1,000	5	300	12,000	60	3,600	15,660
ONE BEDROOM	147	1,500	20	500	220,500	2,940	73,500	296,940
TWO BEDROOM	108	2,000	40	700	216,000	4,320	75,600	295,920
THREE OR MORE BEDROOM	33	2,500	80	900	82,500	2,640	29,700	114,840
TOTAL	300	N/A	N/A	N/A	531,000 SF	9,960 SF	182,400 SF	723,360 SF
				TOTAL	12.19 AC	0.23 AC	4.19 AC	16.61 AC

GRAPHIC SCALE
100 0 100 200
(IN FEET)

PLANS SUBJECT TO APPROVAL - NOT INTENDED FOR BID OR CONSTRUCTION PURPOSES

DM/A
LANDSCAPE ARCHITECTURE | CIVIL ENGINEERING | PLANNING
SURVEYING | GEOLOGIC SERVICES
1076 CENTERVILLE ROAD | LANCASTER, PA | 17601 | (717) 898-2402 | DMA1.COM

REVISIONS
1 BMD 9/24/26 PER CLIENT

SEAL

CLIENT / OWNER / APPLICANT
ECHO, LLC
2950 LEWISBERRY ROAD
YORK, PA 17404
717-507-2753

CONCEPT

HERITAGE HILLS PROPERTIES

YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA

PRINCIPAL: J. BOYER	PROJECT MANAGER: B. DETTER
DRAWN BY: M. WAPLES	CHECKED BY:
JOB NO.: 25-163.1	DRAWING NO.: 25-163.3
FILE NO.: 251634CONCEPT	
DATE: 8/06/26	SCALE: 1"=100'
SHEET NO.: 1 OF 1	

Engineering A Brighter Future®

July 23, 2026

York Township
190 Oak Road
Dallastown, PA 17313

RE: Traffic Impact Study TIS Determination Request Comments
Heritage Hills Residential Development – TPD – TIS Scope Determination Request
JMT # 645

Ladies and Gentlemen:

We have reviewed the above-noted Traffic Impact Study (TIS) Determination Request submitted for the project to be located at the northwest quadrant of the Chestnut Hill Road and Shawna Avenue intersection, prepared by TPD, dated June 26, 2026. The project is located adjacent to the existing Bridgewater residential community, in York Township, and consists of the following:

- Single-Family Detached Housing– 30 Dwelling Units
- Single-Family Attached Housing – 120 Dwelling Units
- Multi-Family Housing – 240 Dwelling Units

Access to the site is proposed via one (1) full movement local road connection to Shawna Avenue and the extension of Alexis Drive into the site, which will provide a connection to the existing Bridgewater Residential Community. The proposed study area noted in the request are for the following intersections:

- Chestnut Hill Road & Shawna Avenue
- Chestnut Hill Road & Woodspring Drive
- Chestnut Hill Road & Alperton Drive
- Chestnut Hill Road & Camp Betty Washington Road (SR 2005)
- Chestnut Hill Road & Springwood Road (SR 2002)
- Shawna Avenue & Proposed Site Access

Based on the provided request, JMT notes the following:

1. Per York Township Subdivision and Land Development Ordinance Section 316.E.1.a, as the project exceeds 1,000 trips per day, the project study area should include all streets and major intersections within a 1/2-mile concentric circle drawn around each entrance to the proposed development.
    a. In addition to the intersection noted in the request, the study should also include the following:
        i. Chestnut Hill Road & Dustin Road
    b. The intersections of the developments on the east side (Springwood, including Meadow Cross Way, Woodspring Drive, Chestnut Run Road, and Heather Drive) and along Chestnut Hill Road (Scarborough Estates) do not explicitly need to be studied, and traffic generated from those developments would already be included as part of the background traffic/existing conditions of Chestnut Hill Road.
2. JMT does not object to conducting the study prior to the start of the school year. However, the study should utilize a time of year/monthly factor to be applied to the collected traffic count data to account for the time of year. Since school is not anticipated to be in session during the time of traffic data collection, the study should review available recent nearby developments' traffic count data collected while school was in session to determine the

impact on traffic within the study area. These would include the traffic studies for Bridgewater Project #1, #2, and #3. Projects 1 & 2 are completed or near completion, and Project 3 is in the early stages of construction. In addition, the following projects within the vicinity of the site are provided for reference:

a. There is a planned development noted as Bridgewater Project #4 (an Age-Restricted Community) consisting of 135 single-family homes with direct access to Springwood Road and no anticipated connection to the rest of the Bridgewater Community on the east side of the tributary to Mill Creek.

b. There have been inquiries for the parcel on the north-west corner of the intersection of Springwood Road and Chestnut Hill Road; however, no official plans have been submitted to date to the Township.

c. Finally, a new plan is in the early stages for review for the Ore Valley Element School proposing a building expansion; however, per review of the plan and supporting information, there is no increase in the student population of the school (600-students)

d. Pending review of the traffic study with the year/monthly factors, JMT may request that the results of the study be confirmed prior to preliminary land development plan approval by analyzing one of the major intersections of the study area to confirm the results and adjust the study, if necessary.

3. York Township recommends the study "Auxiliary Turn Lane Warrants" include the intersection of Chestnut Hill Road at Shawna Avenue.

4. As noted in the provided scope, the 290 proposed housing units produce 216 PM peak hour trips. The development is in TSA1, which has a per PM peak hour trip impact fee of $2,009. The calculated fee is $433,944.00 and shall be verified as the design of the site progresses.

5. JMT notes the following comments based on a cursory review of the provided sketch plan for the project. No response is necessary, noting that the project is still under design/development:

    a. The intersection of the proposed Alexis Drive extension and connection to the access drive shall be perpendicular to the centerline of the street.

    b. The Shawna Drive Intersection to Chestnut Hill Road shall be reviewed based on the results of the traffic study to determine if the intersection meets all applicable requirements for the anticipated traffic volumes.

    c. The 24' access drive on the south side of the site should be reviewed to ensure that the width of the drive is sufficient in accordance with the applicable fire code, depending on the height of proposed units and access around the buildings.

    d. The 133-vehicle parking lot would be subject to the landscape divider strip requirements noted in Section 610.C

Should you have any questions, please contact me at 717-741-6264 or at mhiras@jmt.com.

Sincerely,
Johnson, Mirmiran, and Thompson



Michael H. Hiras, P.E.
Senior Associate, York Township Municipal Engineer

Cc: Via Email

Jason Wheeler - TPD
Katie Moyer – Inch & Company
Gary Milbrand, P.E. – York Township
Lisa Frye – York Township
Casey Raven – York Township Public Works Department
Andy Mitchell – York Township Public Works Department
Kellie Dean – JMT Traffic Engineer
Neil M. Beach, P.E. – JMT

1.877.873.9739
INFO@TPDINC.COM
WWW.TPDINC.COM

MEMORANDUM

To: Lisa Frye, *York Township (Zoning Officer)*
Michael Hiras, P.E. – *JMT (Township Engineer)*
From: Jason T. Wheeler, PTP - *TPD, Inc.*

Cc: Chris Schwab, P.E. – *TRG, Inc. (Township Traffic Engineer)*
Katie Moyer, *Inch & Co.*

Date: June 26, 2026

Re: **Transportation Impact Study (TIS) Scope Determination Request**
Heritage Hills Residential Development
York Township, York County, PA
TPD# INCH.00013

This memo regards a proposed Heritage Hills residential development within York Township, York County, PA. The site is located on the northwest quadrant of the Chestnut Hill Road and Shawna Avenue intersection adjacent to the existing Bridgewater residential community. The development is proposed to consist of the following:

- Single-Family Detached Housing – 30 dwelling units;
- Single-Family Attached Housing – 120 dwelling units;
- Multifamily (low-rise) Housing – 240 dwelling units.

Access to the site is proposed via one (1) full-movement local road connection to Shawna Avenue and the extension of Alexis Drive into the site which will provide a connection to the existing Bridgewater residential community.

TIS Scope

TPD proposes the following scope for the TIS in accordance with York Township SALDO §316 (Traffic Impact Report) of the indicates a traffic impact study shall be submitted for any residential development involving twenty (20) or more dwelling units.

Prior to preparing the TIS, TPD is requesting the Township's feedback on the scope of the TIS. The following scope parameters are proposed.

Study Area:

- Chestnut Hill Road & Shawna Avenue;
- Chestnut Hill Road & Woodspring Drive;
- Chestnut Hill Road & Alperton Drive;
- Chestnut Hill Road & Camp Betty Washington Road (SR 2005);
- Chestnut Hill Road & Springwood Road (SR 2002);
- Shawna Avenue & Proposed Site Access.

Note: Given the timeline of the project and upcoming township zoning hearing board meetings, TPD requests that the Township consider allowing the use of traffic count data collected while schools are not in session. Please confirm if this is acceptable.

Study Time Periods:

- Weekday AM Peak Hour (6:00-9:00 A.M.);
- Weekday PM Peak Hour (3:00-6:00 P.M.).

Background Growth Factor & Nearby Developments:

A background growth factor of 0.33% compounded annually will be applied to the existing traffic volumes in accordance with the current PennDOT BPR statistics. Base (no-build) traffic conditions were calculated to include traffic volumes from proposed developments, which, though not operating under existing conditions, may be operating by 2035 opening year of the proposed development.

TPD will include the following nearby developments:

- Bridgewater (Remaining Build-Out).

The Township should identify any additional proposed developments necessary for inclusion.

Trip Generation:

The trip generation rates for the proposed development were obtained from the manual *Trip Generation*, Twelfth Edition, 2025, an Institute of Transportation Engineers (ITE) Informational Report. The data are categorized by Land Use Codes, with total vehicular trips for a given land use estimated using an independent variable and statistically generated rates or equations.

The data for Land Use Code 210 (Single Family Detached Homes), 215 (Single Family Attached Homes), and 220 (Multifamily Housing (Low-Rise)) was used to calculate the number of vehicular trips the development will generate during the following time periods: (1) average weekday; (2) weekday A.M. peak hour and (3) weekday P.M. peak hour.

Table 1 shows the trip generation rates or equations and directional split for the analyzed time periods.

TABLE 1
ITE TRIP GENERATION EQUATIONS

Land Use	ITE #	Time Period	Equations/Rates	Directional Split	
				Entering %	Exiting %
Single Family Detached Homes	210	Average Weekday	T = 8.07*(X) + 265.45	50%	50%
		Weekday A.M. Peak Hour	T = 0.67*(X) + 5.59	27%	73%
		Weekday P.M. Peak Hour	Ln(T) = 0.92*Ln(X) + 0.33	62%	38%
Single Family Attached Homes	215	Average Weekday	T = 6.57*(X)	50%	50%
		Weekday A.M. Peak Hour	T = 0.59*(X) – 15.25	25%	75%
		Weekday P.M. Peak Hour	T = 0.57*(X) – 7.84	57%	43%
Multifamily (Low-Rise) Housing	220	Average Weekday	T = 5.63*(X) + 120.45	50%	50%
		Weekday A.M. Peak Hour	T = 0.35*(X) + 12.93	24%	76%
		Weekday P.M. Peak Hour	T = 0.48*(X) + 7.35	62%	38%

T = number of site-generated vehicular trips
X = independent variable (# of dwelling units)

The calculated trip generation for the proposed development is shown in **Table 2.**

TABLE 2
TRIP GENERATION SUMMARY

Land Use	Size	New Trips		
		Total	Enter	Exit
Average Weekday				
Single Family – Detached	30 Units	508	254	254
Single Family – Attached	120 Units	788	394	394
Multifamily (Low-Rise)	240 Units	1,472	736	736
Total	**390 Units**	**2,768**	**1,384**	**1,384**
Weekday A.M. Peak Hour				
Single Family – Detached	30 Units	26	7	19
Single Family – Attached	120 Units	56	14	42
Multifamily (Low-Rise)	240 Units	97	23	74
Total	**390 Units**	**179**	**44**	**135**
Weekday P.M. Peak Hour				
Single Family – Detached	30 Units	32	20	12
Single Family – Attached	120 Units	61	35	26
Multifamily (Low-Rise)	240 Units	123	76	47
Total	**390 Units**	**216**	**131**	**85**

As shown in **Table 2**, the proposed development is anticipated to generate **179** total vehicle-trips during the weekday A.M. peak hour and **216** total vehicle-trips during the weekday P.M. peak hour.

Trip Distribution:

The distribution and assignment of new trips generated by the proposed development will be based on (1) existing traffic patterns and (2) the site access locations/configurations. Given the location of the proposed development and the residential context of the surrounding area, TPD believes that evaluation of existing traffic patterns is appropriate in lieu of a gravity model.

Capacity Analyses & Queue Analysis:

Capacity analyses and Queue (95th percentile) Analysis will be conducted for the weekday A.M. and P.M. peak hours at the study area intersections. These analyses will be conducted according to the methodologies contained in the *Highway Capacity Manual, 7th edition* (HCM) using *Synchro 12* software, a Cubic Trafficware product, during the following conditions:

- 2026 Existing Conditions;
- 2035 Base Conditions (design year without the proposed development);
- 2035 Projected Conditions (design year with full build-out of the proposed development);
- 2035 Projected Conditions (design year with full build-out of the proposed development) with Improvements.

Auxiliary Turn Lane Warrants:

Auxiliary turn lane warrants will be completed at the following study area intersections:

- Shawna Avenue & Proposed Site Access;
- Chestnut Hill Road & Woodspring Drive;
- Chestnut Hill Road & Alperton Drive.

Sight Distance:

Sight distances will be evaluated at the proposed site access location to Shawna Avenue as applicable.

Traffic Impact Fee Ordinance:

The proposed development is located within York Township Transportation Services Area 1. TSA 1 has a Traffic Impact Fee Ordinance: Cost per P.M. Peak Hour Trip Generated = $2,009.00

Traffic Impact Fee: $2,009.00 * 216 = **$433,944.00**

We would appreciate your review of the enclosed information. If there are any questions or comments, please call any time.

Sincerely,
TRAFFIC PLANNING AND DESIGN, INC.



Jason T. Wheeler, PTP
Project Manager
Jwheeler@TPDinc.com

Attachments:

- Location Map
- Site Plan
- Trip Generation & Distribution Calculations


STUDY AREA INTERSECTION
PROPOSED SITE ACCESS

NOTES

1. TOTAL UNIT MIX
   - MULTI-FAMILY: 240
   - TOWN HOMES: 120
   - SINGLES: 30
2. PARKING REQUIREMENTS
   - 1 BEDROOM: 1.5 PARKING SPACES PER UNIT
   - 2 OR 3 BEDROOM: 2 PARKING SPACES PER UNIT
   - REQUIRED PARKING: 53 PARKING SPACES PER BUILDING x 8 BUILDINGS = 424 SPACES REQUIRED
   - PARKING PROVIDED: 487
3. REQUIRED LOT WIDTH
   - SINGLE FAMILY DETACHED: 50 LF MINIMUM,70 LF PROVIDED
   - SINGLE FAMILY ATTACHED: 20 LF PROVIDED
   - MULTI-FAMILY: 200 LF MINIMUM GREATER THAN 200 LF PROVIDED
4. REQUIRED LOT AREA
   - SINGLE FAMILY DETACHED: 5,000 SF MINIMUM, 5,000 SF PROVIDED
   - SINGLE FAMILY ATTACHED: 2,000 SF MINIMUM, 2,000 SF PROVIDED
   - MULTI-FAMILY: ONE ACRE MINIMUM GREATER THAN ONE ACRE PROVIDED
5. ALL MULTIFAMILY BUILDINGS SHALL BE SETBACK A MINIMUM OF FIFTY (50) FEET FROM THE PROPERTY LINES OR STREET RIGHTS-OF-WAY. A BUFFER PLANTING STRIP, TYPE C SECTION 610 SALDO, SHALL BE PLANTED WITHIN THE 50-FOOT SETBACK.

CAMP BETTY WASHINGTON ROAD (SR 2005)

MOBILE HOME PARK

SHAWNA AVENUE

CHESTNUT HILL ROAD

WOODSPRING DRIVE

HERRINGTON DRIVE

FLETCHER DRIVE

ALERS DRIVE

STORMWATER MANAGEMENT

PROPOSED CLUBHOUSE AND POOL

RESIDENTIAL MAILBOXES

OPTIONAL CONNECTION TO FLETCHER DRIVE

SINGLE FAMILY LOT (70'X120') (TYP.)

6-UNIT TOWNHOMES (TYP.)

30-UNIT MULTI FAMILY BUILDING (TYP.)

MIN. BUILDING SETBACK LINE (TYP.)

BUFFER TYPE C

24' TWO-WAY CARTWAY WITH ONE-SIDED 4' PARKING AND SIDEWALK (TYP.)

GRAPHIC SCALE
100 0 100 200
(IN FEET)

PLANS SUBJECT TO APPROVAL - NOT INTENDED FOR BID OR CONSTRUCTION PURPOSES

DM/A
LANDSCAPE ARCHITECTURE | CIVIL ENGINEERING | PLANNING
SURVEYING | GEOLOGIC SERVICES
1075 CENTERVILLE ROAD • LANCASTER, PA 17601 | (717) 898-3402 | DMA1.COM

REVISIONS

SEAL

CLIENT / OWNER / APPLICANT
ECHO, LLC
2950 LEWISBERRY ROAD
YORK, PA 17404
717-507-2753

CONCEPT A

HERITAGE HILLS PROPERTIES

YORK TOWNSHIP, YORK COUNTY, PENNSYLVANIA

PRINCIPAL: J. BOYER	PROJECT MANAGER: B. DETTER
DRAWN BY: M. WAPLES	CHECKED BY:
JOB NO.: 25-163.1	DRAWING NO.: 25-163.1
FILE NO.: 251631CONCEPTA	
DATE: 4/28/26	SCALE: 1"=100'
SHEET NO.: 3 OF 4	

Weekday A.M. Peak Hour								
Land Use	ITE #	Size (X)		Rate/Equation		New Trips		
				a	b	Total	Enter	Exit
Single Family –Detached Housing	210	30	Units	0.67	5.59	26	7	19
Single Family –Attached Housing	215	120	Units	0.59	-15.25	56	14	42
Multifamily (Low-Rise) Housing	220	240	Units	0.35	12.93	97	23	74
Total						**179**	**44**	**135**

Weekday P.M. Peak Hour								
Land Use	ITE #	Size (X)		Rate/Equation		New Trips		
				a	b	Total	Enter	Exit
Single Family –Detached Housing	210	30	Units	0.92	0.33	32	20	12
Single Family –Attached Housing	215	120	Units	0.57	-7.84	61	35	26
Multifamily (Low-Rise) Housing	220	240	Units	0.48	7.35	123	76	47
Total						**216**	**131**	**85**

Average Weekday								
Land Use	ITE #	Size (X)		Rate/Equation		New Trips		
				a	b	Total	Enter	Exit
Single Family –Detached Housing	210	30	Units	8.07	265.45	508	254	254
Single Family –Attached Housing	215	120	Units	6.57		788	394	394
Multifamily (Low-Rise) Housing	220	240	Units	5.63	120.45	1472	736	736
Total						**2768**	**1384**	**1384**

Single-Family Detached Housing
(210)

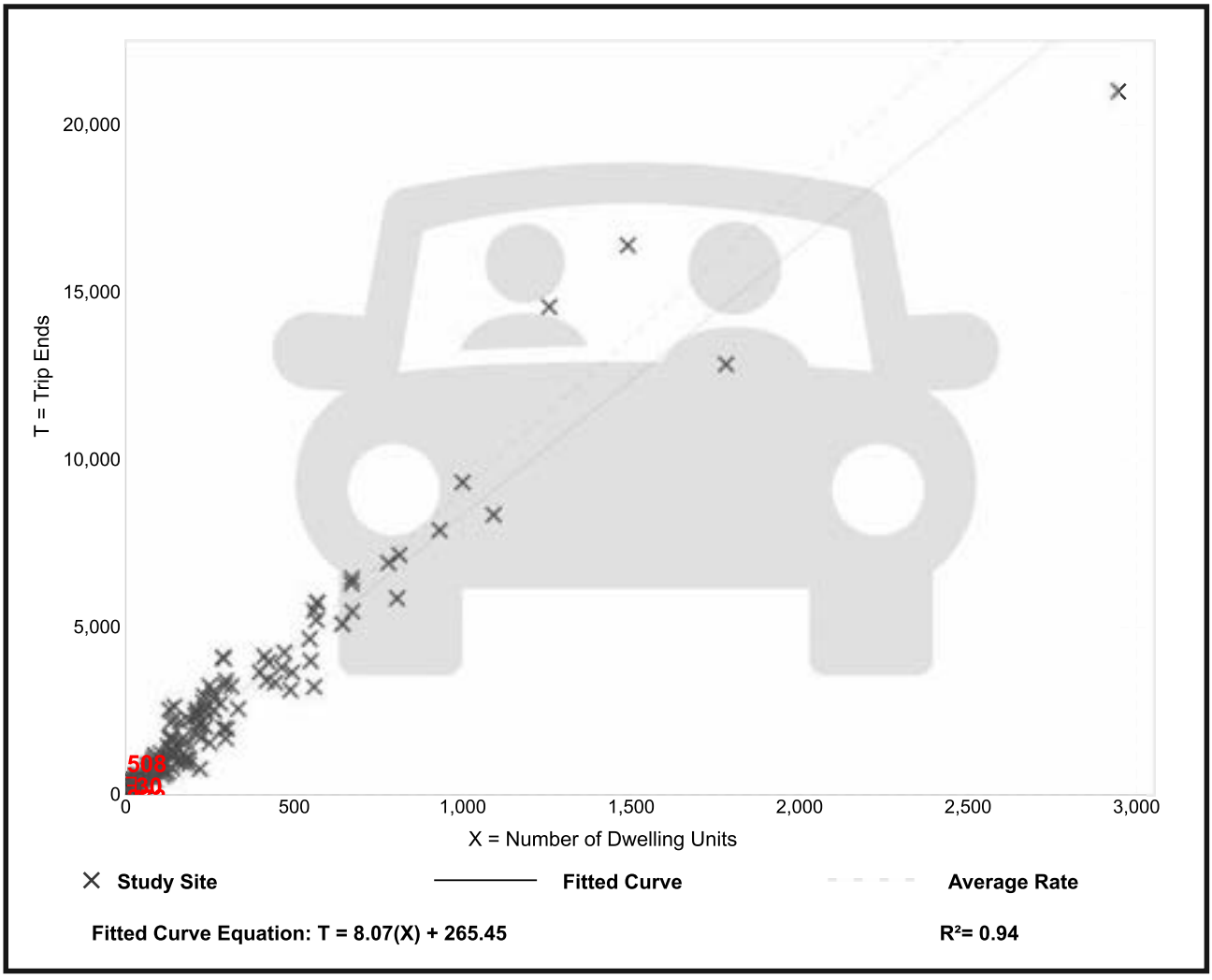
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 155
Avg. Num. of Dwelling Units: 261
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
9.09	3.47 - 23.80	2.29

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

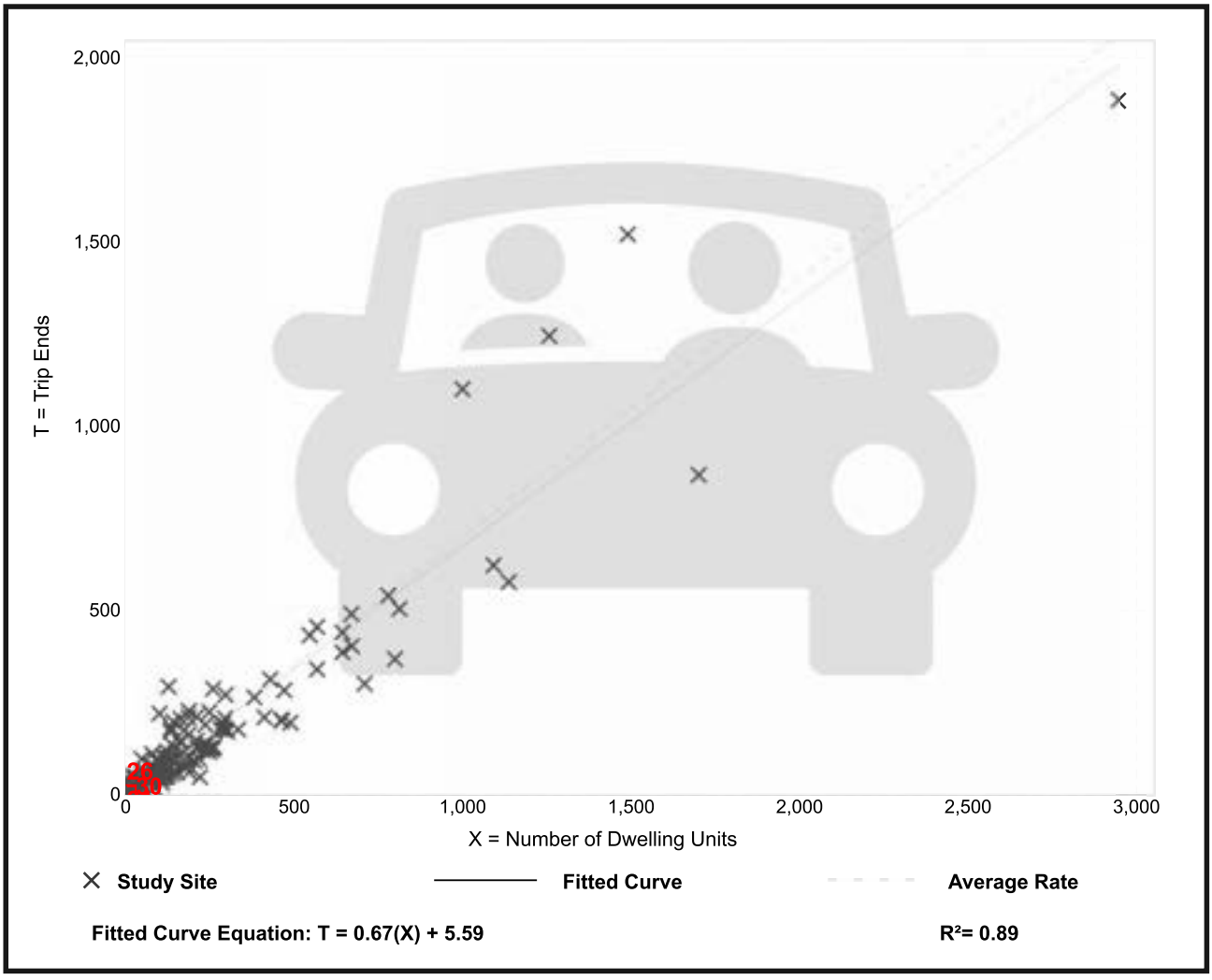
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 153
Avg. Num. of Dwelling Units: 239
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.70	0.22 - 2.27	0.26

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

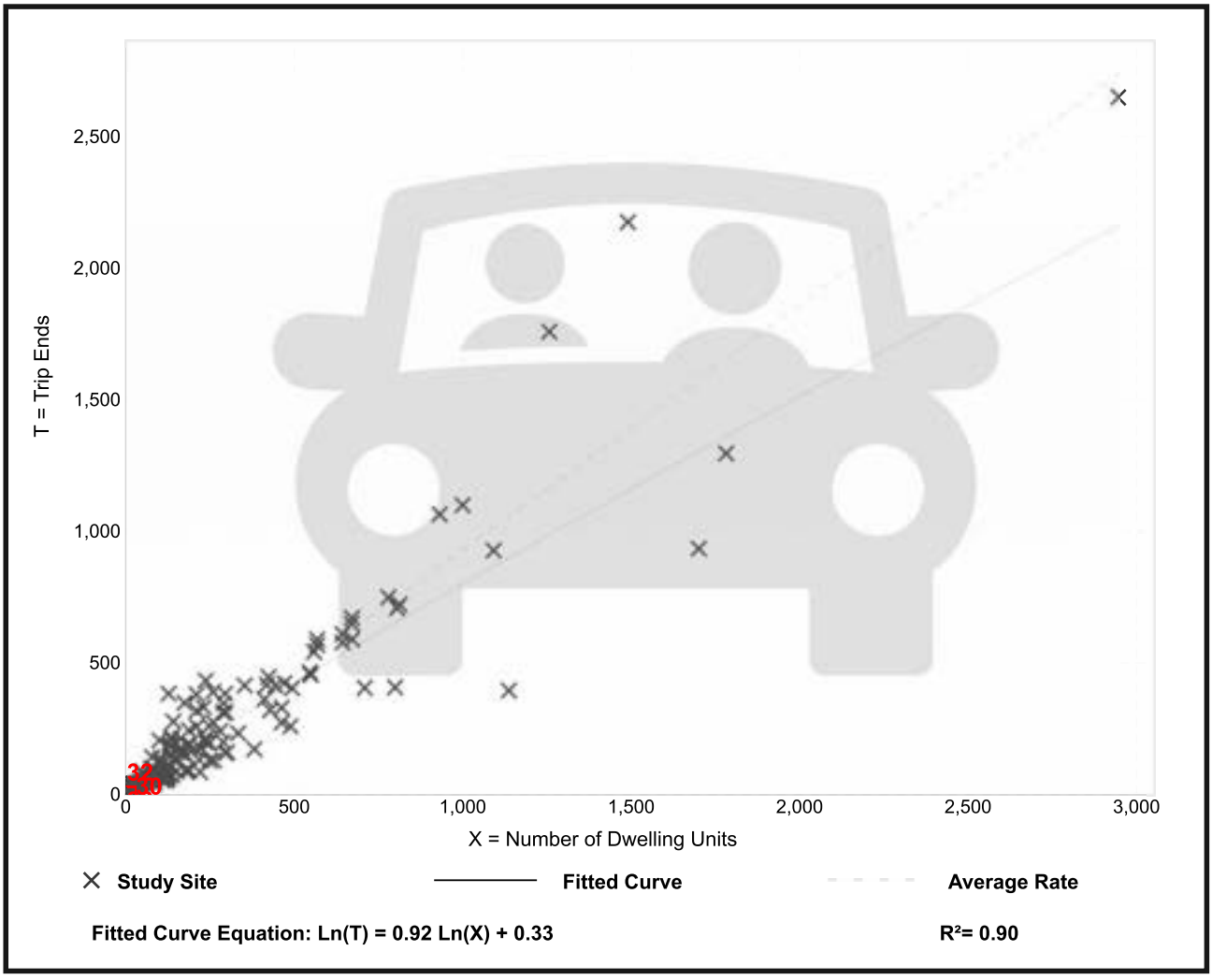
Single-Family Detached Housing
(210)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 166
Avg. Num. of Dwelling Units: 266
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.93	0.35 - 2.98	0.33

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

Single-Family Attached Housing
(215)

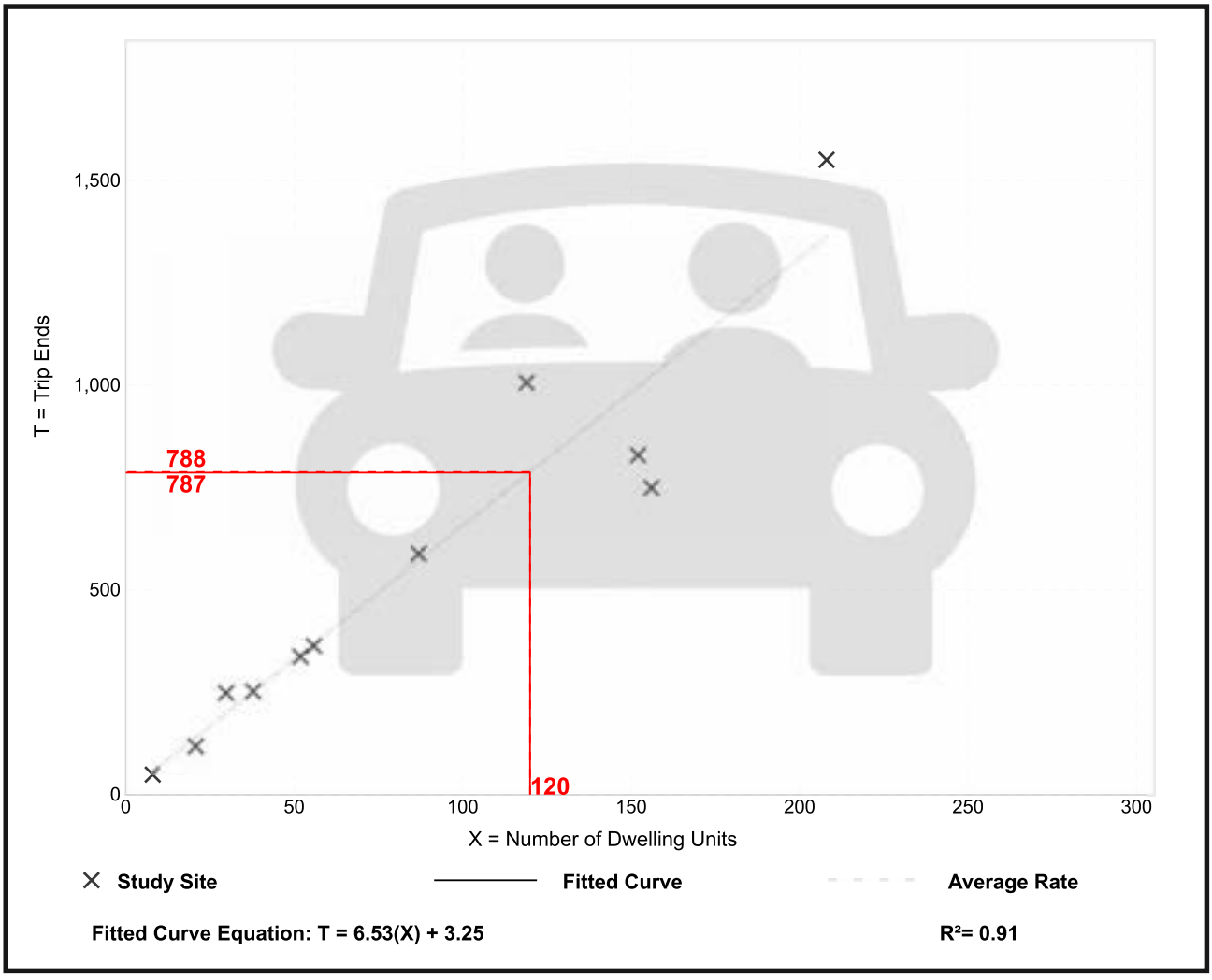
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 11
Avg. Num. of Dwelling Units: 84
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.57	4.80 - 8.45	1.28

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

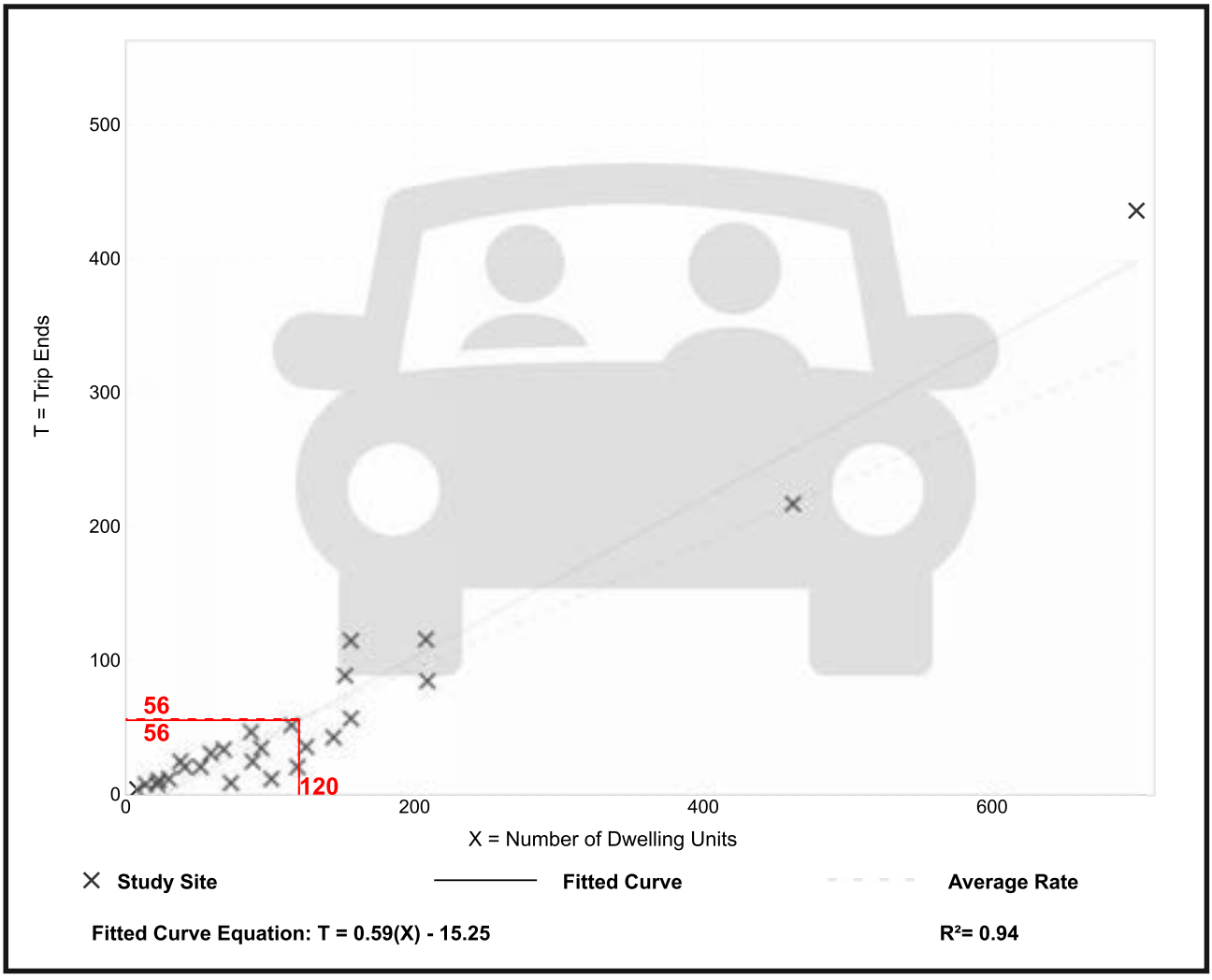
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 26
Avg. Num. of Dwelling Units: 129
Directional Distribution: 25% entering, 75% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.12 - 0.74	0.16

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

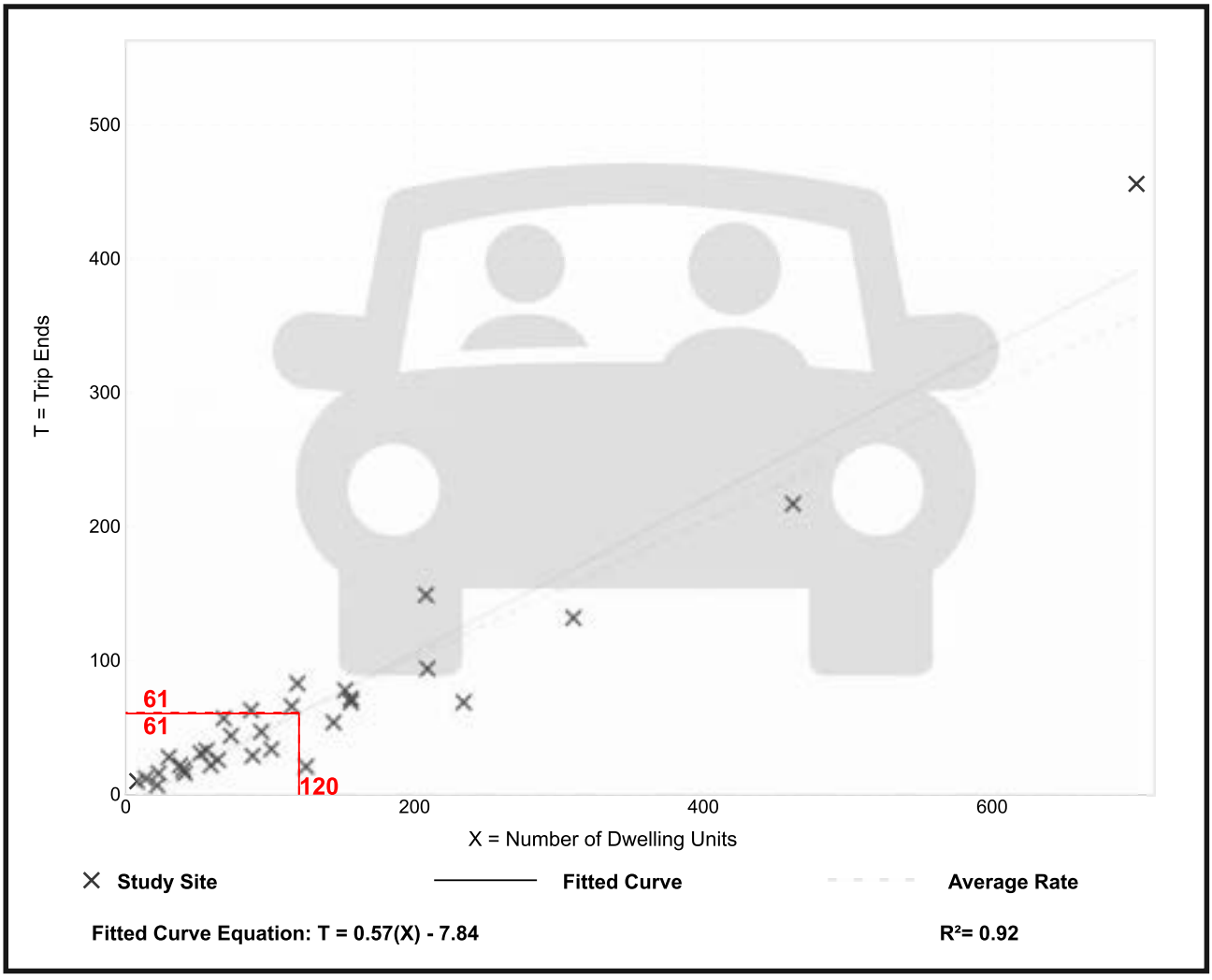
Single-Family Attached Housing
(215)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	31
Avg. Num. of Dwelling Units:	131
Directional Distribution:	57% entering, 43% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.51	0.17 - 1.25	0.16

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

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

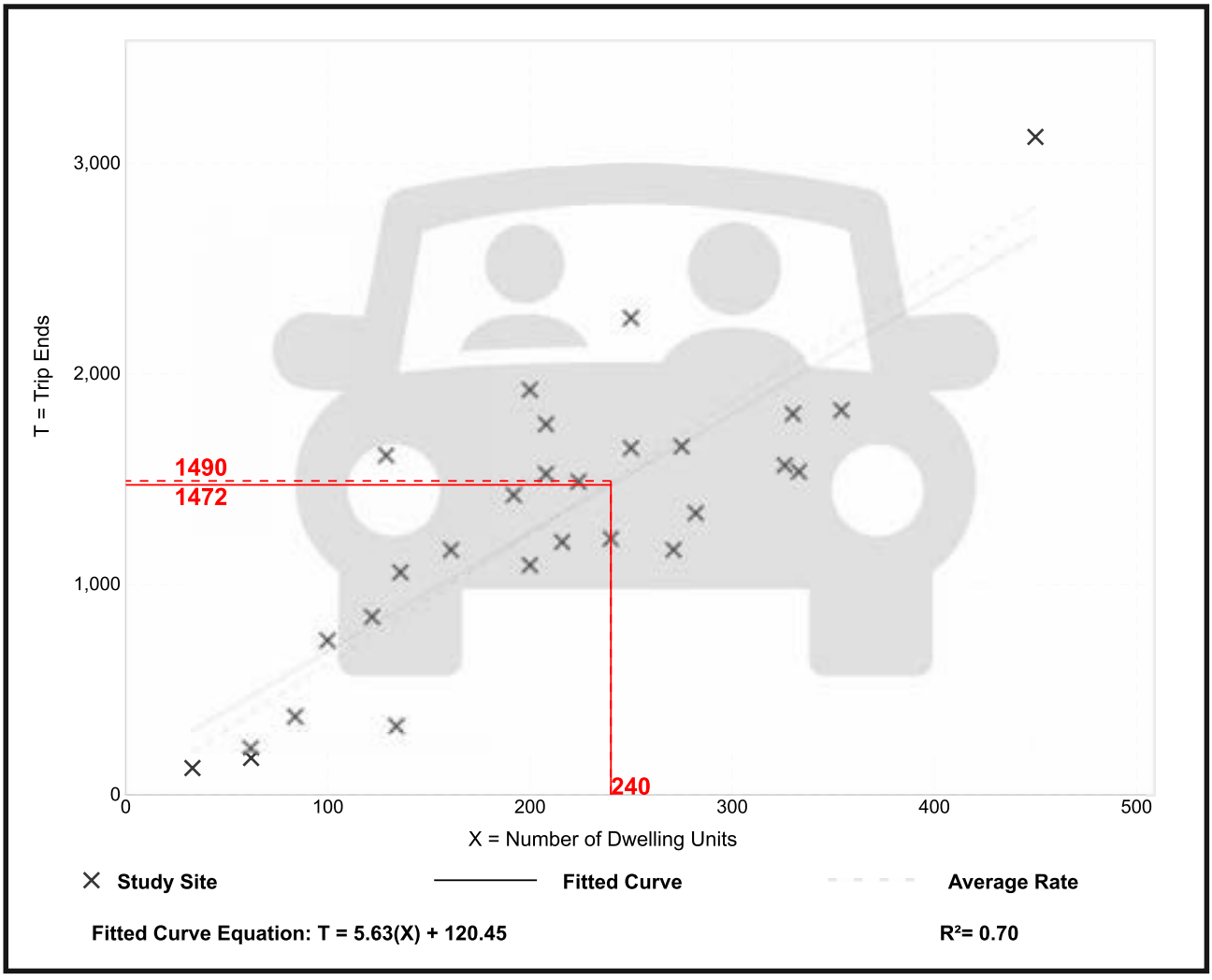
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. Num. of Dwelling Units: 208
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.21	2.46 - 12.50	1.87

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

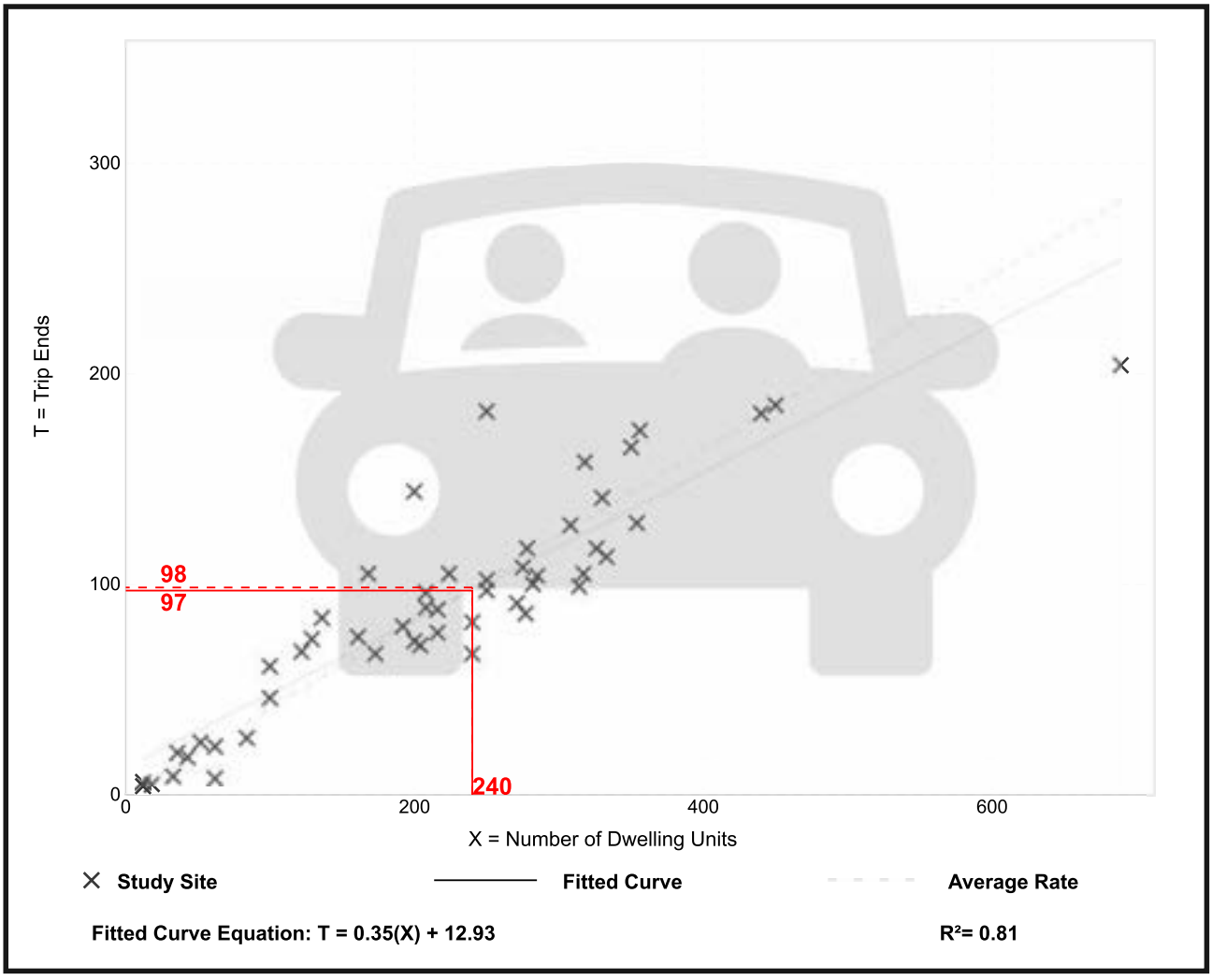
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	51
Avg. Num. of Dwelling Units:	219
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

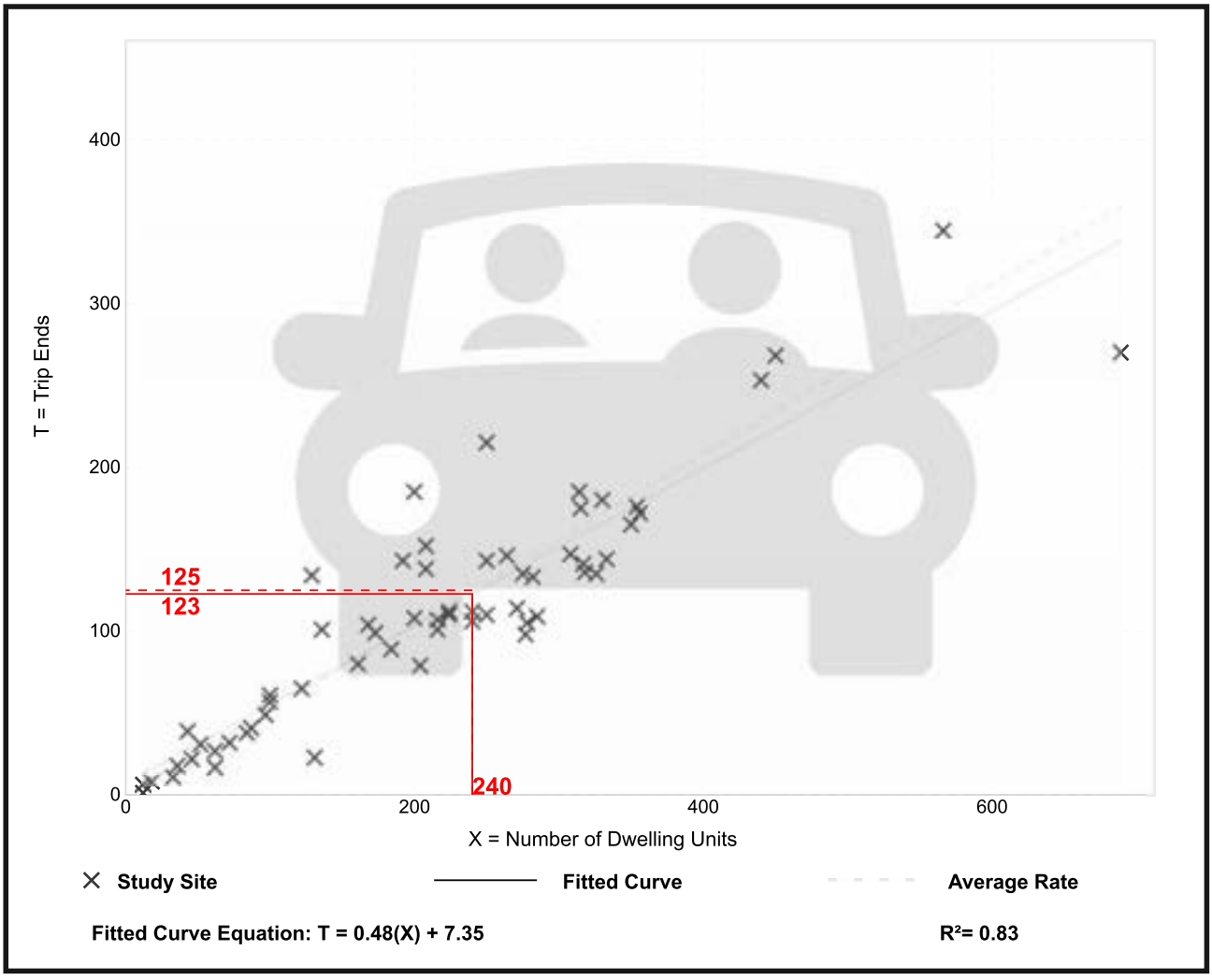
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 61
Avg. Num. of Dwelling Units: 215
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Trip Gen Manual, 12th Edition ● Institute of Transportation Engineers

APPENDIX B:
Existing Roadway Conditions

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Shawna Avenue*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Shawna Avenue*



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Shawna Avenue*



Direction / Road: **Eb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Woodspring Drive*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Woodspring Drive*



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Woodspring Drive*



Direction / Road: **Eb. *Woodspring Drive***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Woodspring Drive***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Woodspring Drive*



Direction / Road: **Wb. *Woodspring Drive***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *Woodspring Drive***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Alperton Drive*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Alperton Drive*



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Alperton Drive*



Direction / Road: **Eb. *Alperton Drive***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Alperton Drive***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Springwood Road (SR 2002)*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Springwood Road (SR 2002)*



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Springwood Road (SR 2002)*



Direction / Road: **Eb.** ***Springwood Road (SR 2002)***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb.** ***Springwood Road (SR 2002)***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Springwood Road (SR 2002)*



Direction / Road: **Wb. *Springwood Road (SR 2002)***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *Springwood Road (SR 2002)***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Camp Betty Washington Road*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Camp Betty Washington Road*



Direction / Road: **Eb.** ***Camp Betty Washington Road (SR 2005)***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb.** ***Camp Betty Washington Road (SR 2005)***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Camp Betty Washington Road*



Direction / Road: **Wb.** ***Camp Betty Washington Road (SR 2005)***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb.** ***Camp Betty Washington Road (SR 2005)***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Dustin Road*



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Nb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Dustin Road*



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Sb. *Chestnut Hill Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Chestnut Hill Road & Dustin Road*



Direction / Road: **Eb. *Dustin Road***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Dustin Road***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Proposed Site Access & Shawna Ave*



Direction / Road: **Eb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Eb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 200 Feet

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Proposed Site Access & Shawna Ave*



Direction / Road: **Wb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 50 feet



Direction / Road: **Wb. *Shawna Avenue***
Approach / Departure: Approach
Distance: 200 Feet

M-950S (3-04)
PENNDOT

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

APPLICANT_____ APPLICATION NO._____

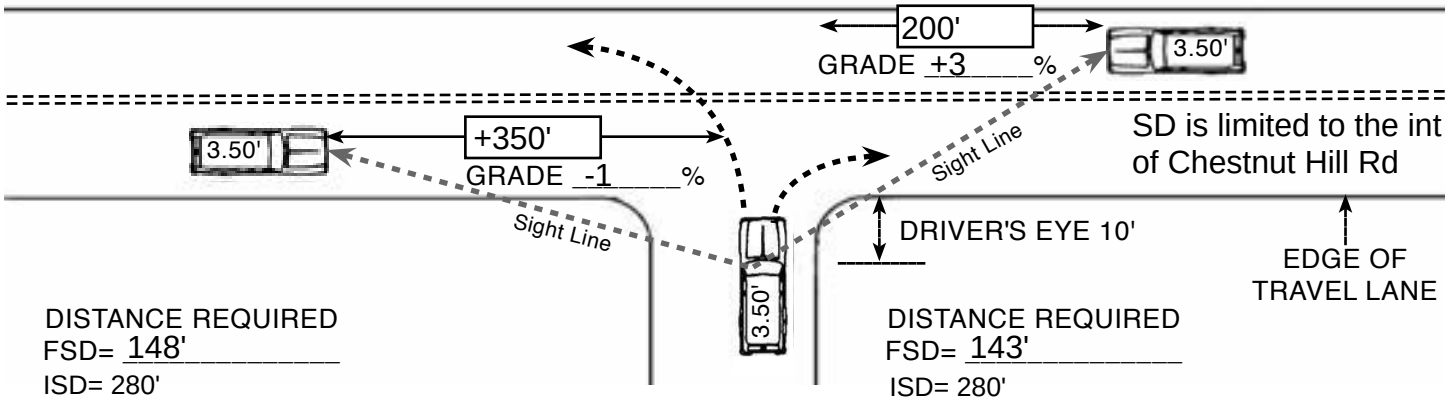
S.R._____SEG._____OFFSET_____ LEGAL SPEED LIMIT 25 mph

MEASURED BY TPD, Inc. DATE 2026-08-07

FOR DEPARTMENT USE ONLY: Safe-Running Speed _____ 85th Percentile Speed _____

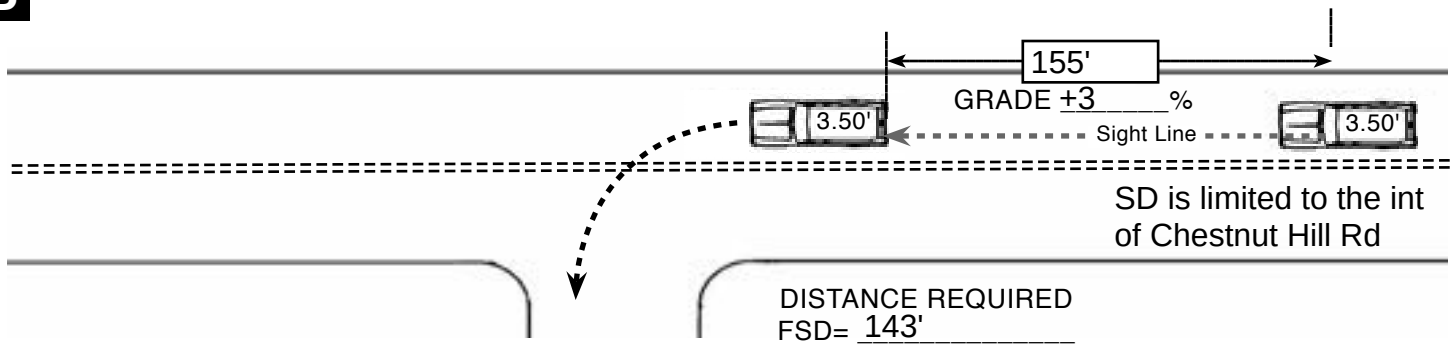
Shawna Avenue & Proposed Site Access (≈200' from Chestnut Hill Rd)

A



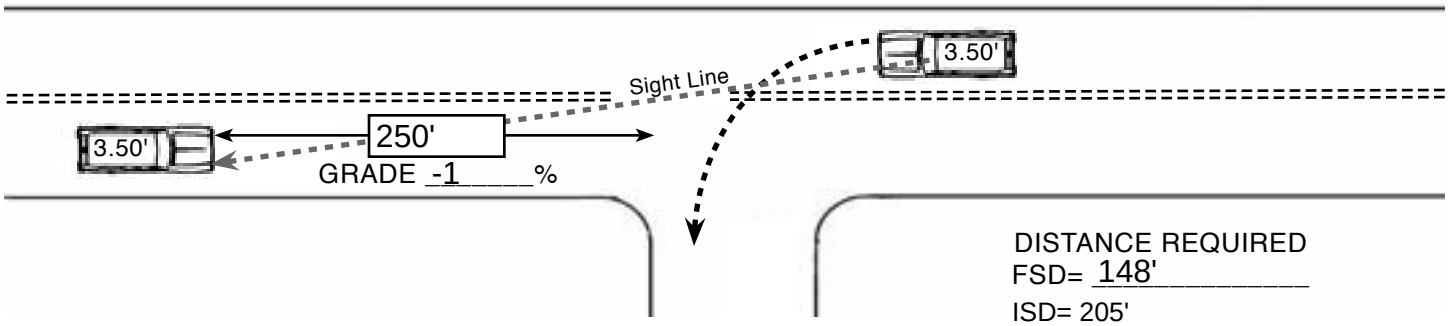
THE MAXIMUM LENGTH OF ROADWAY ALONG WHICH A DRIVER AT A DRIVEWAY LOCATION CAN CONTINUOUSLY SEE ANOTHER VEHICLE APPROACHING ON THE ROADWAY.

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



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.

Job #: INCH.00013 *Date Taken:* 08-07-2026 *Intersection Of:* Exiting Northing onto Shawna Ave



Direction / Road: Center Driveway - Looking Out
Approach / Departure:
Distance:



Direction / Road: Center Driveway – Looking In
Approach / Departure:
Distance:

Job #: *INCH.00013* *Date Taken:* *08-07-2026* *Intersection Of:* *Exiting Northing onto Shawna Ave*



Direction / Road: Center Driveway – Looking Right
Approach / Departure:
Distance:



Direction / Road: Center Driveway – Looking Left
Approach / Departure:
Distance:

Project Detail Report

Project ID: 20652

Title: Camp Betty Washington/Hai

Location

County: 66 **Route:** 2005 **Juris:** STATE

Location Description: State Route 2005 (Camp Betty Washington Road/Haines Road) from State Route 2002 (Springwood Road) to approximately PA 124 Springettsbury and York Townships

Project Status

Status: ACT

Primary Improvement Type: Safety Improvement

Planning Partner: York

Open Date: 12/17/2027

Approved TIP: Yes

Obligation: Yes

Let Date: 06/24/2027 (Estimated)

Notice to Proceed Date: 08/09/2027 (Estimated)

Physical Completion: 02/15/2024 (Estimated)

Proposed TIP: Yes

Approved TYP: Yes

Phases in Current TIP: CON - TOLL / FD / PE / ROW - TOLL / UTL - TOLL

Is Decade of Investment: Yes

Legislative District

PA House Districts	PA Senate Districts	US Congress Districts
Mike Jones (R)	Kristin Lee Phillips-Hill (R)	Lloyd K. Smucker (R)

Project Locations

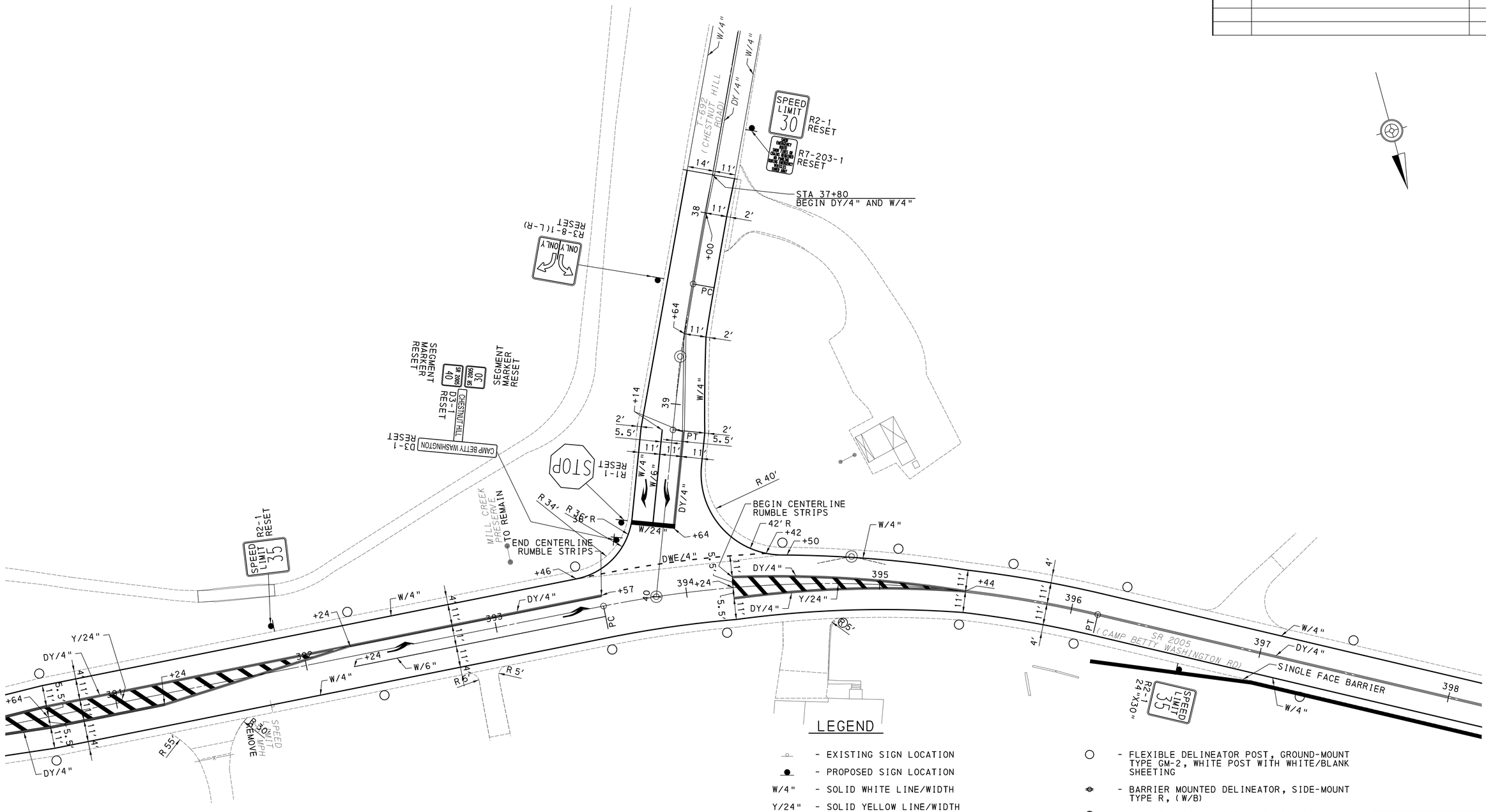
Segment Begin	Offset Begin	Segment End	Offset End	Length
0010	0	0050	2654	12983
0060	0	0060	2208	2208

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
8-0	YORK	2005	004	18 OF 31
YORK TOWNSHIP				

REVISION NUMBER	REVISIONS	DATE	BY

SEE SHEET 17

SEE SHEET 19



LEGEND

- ⌐ - EXISTING SIGN LOCATION
- ● - PROPOSED SIGN LOCATION
- W/4" - SOLID WHITE LINE/WIDTH
- Y/24" - SOLID YELLOW LINE/WIDTH
- DY/4" - DOUBLE YELLOW LINE/WIDTH
- DWE/4" - DOTTED WHITE EXTENSION/WIDTH
- DDYE/4" - DOTTED DOUBLE YELLOW EXTENSION/WIDTH
- ◤ ▒ - SLOW CURVE ARROW MARKINGS
- ◤ - LANE UTILIZATION MARKINGS
- ▭ - GUIDE RAIL MOUNTED DELINEATOR TYPE A OR B DELINEATOR, (W/B)
- △ - GUIDE RAIL MOUNTED DELINEATOR TYPE D DELINEATOR, (W/B)
- ○ - FLEXIBLE DELINEATOR POST, GROUND-MOUNT TYPE GM-2, WHITE POST WITH WHITE/BLANK SHEETING
- ⌯ - BARRIER MOUNTED DELINEATOR, SIDE-MOUNT TYPE R, (W/B)
- ◐ - FLEXIBLE DELINEATOR POST, GROUND-MOUNT TYPE GM-2, RED POST WITH WHITE/BLANK SHEETING

SCALE
0 25 50 FEET

PRELIMINARY
08/28/26

SIGNING AND PAVEMENT MARKING PLAN

DATE: 8/28/2026 TIME: 12:18:21 PM
FILENAME=N:\57863-02-SR2005CampBE\Drawings\SgnPvmtMrkgPlans\2005004SPM10.dgn

APPENDIX C:
Background Development Information

Transportation Impact Assessment

for the

Bridgewater Age Restricted Community

York Township
York County, Pennsylvania

prepared for

Springwood LLC

September 2022

prepared by

TRG
TRANSPORTATION RESOURCE GROUP, INC.
PA Office
2 East Market Street, Suite 2
York, PA 17401-1206
T: (717) 846-4660
MD Office
901 Dulaney Valley Road, Suite 805
Towson, MD 21204-2624
T: (443) 275-2344
www.consulttrg.com

Jon A. Seitz, P.E., PTOE
Pennsylvania P.E. No. 039625

Project No. 278.011.21

EXECUTIVE SUMMARY

Based on the traffic analysis, the proposed Bridgewater Age Restricted Community will not create a significant traffic impact on the study intersections. A summary of key findings is presented below followed by the recommendations.

1. The proposed development is located on the north side of Springwood Road (SR 2002), just east of School Street in York Township, York County. The proposed development will consist of 150 units of senior adult detached housing. For the purpose of this study, full buildout is anticipated for 2026.

2. Access to the proposed development will be via a local road onto Springwood Road (SR 2002). An emergency access on Springwood Road (SR 2002) will also be provided.

3. The following intersections were selected for detailed analysis:

    - Springwood Road (SR 2002)/School Street
    - Springwood Road (SR 2002)/Proposed Site Access

4. Currently, the study intersection operates at an overall level of service A during the AM and PM peak hours.

5. Site traffic estimated from the remaining homes still to be built as part of the Bridgewater Residential Subdivision and the York Village Senior Center were included as part of the background traffic.

6. In the year 2026 without the proposed development, the study intersection will continue to operate at an overall level of service A during the AM and PM peak hours.

7. The proposed Bridgewater Age Restricted Community is anticipated to generate 53 AM peak hour and 61 PM peak hour trips. On a daily basis, an additional 836 site trips will be generated.

8. In the year 2026 with the proposed development, the study intersections, including the proposed access road intersection, will operate at an overall level of service A during the AM and PM peak hours.

9. The turn lane analysis conducted at the Springwood Road (SR 2002)/Proposed Access intersection found that a 75’ eastbound left turn lane from Springwood Road (SR 2002) into the site is warranted.

10. An improvement analysis completed at the Springwood Road (SR 2002)/School Street intersection found that a 75’ westbound left turn lane should be provided on Springwood Road (SR 2002) for vehicles accessing School Street.

11. Based on characteristics compatible with the York Township Functional Classification of Streets, all roadways within the development will remain private and should be classified as “Residential Local” streets.

RECOMMENDATIONS

A summary of the recommendations to ensure safe and efficient traffic movements is presented below. All improvements will be constructed to accommodate non-motorized access/circulation and be ADA compliant unless otherwise approved the Department.

1. Construct the private access road to Township and PennDOT standards. Provide a 75' eastbound left turn lane on Springwood Road (SR 2002) into the site. The proposed site access road should have a stop sign (R1-1) at its intersection with Springwood Road (SR 2002).

2. Provide a 75' westbound left turn lane on Springwood Road (SR 2002) into School Street.

5. DEVELOPMENT DESCRIPTION

Proposed Development

The proposed development will be located on the north side of Springwood Road (SR 2002), just east of School Street in York Township, York County, Pennsylvania. The proposed development will consist of 150 units of senior adult detached housing. The 42.46 acre tract of land is zoned Residential-High Density (RH) and is on the site of the Bridgewater Golf Course. The age restricted community is being constructed per market conditions with full buildout estimated for 2026.

Access to the site will be via a local road onto Springwood Road (SR 2002). A preliminary investigation was made to determine the sight distance adequacy of placing the access point directly opposite School Street. It was determined the location opposite School Street does not meet PennDOT's desirable sight distance criteria. Subsequently, the proposed access road was situated to a safer location. An emergency access on Springwood Road (SR 2002) will also be provided.

Site Trip Generation

Based on characteristics of the proposed development, the weekday AM and PM peak hours were selected as the peak hour of analysis. The level of traffic likely to be generated by the proposed development has been estimated based on procedures in the Institute of Transportation Engineers (ITE) Trip Generation Manual (11th Ed. 2021) to determine the potential traffic impact on the study intersections. Land Use Code 251, Senior Adult Housing – Single Family, was used to estimate the site trips for the 150 units. The number of units was used as the independent variable. Details of the trip generation analysis can be found in the Appendices. Table 3 summarizes the estimated trip generation for the proposed development during the typical weekday AM and PM peak hours and during the typical weekday.

Table 3: Estimated Site Trip Generation

Land Use (Code)	AM Peak Hour			PM Peak Hour			ADWT
	Enter	Exit	Total	Enter	Exit	Total	
150 Units Senior Adult Housing – Single Family (251)	17	36	53	37	24	61	836

ADWT – Average Daily Weekday Traffic

Modal Split

Because there is not sufficient pedestrian or transit facilities provided within the study area, a trip reduction due to modal split is not applicable and was not assumed for this study.

Site Trip Distribution and Assignment

Figure 8 in the Appendices shows the trip distribution percentages for the new site traffic on the roadway system. The trip distribution was based on the previously approved distribution of the Bridgewater Residential development, the directional factor ("D") of the counts on Springwood Road (SR 2002), knowledge of the study area and engineering judgment. It should be noted that the senior residents, who are primarily retirees will not utilize the typical home to work patterns. The trip distribution analysis was approved by the Township traffic engineer and further details can be found in the Appendices. The distribution used for the new site traffic is as follows:

- 61% oriented to/from the west on Springwood Road (SR 2002)
- 5% oriented to/from the south on School Street
- 34% oriented to/from the east on Springwood Road (SR 2002)

Figure 9 shows the total site trips generated by the proposed development and assigned to the roadway network.

7. IMPROVEMENT ANALYSIS

In order to assure safe and efficient site access for the development and to improve future traffic conditions at the Springwood Road (SR 2002)/School Street intersection, an improvement analysis was undertaken. The following summarizes the improvements required to improve levels of service and queues at each intersection.

Springwood Road (SR 2002)/Proposed Site Access

- Provide a 75' eastbound left turn lane on Springwood Road (SR 2002) for vehicles entering the proposed site.

Springwood Road (SR 2002)/School Street

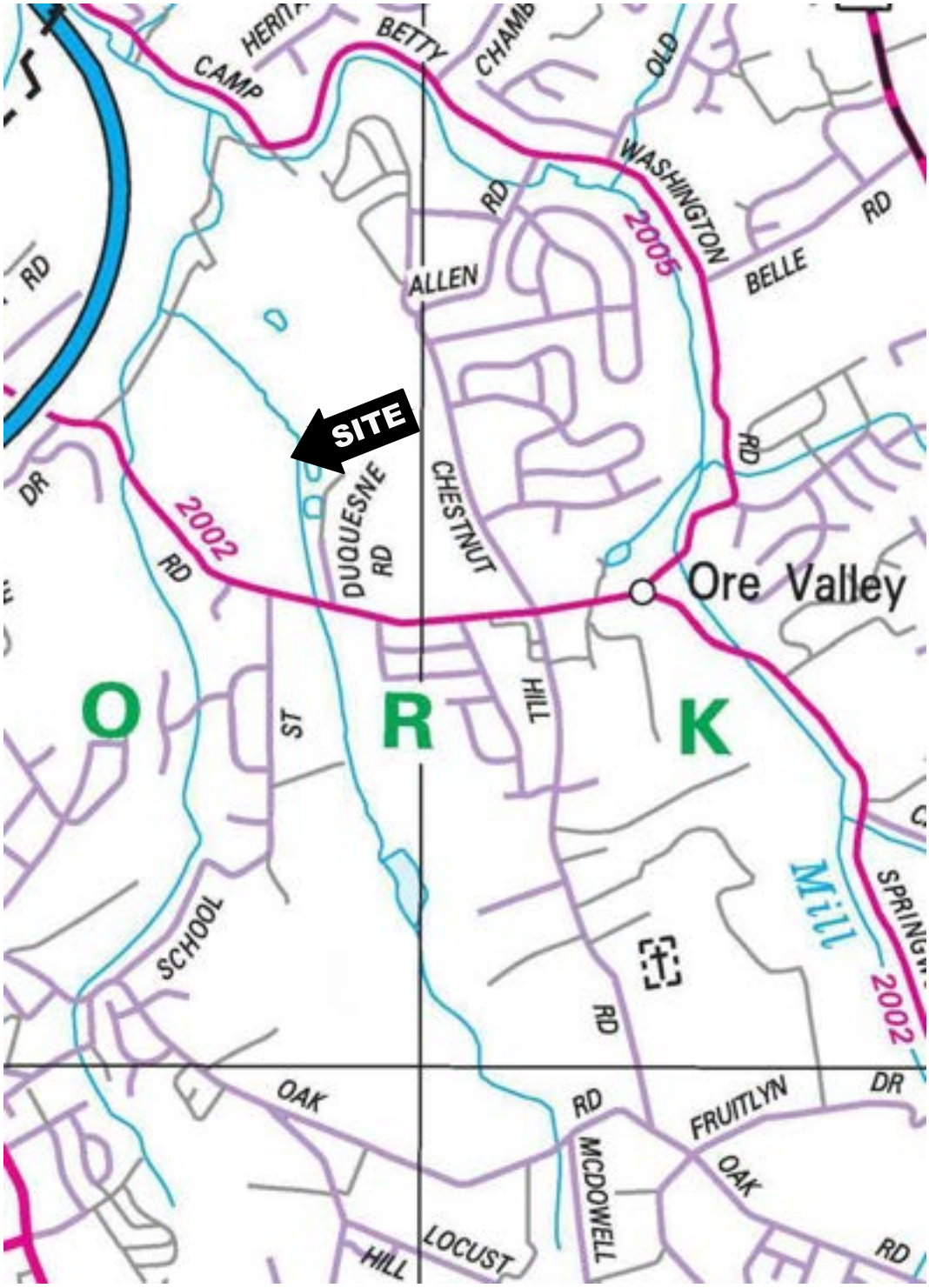
- Provide a 75' westbound left turn lane on Springwood Road (SR 2002) for vehicles accessing School Street.

8. RECOMMENDATIONS

A summary of the recommendations to ensure safe and efficient traffic movements is presented below. All improvements will be constructed to accommodate non-motorized access/circulation and be ADA compliant unless otherwise approved the Department.

1. Construct the private access road to Township and PennDOT standards. Provide a 75' eastbound left turn lane on Springwood Road (SR 2002) into the site. The proposed site access road should have a stop sign (R1-1) at its intersection with Springwood Road (SR 2002).

2. Provide a 75' westbound left turn lane on Springwood (SR 2002) into School Street.



TRG
Driven by Success
TRANSPORTATION RESOURCE GROUP, INC.

FIGURE 1

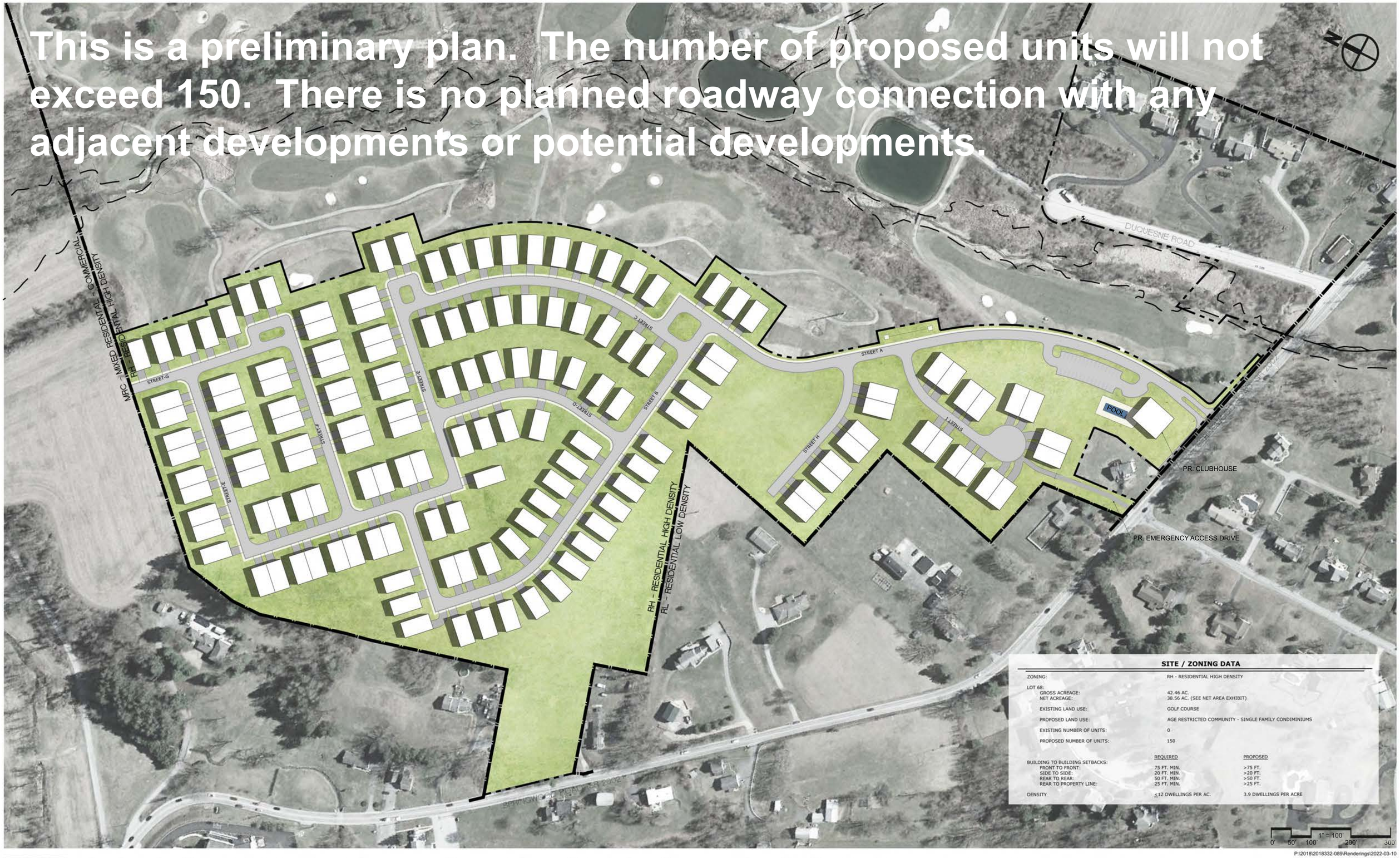
SITE LOCATION

TRANSPORTATION IMPACT ASSESSMENT

Bridgewater West Senior Residential Development

YORK TOWNSHIP
YORK COUNTY, PA

This is a preliminary plan. The number of proposed units will not exceed 150. There is no planned roadway connection with any adjacent developments or potential developments.



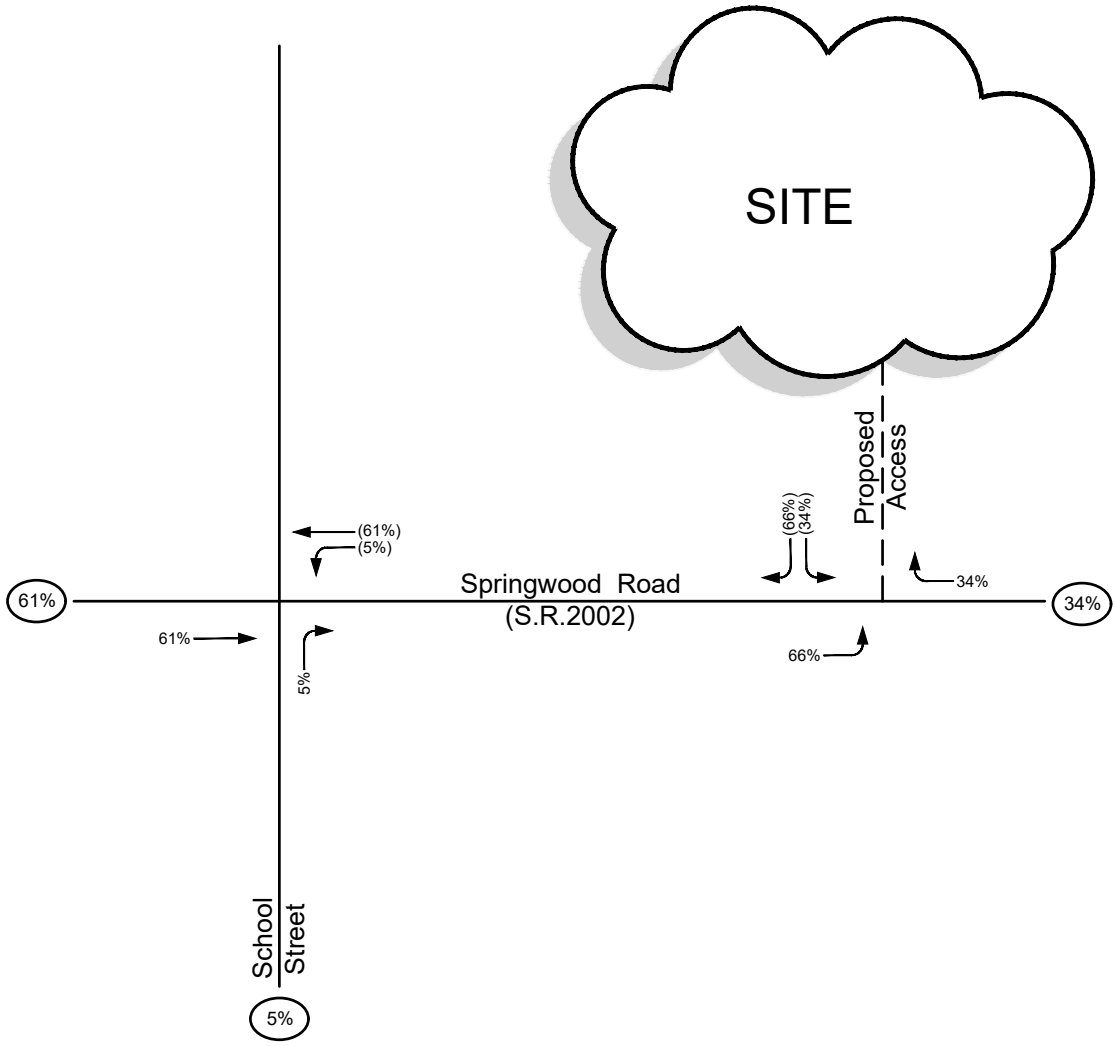
P:\2018\2018332-089\Renderings\2022-03-10

BRIDGEWATER - AGE RESTRICTED COMMUNITY

YORK TOWNSHIP, COUNTY, PA

03 . 31 . 2022

KEYSTONE CUSTOM HOMES



LEGEND

- Existing Street
- Proposed Street/Driveway
- 00% New Site Trip Distribution Percentage Enter
- (00%) New Site Trip Distribution Percentage Exit
- (00%) New Site Trip Distribution

TRG TRANSPORTATION RESOURCE GROUP, INC.

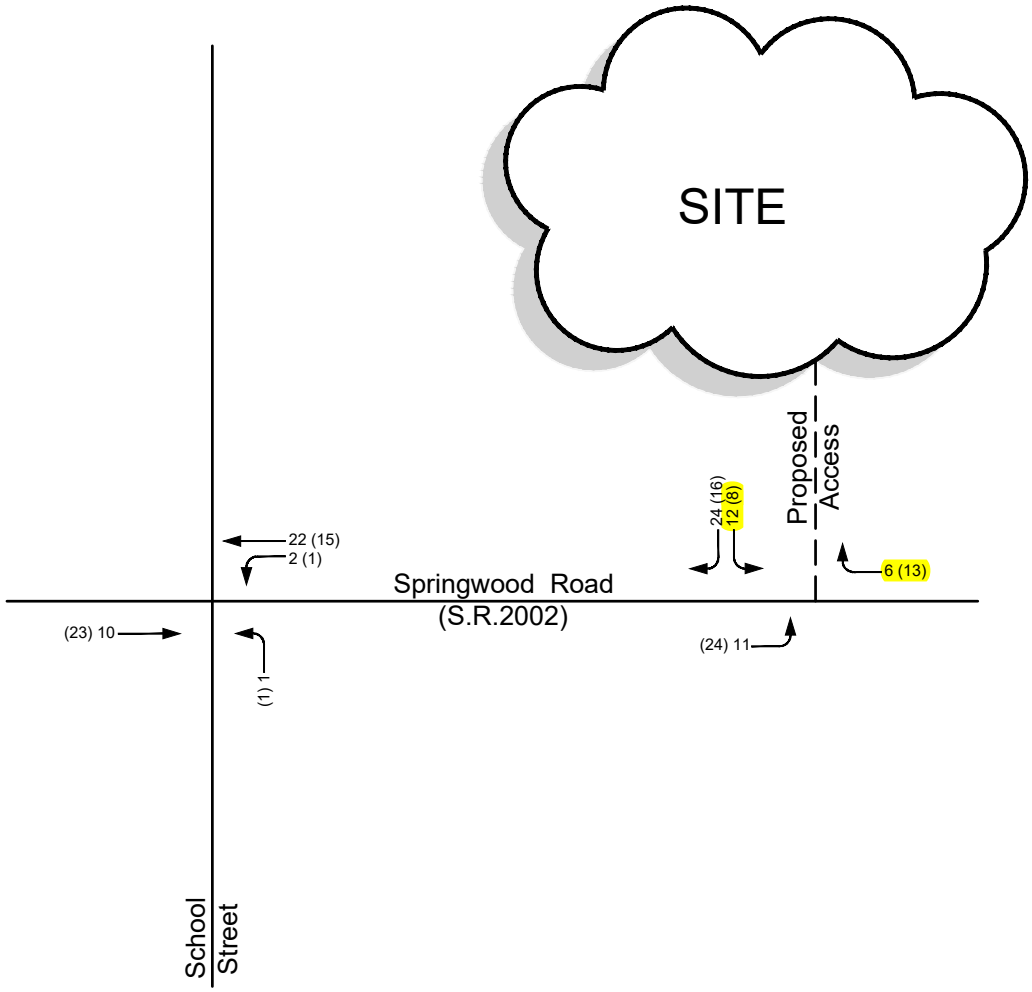
FIGURE 8

NEW SITE TRIP DISTRIBUTION PERCENTAGES

TRANSPORTATION IMPACT ASSESSMENT

Bridgewater West Senior Residential Development

YORK TOWNSHIP
YORK COUNTY, PA



LEGEND

- Existing Street
- Proposed Street/Driveway
- 000 AM Peak Hour Traffic Volume
- (000) PM Peak Hour Traffic Volume
- Vehicle Movement

TRG Transportation Resource Group, Inc.

FIGURE 9

TOTAL SITE TRIPS
AM & PM PEAK HOURS

TRANSPORTATION IMPACT ASSESSMENT

Bridgewater West Senior Residential Development

YORK TOWNSHIP
YORK COUNTY, PA

APPENDIX D:
Manual Traffic Count Data

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026

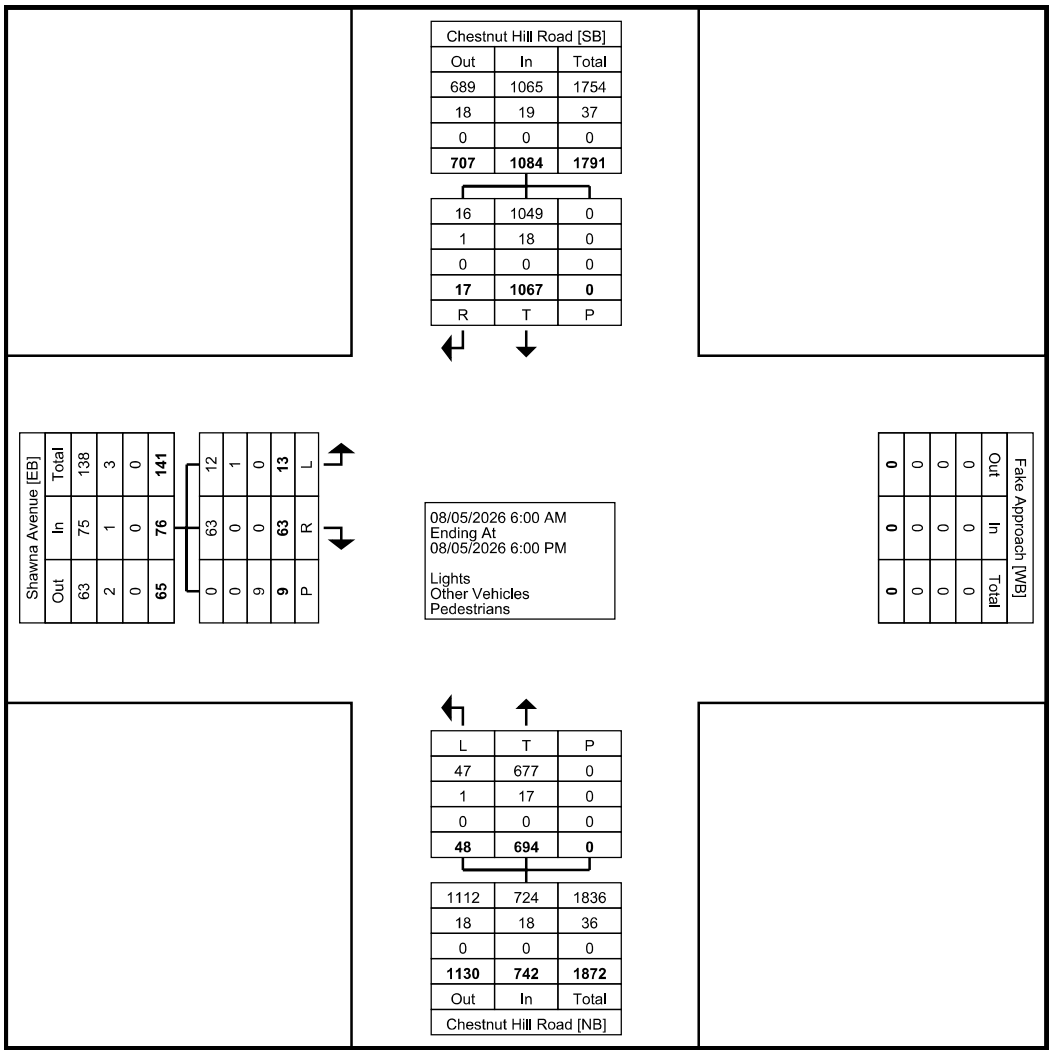
Turning Movement Data

Start Time	Shawna Avenue Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	0	2	0	2	0	7	0	7	17	0	0	17	26
6:15 AM	0	1	0	1	1	13	0	14	7	0	0	7	22
6:30 AM	0	1	0	1	1	25	0	26	15	1	0	16	43
6:45 AM	0	5	1	5	0	23	0	23	22	0	0	22	50
Hourly Total	0	9	1	9	2	68	0	70	61	1	0	62	141
7:00 AM	1	1	1	2	0	20	0	20	30	0	0	30	52
7:15 AM	0	0	0	0	0	19	0	19	24	0	0	24	43
7:30 AM	1	4	0	5	1	19	0	20	43	0	0	43	68
7:45 AM	0	2	0	2	0	30	0	30	24	0	0	24	56
Hourly Total	2	7	1	9	1	88	0	89	121	0	0	121	219
8:00 AM	0	3	0	3	1	29	0	30	37	0	0	37	70
8:15 AM	0	3	0	3	3	33	0	36	36	0	0	36	75
8:30 AM	0	3	0	3	1	21	0	22	37	0	0	37	62
8:45 AM	0	2	0	2	2	29	0	31	37	0	0	37	70
Hourly Total	0	11	0	11	7	112	0	119	147	0	0	147	277
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	0	3	0	3	1	27	0	28	43	2	0	45	76
3:15 PM	1	7	0	8	1	25	0	26	49	2	0	51	85
3:30 PM	1	3	0	4	3	47	0	50	61	1	0	62	116
3:45 PM	0	5	0	5	8	22	0	30	55	2	0	57	92
Hourly Total	2	18	0	20	13	121	0	134	208	7	0	215	369
4:00 PM	1	1	0	2	3	39	0	42	62	1	0	63	107
4:15 PM	1	4	1	5	4	38	0	42	55	1	0	56	103
4:30 PM	2	1	1	3	1	34	0	35	64	2	0	66	104
4:45 PM	0	3	1	3	3	36	0	39	89	1	0	90	132
Hourly Total	4	9	3	13	11	147	0	158	270	5	0	275	446
5:00 PM	2	4	2	6	3	49	0	52	74	1	0	75	133
5:15 PM	2	2	2	4	5	51	0	56	66	1	0	67	127
5:30 PM	0	2	0	2	2	28	0	30	73	1	0	74	106
5:45 PM	1	1	0	2	4	30	0	34	47	1	0	48	84
Hourly Total	5	9	4	14	14	158	0	172	260	4	0	264	450
Grand Total	13	63	9	76	48	694	0	742	1067	17	0	1084	1902
Approach %	17.1	82.9	-	-	6.5	93.5	-	-	98.4	1.6	-	-	-
Total %	0.7	3.3	-	4.0	2.5	36.5	-	39.0	56.1	0.9	-	57.0	-
Lights	12	63	-	75	47	677	-	724	1049	16	-	1065	1864
% Lights	92.3	100.0	-	98.7	97.9	97.6	-	97.6	98.3	94.1	-	98.2	98.0
Other Vehicles	1	0	-	1	1	17	-	18	18	1	-	19	38
% Other Vehicles	7.7	0.0	-	1.3	2.1	2.4	-	2.4	1.7	5.9	-	1.8	2.0
Pedestrians	-	-	9	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026
Page No: 2



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026

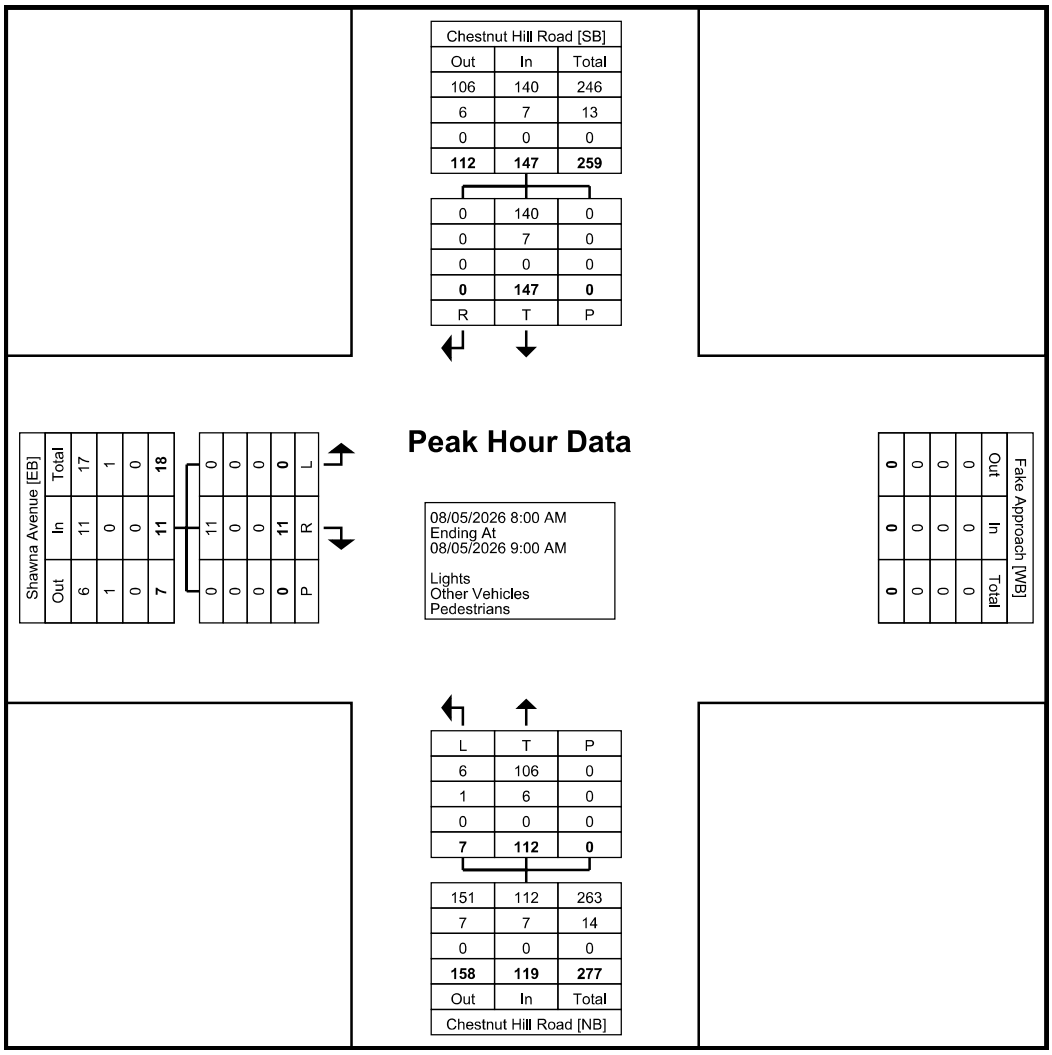
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Shawna Avenue Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	0	3	0	3	1	29	0	30	37	0	0	37	70
8:15 AM	0	3	0	3	3	33	0	36	36	0	0	36	75
8:30 AM	0	3	0	3	1	21	0	22	37	0	0	37	62
8:45 AM	0	2	0	2	2	29	0	31	37	0	0	37	70
Total	0	11	0	11	7	112	0	119	147	0	0	147	277
Approach %	0.0	100.0	-	-	5.9	94.1	-	-	100.0	0.0	-	-	-
Total %	0.0	4.0	-	4.0	2.5	40.4	-	43.0	53.1	0.0	-	53.1	-
PHF	0.000	0.917	-	0.917	0.583	0.848	-	0.826	0.993	0.000	-	0.993	0.923
Lights	0	11	-	11	6	106	-	112	140	0	-	140	263
% Lights	-	100.0	-	100.0	85.7	94.6	-	94.1	95.2	-	-	95.2	94.9
Other Vehicles	0	0	-	0	1	6	-	7	7	0	-	7	14
% Other Vehicles	-	0.0	-	0.0	14.3	5.4	-	5.9	4.8	-	-	4.8	5.1
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026
Page No: 4



Turning Movement Peak Hour Data Plot (8:00 AM)

Counter: MIO:
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Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026

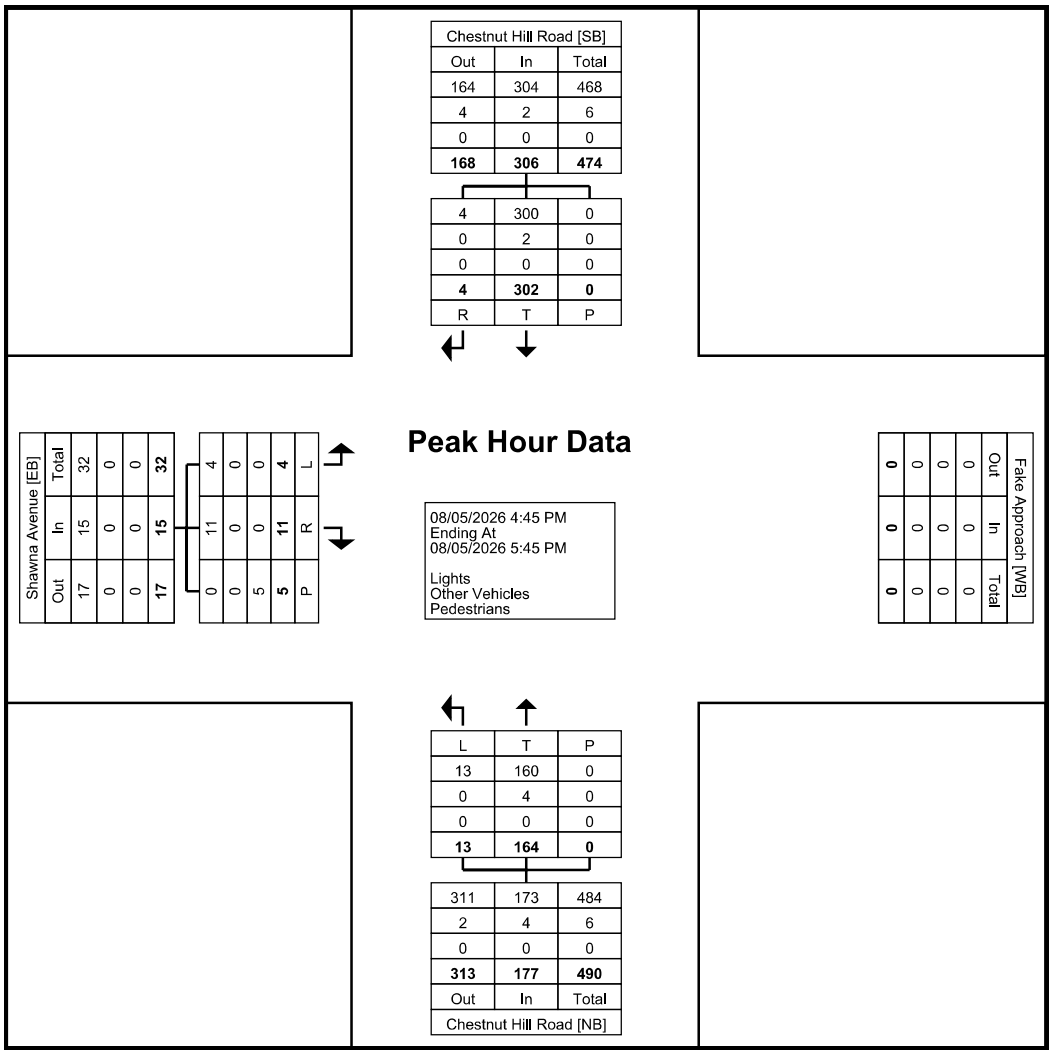
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Shawna Avenue Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	0	3	1	3	3	36	0	39	89	1	0	90	132
5:00 PM	2	4	2	6	3	49	0	52	74	1	0	75	133
5:15 PM	2	2	2	4	5	51	0	56	66	1	0	67	127
5:30 PM	0	2	0	2	2	28	0	30	73	1	0	74	106
Total	4	11	5	15	13	164	0	177	302	4	0	306	498
Approach %	26.7	73.3	-	-	7.3	92.7	-	-	98.7	1.3	-	-	-
Total %	0.8	2.2	-	3.0	2.6	32.9	-	35.5	60.6	0.8	-	61.4	-
PHF	0.500	0.688	-	0.625	0.650	0.804	-	0.790	0.848	1.000	-	0.850	0.936
Lights	4	11	-	15	13	160	-	173	300	4	-	304	492
% Lights	100.0	100.0	-	100.0	100.0	97.6	-	97.7	99.3	100.0	-	99.3	98.8
Other Vehicles	0	0	-	0	0	4	-	4	2	0	-	2	6
% Other Vehicles	0.0	0.0	-	0.0	0.0	2.4	-	2.3	0.7	0.0	-	0.7	1.2
Pedestrians	-	-	5	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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Count Name: 1 AM PM Chestnut Hill Road & Shawna Ave
Site Code:
Start Date: 08/05/2026
Page No: 6



Turning Movement Peak Hour Data Plot (4:45 PM)

Counter: MIO:
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2500 East High Street
Suite 650
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610.326.3100

Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
Site Code:
Start Date: 08/05/2026

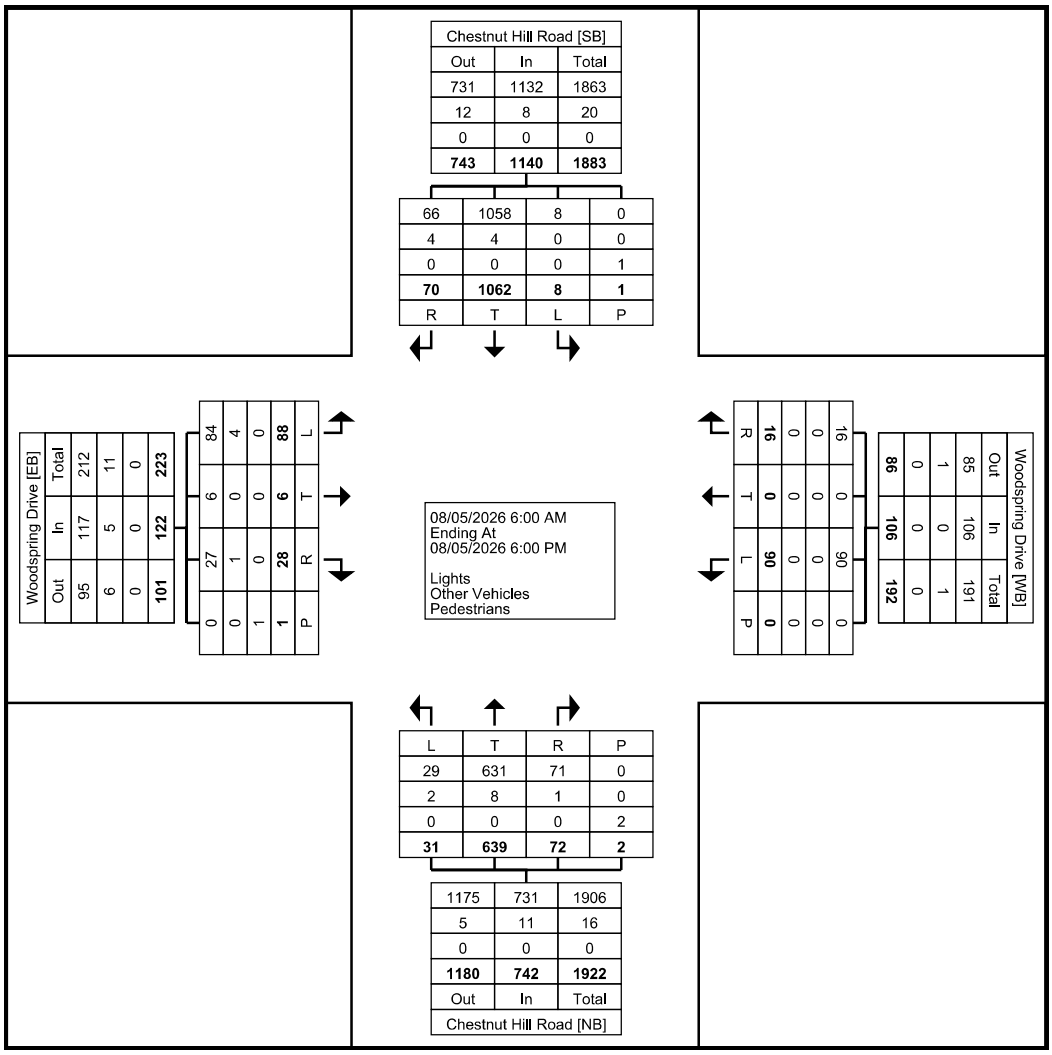
Turning Movement Data

Start Time	Woodspring Drive Eastbound					Woodspring Drive Westbound					Chestnut Hill Road Northbound					Chestnut Hill Road Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	1	1	2	0	4	2	0	0	0	2	0	6	0	1	6	0	19	0	0	19	31
6:15 AM	4	0	1	0	5	3	0	1	0	4	1	9	0	0	10	0	7	1	0	8	27
6:30 AM	8	0	4	0	12	3	0	0	0	3	1	18	0	0	19	0	17	0	0	17	51
6:45 AM	6	0	0	0	6	3	0	1	0	4	0	16	0	0	16	1	25	0	1	26	52
Hourly Total	19	1	7	0	27	11	0	2	0	13	2	49	0	1	51	1	68	1	1	70	161
7:00 AM	3	0	0	1	3	2	0	0	0	2	0	17	1	1	18	0	32	0	0	32	55
7:15 AM	3	1	0	0	4	7	0	0	0	7	1	16	0	0	17	0	23	1	0	24	52
7:30 AM	2	0	3	0	5	5	0	1	0	6	0	18	1	0	19	1	45	1	0	47	77
7:45 AM	1	0	1	0	2	8	0	0	0	8	1	28	4	0	33	0	26	1	0	27	70
Hourly Total	9	1	4	1	14	22	0	1	0	23	2	79	6	1	87	1	126	3	0	130	254
8:00 AM	5	0	0	0	5	4	0	0	0	4	1	24	0	0	25	0	37	3	0	40	74
8:15 AM	2	0	1	0	3	4	0	1	0	5	1	31	3	0	35	0	39	1	0	40	83
8:30 AM	5	0	3	0	8	3	0	0	0	3	0	17	1	0	18	1	35	3	0	39	68
8:45 AM	1	0	1	0	2	6	0	3	0	9	2	28	1	0	31	0	40	0	0	40	82
Hourly Total	13	0	5	0	18	17	0	4	0	21	4	100	5	0	109	1	151	7	0	159	307
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	3	0	0	0	3	3	0	0	0	3	0	25	3	0	28	0	41	5	0	46	80
3:15 PM	0	0	0	0	0	0	0	1	0	1	4	26	5	0	35	0	53	4	0	57	93
3:30 PM	5	1	1	0	7	1	0	3	0	4	2	41	7	0	50	0	56	5	0	61	122
3:45 PM	2	0	1	0	3	5	0	1	0	6	2	28	7	0	37	0	58	5	0	63	109
Hourly Total	10	1	2	0	13	9	0	5	0	14	8	120	22	0	150	0	208	19	0	227	404
4:00 PM	6	0	1	0	7	2	0	0	0	2	1	35	2	0	38	1	58	4	0	63	110
4:15 PM	6	0	1	0	7	1	0	1	0	2	0	37	6	0	43	0	54	5	0	59	111
4:30 PM	4	0	2	0	6	3	0	1	0	4	3	31	7	0	41	0	61	5	0	66	117
4:45 PM	1	1	0	0	2	4	0	1	0	5	2	36	7	0	45	2	82	8	0	92	144
Hourly Total	17	1	4	0	22	10	0	3	0	13	6	139	22	0	167	3	255	22	0	280	482
5:00 PM	7	0	3	0	10	4	0	0	0	4	4	45	7	0	56	0	76	6	0	82	152
5:15 PM	5	0	0	0	5	8	0	0	0	8	0	51	3	0	54	0	63	6	0	69	136
5:30 PM	5	2	2	0	9	6	0	0	0	6	1	27	3	0	31	2	68	5	0	75	121
5:45 PM	3	0	1	0	4	3	0	1	0	4	4	29	4	0	37	0	47	1	0	48	93
Hourly Total	20	2	6	0	28	21	0	1	0	22	9	152	17	0	178	2	254	18	0	274	502
Grand Total	88	6	28	1	122	90	0	16	0	106	31	639	72	2	742	8	1062	70	1	1140	2110
Approach %	72.1	4.9	23.0	-	-	84.9	0.0	15.1	-	-	4.2	86.1	9.7	-	-	0.7	93.2	6.1	-	-	-
Total %	4.2	0.3	1.3	-	5.8	4.3	0.0	0.8	-	5.0	1.5	30.3	3.4	-	35.2	0.4	50.3	3.3	-	54.0	-
Lights	84	6	27	-	117	90	0	16	-	106	29	631	71	-	731	8	1058	66	-	1132	2086
% Lights	95.5	100.0	96.4	-	95.9	100.0	-	100.0	-	100.0	93.5	98.7	98.6	-	98.5	100.0	99.6	94.3	-	99.3	98.9
Other Vehicles	4	0	1	-	5	0	0	0	-	0	2	8	1	-	11	0	4	4	-	8	24
% Other Vehicles	4.5	0.0	3.6	-	4.1	0.0	-	0.0	-	0.0	6.5	1.3	1.4	-	1.5	0.0	0.4	5.7	-	0.7	1.1
Pedestrians	-	-	-	1	-	-	-	-	0	-	-	-	-	2	-	-	-	-	1	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
Site Code:
Start Date: 08/05/2026



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
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Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
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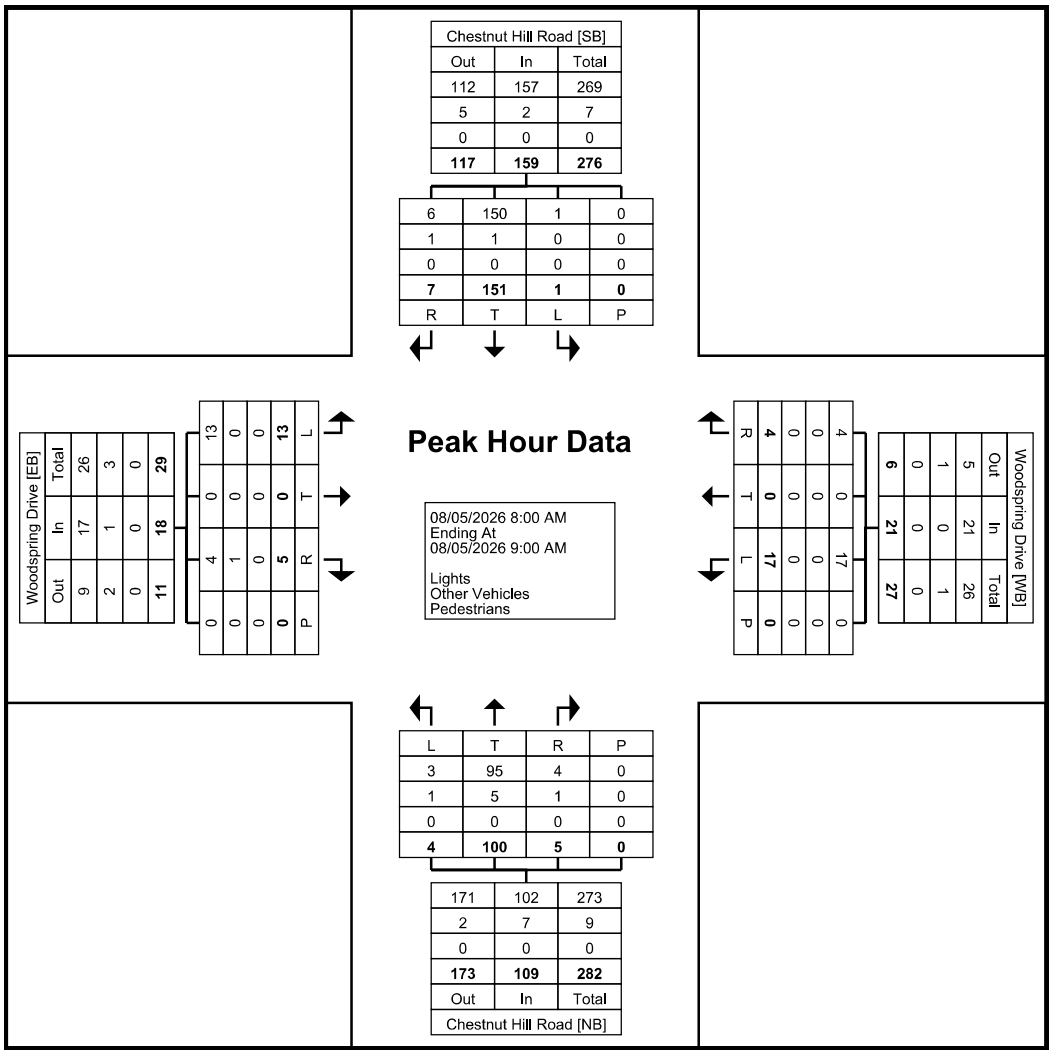
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Woodspring Drive Eastbound					Woodspring Drive Westbound					Chestnut Hill Road Northbound					Chestnut Hill Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	5	0	0	0	5	4	0	0	0	4	1	24	0	0	25	0	37	3	0	40	74
8:15 AM	2	0	1	0	3	4	0	1	0	5	1	31	3	0	35	0	39	1	0	40	83
8:30 AM	5	0	3	0	8	3	0	0	0	3	0	17	1	0	18	1	35	3	0	39	68
8:45 AM	1	0	1	0	2	6	0	3	0	9	2	28	1	0	31	0	40	0	0	40	82
Total	13	0	5	0	18	17	0	4	0	21	4	100	5	0	109	1	151	7	0	159	307
Approach %	72.2	0.0	27.8	-	-	81.0	0.0	19.0	-	-	3.7	91.7	4.6	-	-	0.6	95.0	4.4	-	-	-
Total %	4.2	0.0	1.6	-	5.9	5.5	0.0	1.3	-	6.8	1.3	32.6	1.6	-	35.5	0.3	49.2	2.3	-	51.8	-
PHF	0.650	0.000	0.417	-	0.563	0.708	0.000	0.333	-	0.583	0.500	0.806	0.417	-	0.779	0.250	0.944	0.583	-	0.994	0.925
Lights	13	0	4	-	17	17	0	4	-	21	3	95	4	-	102	1	150	6	-	157	297
% Lights	100.0	-	80.0	-	94.4	100.0	-	100.0	-	100.0	75.0	95.0	80.0	-	93.6	100.0	99.3	85.7	-	98.7	96.7
Other Vehicles	0	0	1	-	1	0	0	0	-	0	1	5	1	-	7	0	1	1	-	2	10
% Other Vehicles	0.0	-	20.0	-	5.6	0.0	-	0.0	-	0.0	25.0	5.0	20.0	-	6.4	0.0	0.7	14.3	-	1.3	3.3
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
Site Code:
Start Date: 08/05/2026



Turning Movement Peak Hour Data Plot (8:00 AM)

Counter: MIO:
Set up By JH::

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610.326.3100

Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
Site Code:
Start Date: 08/05/2026

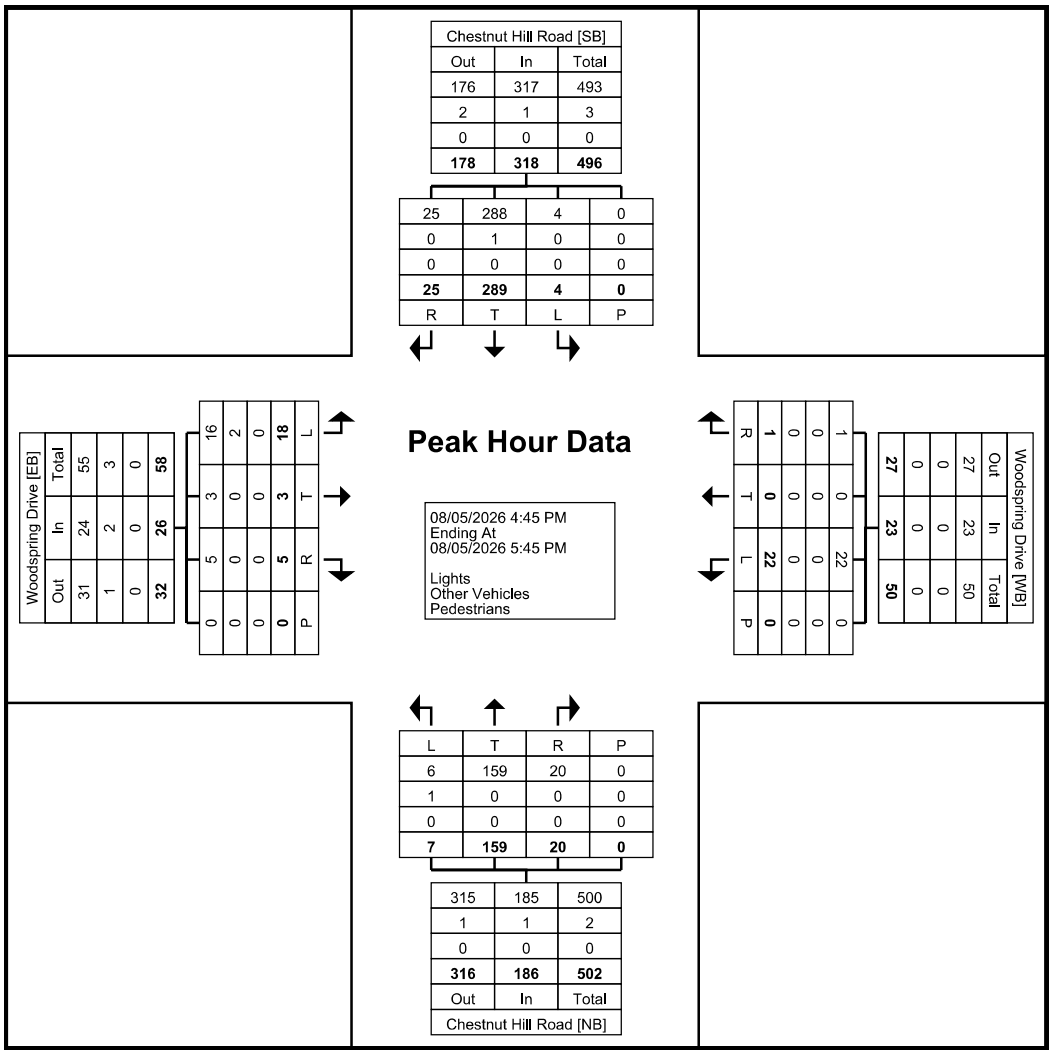
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Woodspring Drive Eastbound					Woodspring Drive Westbound					Chestnut Hill Road Northbound					Chestnut Hill Road Southbound					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	1	1	0	0	2	4	0	1	0	5	2	36	7	0	45	2	82	8	0	92	144
5:00 PM	7	0	3	0	10	4	0	0	0	4	4	45	7	0	56	0	76	6	0	82	152
5:15 PM	5	0	0	0	5	8	0	0	0	8	0	51	3	0	54	0	63	6	0	69	136
5:30 PM	5	2	2	0	9	6	0	0	0	6	1	27	3	0	31	2	68	5	0	75	121
Total	18	3	5	0	26	22	0	1	0	23	7	159	20	0	186	4	289	25	0	318	553
Approach %	69.2	11.5	19.2	-	-	95.7	0.0	4.3	-	-	3.8	85.5	10.8	-	-	1.3	90.9	7.9	-	-	-
Total %	3.3	0.5	0.9	-	4.7	4.0	0.0	0.2	-	4.2	1.3	28.8	3.6	-	33.6	0.7	52.3	4.5	-	57.5	-
PHF	0.643	0.375	0.417	-	0.650	0.688	0.000	0.250	-	0.719	0.438	0.779	0.714	-	0.830	0.500	0.881	0.781	-	0.864	0.910
Lights	16	3	5	-	24	22	0	1	-	23	6	159	20	-	185	4	288	25	-	317	549
% Lights	88.9	100.0	100.0	-	92.3	100.0	-	100.0	-	100.0	85.7	100.0	100.0	-	99.5	100.0	99.7	100.0	-	99.7	99.3
Other Vehicles	2	0	0	-	2	0	0	0	-	0	1	0	0	-	1	0	1	0	-	1	4
% Other Vehicles	11.1	0.0	0.0	-	7.7	0.0	-	0.0	-	0.0	14.3	0.0	0.0	-	0.5	0.0	0.3	0.0	-	0.3	0.7
Pedestrians	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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Count Name: 2 AM PM Chestnut Hill Road & Woodspring Drive
Site Code:
Start Date: 08/05/2026
Page No: 6



Turning Movement Peak Hour Data Plot (4:45 PM)

Counter: MIO:
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610.326.3100

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026

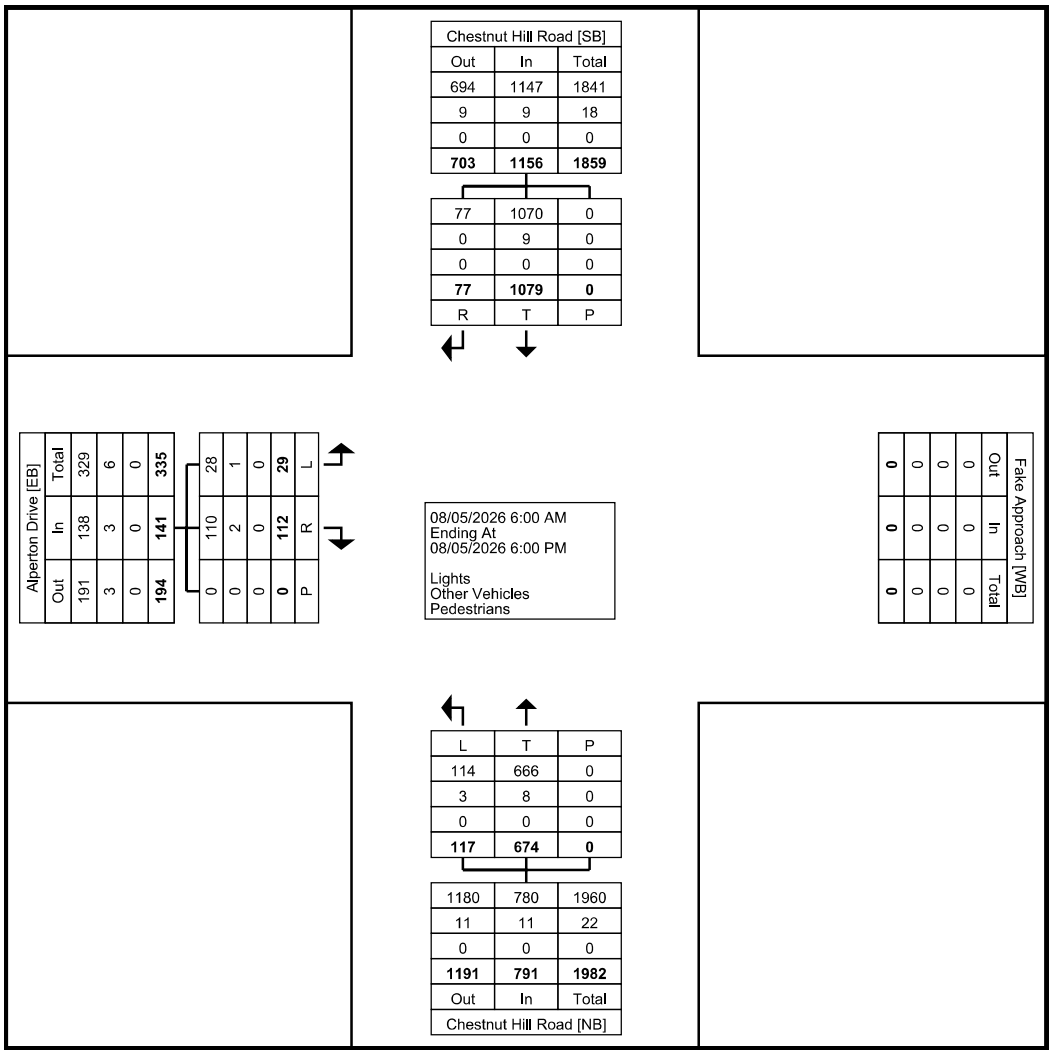
Turning Movement Data

Start Time	Alperton Drive Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				Int. Total
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	
6:00 AM	0	1	0	1	0	5	0	5	20	1	0	21	27
6:15 AM	1	4	0	5	1	7	0	8	13	0	0	13	26
6:30 AM	0	1	0	1	0	13	0	13	26	0	0	26	40
6:45 AM	0	4	0	4	2	15	0	17	29	0	0	29	50
Hourly Total	1	10	0	11	3	40	0	43	88	1	0	89	143
7:00 AM	0	2	0	2	1	14	0	15	39	0	0	39	56
7:15 AM	0	6	0	6	0	9	0	9	31	0	0	31	46
7:30 AM	1	7	0	8	1	16	0	17	51	3	0	54	79
7:45 AM	1	3	0	4	4	25	0	29	38	1	0	39	72
Hourly Total	2	18	0	20	6	64	0	70	159	4	0	163	253
8:00 AM	1	2	0	3	1	21	0	22	39	0	0	39	64
8:15 AM	1	5	0	6	3	25	0	28	41	1	0	42	76
8:30 AM	3	5	0	8	3	17	0	20	42	2	0	44	72
8:45 AM	0	4	0	4	3	30	0	33	45	2	0	47	84
Hourly Total	5	16	0	21	10	93	0	103	167	5	0	172	296
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	1	2	0	3	5	29	0	34	37	2	0	39	76
3:15 PM	1	6	0	7	4	36	0	40	48	2	0	50	97
3:30 PM	2	5	0	7	5	43	0	48	59	0	0	59	114
3:45 PM	1	4	0	5	12	34	0	46	52	9	0	61	112
Hourly Total	5	17	0	22	26	142	0	168	196	13	0	209	399
4:00 PM	0	2	0	2	14	37	0	51	50	4	0	54	107
4:15 PM	0	5	0	5	7	47	0	54	46	11	0	57	116
4:30 PM	2	5	0	7	10	37	0	47	53	8	0	61	115
4:45 PM	3	5	0	8	13	41	0	54	72	11	0	83	145
Hourly Total	5	17	0	22	44	162	0	206	221	34	0	255	483
5:00 PM	3	10	0	13	6	53	0	59	67	9	0	76	148
5:15 PM	4	9	0	13	8	50	0	58	62	4	0	66	137
5:30 PM	3	7	0	10	5	30	0	35	70	5	0	75	120
5:45 PM	1	8	0	9	9	40	0	49	49	2	0	51	109
Hourly Total	11	34	0	45	28	173	0	201	248	20	0	268	514
Grand Total	29	112	0	141	117	674	0	791	1079	77	0	1156	2088
Approach %	20.6	79.4	-	-	14.8	85.2	-	-	93.3	6.7	-	-	-
Total %	1.4	5.4	-	6.8	5.6	32.3	-	37.9	51.7	3.7	-	55.4	-
Lights	28	110	-	138	114	666	-	780	1070	77	-	1147	2065
% Lights	96.6	98.2	-	97.9	97.4	98.8	-	98.6	99.2	100.0	-	99.2	98.9
Other Vehicles	1	2	-	3	3	8	-	11	9	0	-	9	23
% Other Vehicles	3.4	1.8	-	2.1	2.6	1.2	-	1.4	0.8	0.0	-	0.8	1.1
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026
Page No: 2



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

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2500 East High Street
Suite 650
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610.326.3100

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026

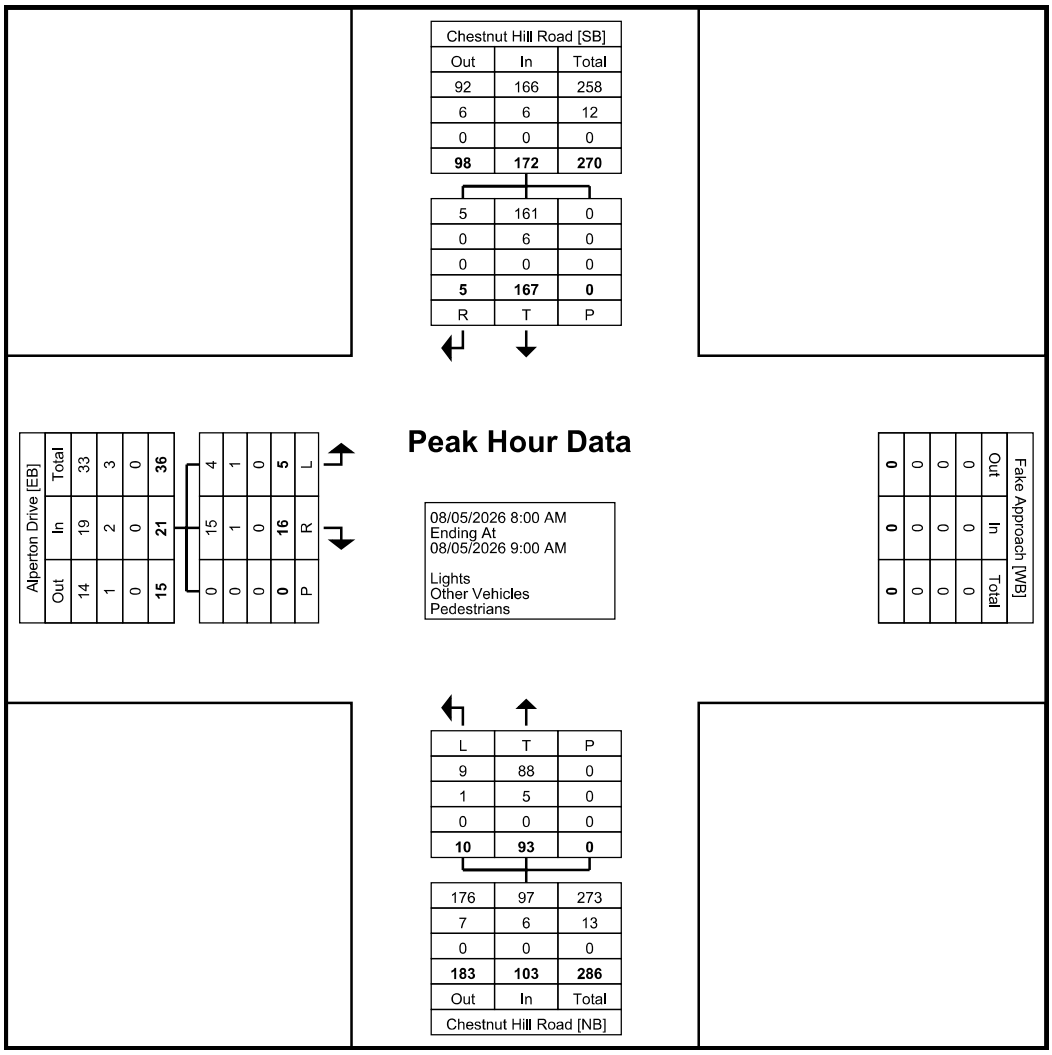
Turning Movement Peak Hour Data (8:00 AM)

Start Time	Alperton Drive Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
8:00 AM	1	2	0	3	1	21	0	22	39	0	0	39	64
8:15 AM	1	5	0	6	3	25	0	28	41	1	0	42	76
8:30 AM	3	5	0	8	3	17	0	20	42	2	0	44	72
8:45 AM	0	4	0	4	3	30	0	33	45	2	0	47	84
Total	5	16	0	21	10	93	0	103	167	5	0	172	296
Approach %	23.8	76.2	-	-	9.7	90.3	-	-	97.1	2.9	-	-	-
Total %	1.7	5.4	-	7.1	3.4	31.4	-	34.8	56.4	1.7	-	58.1	-
PHF	0.417	0.800	-	0.656	0.833	0.775	-	0.780	0.928	0.625	-	0.915	0.881
Lights	4	15	-	19	9	88	-	97	161	5	-	166	282
% Lights	80.0	93.8	-	90.5	90.0	94.6	-	94.2	96.4	100.0	-	96.5	95.3
Other Vehicles	1	1	-	2	1	5	-	6	6	0	-	6	14
% Other Vehicles	20.0	6.3	-	9.5	10.0	5.4	-	5.8	3.6	0.0	-	3.5	4.7
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026
Page No: 4



Turning Movement Peak Hour Data Plot (8:00 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026

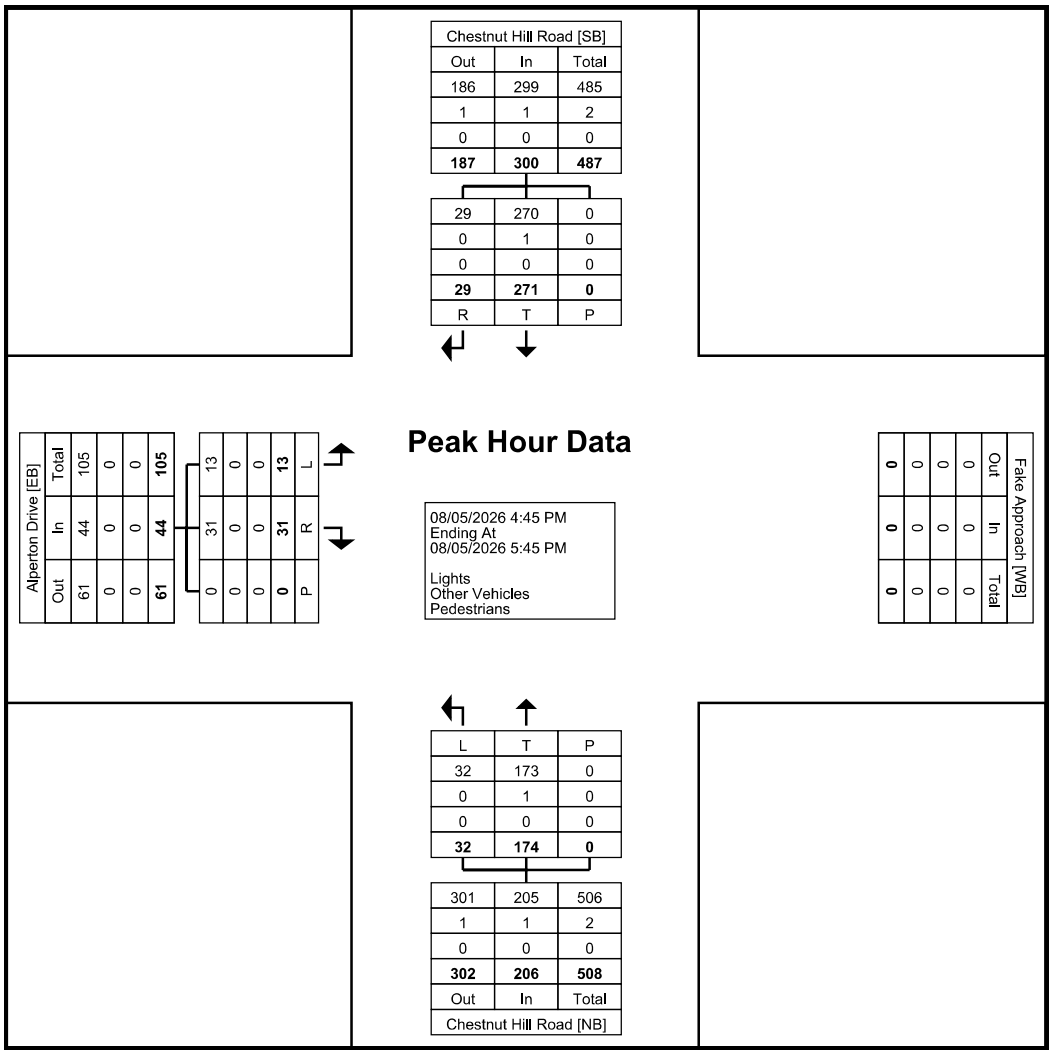
Turning Movement Peak Hour Data (4:45 PM)

Start Time	Alperton Drive Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
4:45 PM	3	5	0	8	13	41	0	54	72	11	0	83	145
5:00 PM	3	10	0	13	6	53	0	59	67	9	0	76	148
5:15 PM	4	9	0	13	8	50	0	58	62	4	0	66	137
5:30 PM	3	7	0	10	5	30	0	35	70	5	0	75	120
Total	13	31	0	44	32	174	0	206	271	29	0	300	550
Approach %	29.5	70.5	-	-	15.5	84.5	-	-	90.3	9.7	-	-	-
Total %	2.4	5.6	-	8.0	5.8	31.6	-	37.5	49.3	5.3	-	54.5	-
PHF	0.813	0.775	-	0.846	0.615	0.821	-	0.873	0.941	0.659	-	0.904	0.929
Lights	13	31	-	44	32	173	-	205	270	29	-	299	548
% Lights	100.0	100.0	-	100.0	100.0	99.4	-	99.5	99.6	100.0	-	99.7	99.6
Other Vehicles	0	0	-	0	0	1	-	1	1	0	-	1	2
% Other Vehicles	0.0	0.0	-	0.0	0.0	0.6	-	0.5	0.4	0.0	-	0.3	0.4
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
Set up By JH::

Count Name: 3 AM PM Chestnut Hill Road & Alperton Drive
Site Code:
Start Date: 08/05/2026
Page No: 6



Turning Movement Peak Hour Data Plot (4:45 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026

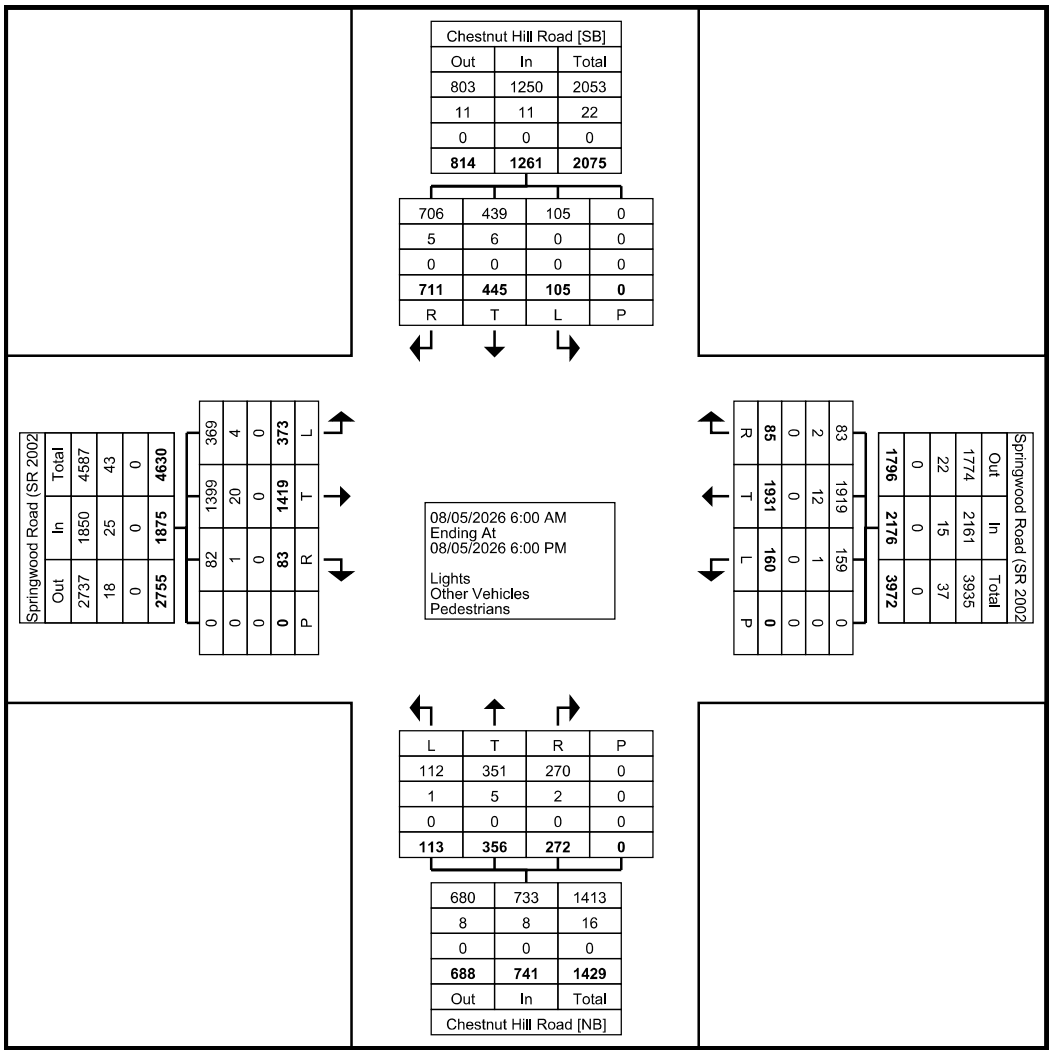
Turning Movement Data

Start Time	Springwood Road (SR 2002) Eastbound						Springwood Road (SR 2002) Westbound						Chestnut Hill Road Northbound						Chestnut Hill Road Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
6:00 AM	0	14	1	0	0	15	1	61	0	0	0	62	3	5	1	1	0	10	0	4	13	6	0	23	110
6:15 AM	3	23	2	0	0	28	2	68	0	0	0	70	5	5	1	1	0	12	0	0	9	9	0	18	128
6:30 AM	1	16	3	0	0	20	3	108	0	0	0	111	2	11	2	0	0	15	1	5	12	12	0	30	176
6:45 AM	2	29	1	0	0	32	2	82	0	0	0	84	3	9	2	0	0	14	2	5	12	14	0	33	163
Hourly Total	6	82	7	0	0	95	8	319	0	0	0	327	13	30	6	2	0	51	3	14	46	41	0	104	577
7:00 AM	2	26	1	0	0	29	3	105	0	0	0	108	2	9	7	3	0	21	0	7	15	19	0	41	199
7:15 AM	7	39	2	0	0	48	4	111	0	0	0	115	5	10	2	2	0	19	3	10	21	10	0	44	226
7:30 AM	6	47	3	0	0	56	3	129	0	0	0	132	8	11	3	5	0	27	3	9	30	18	0	60	275
7:45 AM	7	37	5	0	0	49	8	115	1	0	0	124	11	19	7	6	0	43	1	2	25	16	0	44	260
Hourly Total	22	149	11	0	0	182	18	460	1	0	0	479	26	49	19	16	0	110	7	28	91	63	0	189	960
8:00 AM	4	42	1	0	0	47	2	93	4	0	0	99	2	15	5	1	0	23	4	15	17	15	0	51	220
8:15 AM	10	44	2	0	0	56	2	101	3	0	0	106	2	14	4	1	0	21	0	18	14	19	0	51	234
8:30 AM	14	37	2	0	0	53	4	77	0	0	0	81	4	10	11	1	0	26	4	14	21	14	0	53	213
8:45 AM	9	37	3	0	0	49	5	71	3	0	0	79	2	16	7	8	0	33	3	14	20	12	0	49	210
Hourly Total	37	160	8	0	0	205	13	342	10	0	0	365	10	55	27	11	0	103	11	61	72	60	0	204	877
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	15	69	2	0	0	86	10	53	3	2	0	68	3	13	6	6	0	28	3	17	12	11	0	43	225
3:15 PM	27	69	5	0	0	101	4	77	1	1	0	83	6	15	2	7	0	30	10	26	11	12	0	59	273
3:30 PM	29	89	4	0	0	122	1	69	7	2	0	79	5	21	15	5	0	46	4	26	20	11	0	61	308
3:45 PM	27	72	6	0	0	105	9	50	9	2	0	70	3	13	5	4	0	25	9	24	14	12	0	59	259
Hourly Total	98	299	17	0	0	414	24	249	20	7	0	300	17	62	28	22	0	129	26	93	57	46	0	222	1065
4:00 PM	25	95	3	0	0	123	10	70	6	0	0	86	3	15	10	7	0	35	5	21	18	13	0	57	301
4:15 PM	33	97	4	0	0	134	5	60	6	2	0	73	8	18	6	8	0	40	5	19	13	13	0	50	297
4:30 PM	24	97	6	1	0	128	12	82	5	0	0	99	6	20	12	7	0	45	9	32	15	9	0	65	337
4:45 PM	29	93	1	1	0	124	9	82	4	1	0	96	2	25	17	6	0	50	7	36	17	18	0	78	348
Hourly Total	111	382	14	2	0	509	36	294	21	3	0	354	19	78	45	28	0	170	26	108	63	53	0	250	1283
5:00 PM	28	87	2	0	0	117	10	73	7	0	0	90	6	24	13	6	0	49	10	42	15	14	0	81	337
5:15 PM	29	97	4	0	0	130	17	64	3	0	0	84	8	26	12	10	0	56	13	35	13	13	0	74	344
5:30 PM	14	76	8	1	0	99	10	61	6	1	0	78	5	15	11	2	0	33	6	40	21	15	0	82	292
5:45 PM	28	87	9	0	0	124	24	69	6	0	0	99	9	17	11	3	0	40	3	24	18	10	0	55	318
Hourly Total	99	347	23	1	0	470	61	267	22	1	0	351	28	82	47	21	0	178	32	141	67	52	0	292	1291
Grand Total	373	1419	80	3	0	1875	160	1931	74	11	0	2176	113	356	172	100	0	741	105	445	396	315	0	1261	6053
Approach %	19.9	75.7	4.3	0.2	-	-	7.4	88.7	3.4	0.5	-	-	15.2	48.0	23.2	13.5	-	-	8.3	35.3	31.4	25.0	-	-	-
Total %	6.2	23.4	1.3	0.0	-	31.0	2.6	31.9	1.2	0.2	-	35.9	1.9	5.9	2.8	1.7	-	12.2	1.7	7.4	6.5	5.2	-	20.8	-
Lights	369	1399	79	3	-	1850	159	1919	73	10	-	2161	112	351	170	100	-	733	105	439	393	313	-	1250	5994
% Lights	98.9	98.6	98.8	100.0	-	98.7	99.4	99.4	98.6	90.9	-	99.3	99.1	98.6	98.8	100.0	-	98.9	100.0	98.7	99.2	99.4	-	99.1	99.0
Other Vehicles	4	20	1	0	-	25	1	12	1	1	-	15	1	5	2	0	-	8	0	6	3	2	-	11	59
% Other Vehicles	1.1	1.4	1.3	0.0	-	1.3	0.6	0.6	1.4	9.1	-	0.7	0.9	1.4	1.2	0.0	-	1.1	0.0	1.3	0.8	0.6	-	0.9	1.0
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026



Turning Movement Data Plot

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026

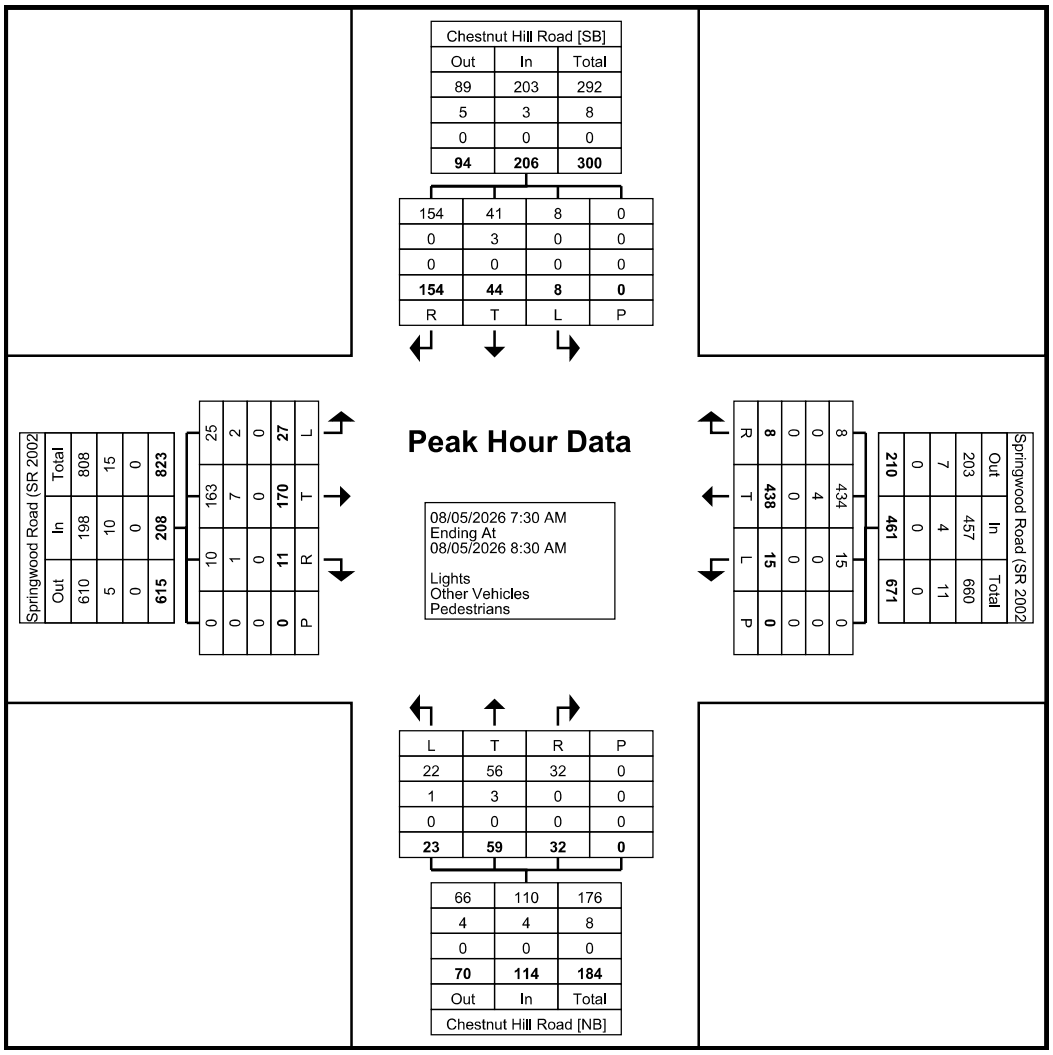
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Springwood Road (SR 2002) Eastbound						Springwood Road (SR 2002) Westbound						Chestnut Hill Road Northbound						Chestnut Hill Road Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
7:30 AM	6	47	3	0	0	56	3	129	0	0	0	132	8	11	3	5	0	27	3	9	30	18	0	60	275
7:45 AM	7	37	5	0	0	49	8	115	1	0	0	124	11	19	7	6	0	43	1	2	25	16	0	44	260
8:00 AM	4	42	1	0	0	47	2	93	4	0	0	99	2	15	5	1	0	23	4	15	17	15	0	51	220
8:15 AM	10	44	2	0	0	56	2	101	3	0	0	106	2	14	4	1	0	21	0	18	14	19	0	51	234
Total	27	170	11	0	0	208	15	438	8	0	0	461	23	59	19	13	0	114	8	44	86	68	0	206	989
Approach %	13.0	81.7	5.3	0.0	-	-	3.3	95.0	1.7	0.0	-	-	20.2	51.8	16.7	11.4	-	-	3.9	21.4	41.7	33.0	-	-	-
Total %	2.7	17.2	1.1	0.0	-	21.0	1.5	44.3	0.8	0.0	-	46.6	2.3	6.0	1.9	1.3	-	11.5	0.8	4.4	8.7	6.9	-	20.8	-
PHF	0.675	0.904	0.550	0.000	-	0.929	0.469	0.849	0.500	0.000	-	0.873	0.523	0.776	0.679	0.542	-	0.663	0.500	0.611	0.717	0.895	-	0.858	0.899
Lights	25	163	10	0	-	198	15	434	8	0	-	457	22	56	19	13	-	110	8	41	86	68	-	203	968
% Lights	92.6	95.9	90.9	-	-	95.2	100.0	99.1	100.0	-	-	99.1	95.7	94.9	100.0	100.0	-	96.5	100.0	93.2	100.0	100.0	-	98.5	97.9
Other Vehicles	2	7	1	0	-	10	0	4	0	0	-	4	1	3	0	0	-	4	0	3	0	0	-	3	21
% Other Vehicles	7.4	4.1	9.1	-	-	4.8	0.0	0.9	0.0	-	-	0.9	4.3	5.1	0.0	0.0	-	3.5	0.0	6.8	0.0	0.0	-	1.5	2.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026



Turning Movement Peak Hour Data Plot (7:30 AM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026

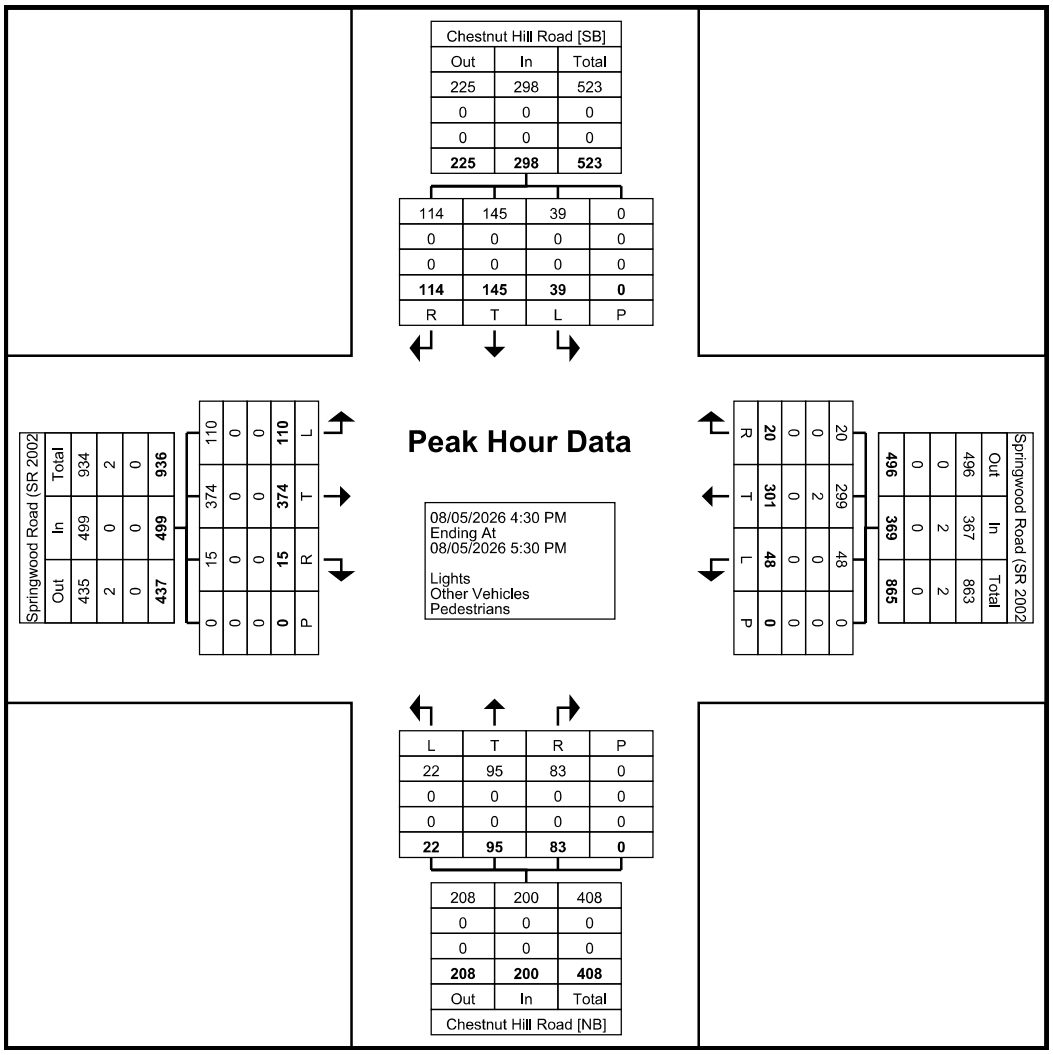
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Springwood Road (SR 2002) Eastbound						Springwood Road (SR 2002) Westbound						Chestnut Hill Road Northbound						Chestnut Hill Road Southbound						Int. Total
	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	Left	Thru	Right	Right on Red	Peds	App. Total	
4:30 PM	24	97	6	1	0	128	12	82	5	0	0	99	6	20	12	7	0	45	9	32	15	9	0	65	337
4:45 PM	29	93	1	1	0	124	9	82	4	1	0	96	2	25	17	6	0	50	7	36	17	18	0	78	348
5:00 PM	28	87	2	0	0	117	10	73	7	0	0	90	6	24	13	6	0	49	10	42	15	14	0	81	337
5:15 PM	29	97	4	0	0	130	17	64	3	0	0	84	8	26	12	10	0	56	13	35	13	13	0	74	344
Total	110	374	13	2	0	499	48	301	19	1	0	369	22	95	54	29	0	200	39	145	60	54	0	298	1366
Approach %	22.0	74.9	2.6	0.4	-	-	13.0	81.6	5.1	0.3	-	-	11.0	47.5	27.0	14.5	-	-	13.1	48.7	20.1	18.1	-	-	-
Total %	8.1	27.4	1.0	0.1	-	36.5	3.5	22.0	1.4	0.1	-	27.0	1.6	7.0	4.0	2.1	-	14.6	2.9	10.6	4.4	4.0	-	21.8	-
PHF	0.948	0.964	0.542	0.500	-	0.960	0.706	0.918	0.679	0.250	-	0.932	0.688	0.913	0.794	0.725	-	0.893	0.750	0.863	0.882	0.750	-	0.920	0.981
Lights	110	374	13	2	-	499	48	299	19	1	-	367	22	95	54	29	-	200	39	145	60	54	-	298	1364
% Lights	100.0	100.0	100.0	100.0	-	100.0	100.0	99.3	100.0	100.0	-	99.5	100.0	100.0	100.0	100.0	-	100.0	100.0	100.0	100.0	100.0	-	100.0	99.9
Other Vehicles	0	0	0	0	-	0	0	2	0	0	-	2	0	0	0	0	-	0	0	0	0	0	-	0	2
% Other Vehicles	0.0	0.0	0.0	0.0	-	0.0	0.0	0.7	0.0	0.0	-	0.5	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.1
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 5 AM PM Chestnut Hill Road & Springwood Rd (SR 2002)
Site Code:
Start Date: 08/05/2026



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 4 AM PM Chestnut Hill Road & Camp Betty Washington Rd (SR 2005)
Site Code:
Start Date: 08/05/2026

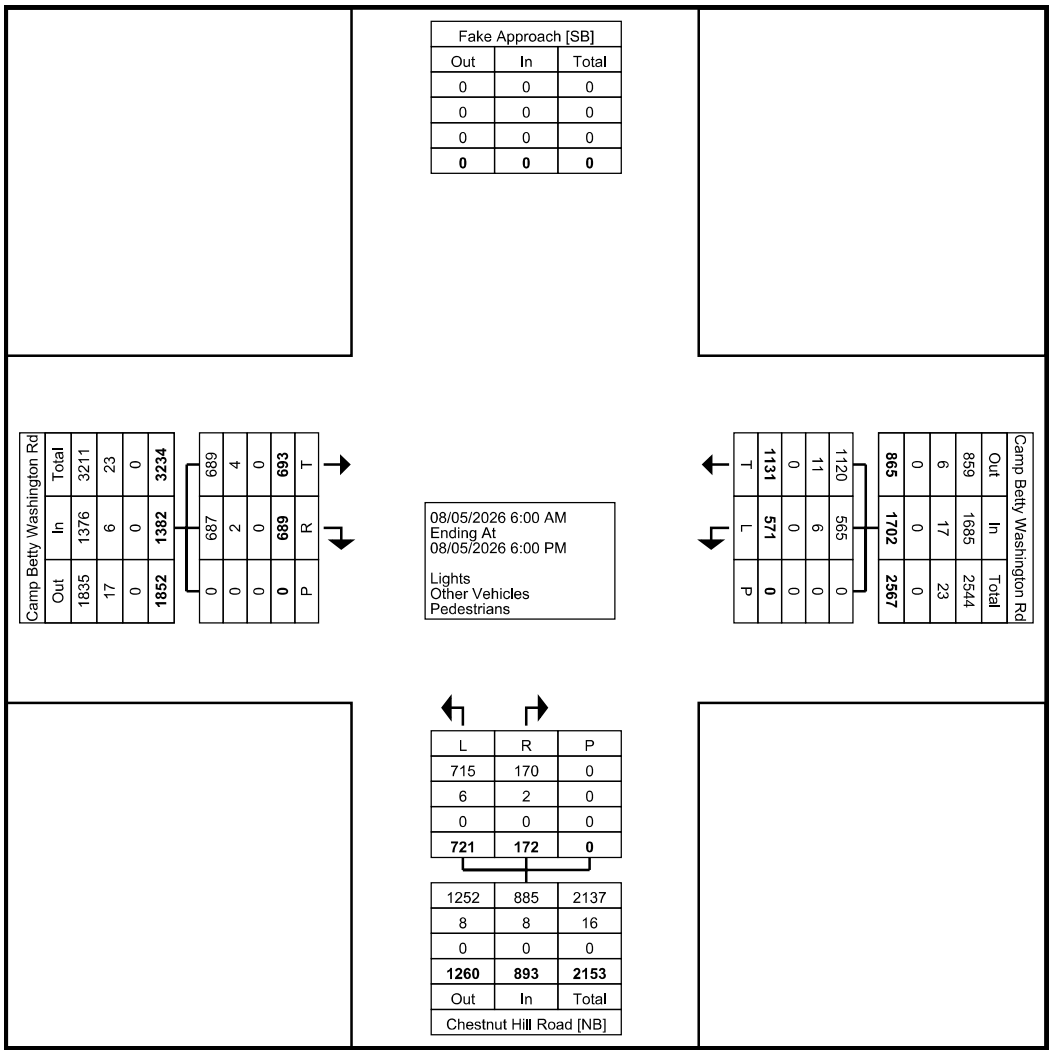
Turning Movement Data

Start Time	Camp Betty Washington Rd (SR 2005) Eastbound				Camp Betty Washington Rd (SR 2005) Westbound				Chestnut Hill Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
6:00 AM	7	10	0	17	5	31	0	36	12	2	0	14	67
6:15 AM	14	4	0	18	3	51	0	54	19	1	0	20	92
6:30 AM	6	8	0	14	9	68	0	77	27	4	0	31	122
6:45 AM	4	7	0	11	14	65	0	79	31	6	0	37	127
Hourly Total	31	29	0	60	31	215	0	246	89	13	0	102	408
7:00 AM	4	14	0	18	14	65	0	79	28	4	0	32	129
7:15 AM	12	11	0	23	17	61	0	78	29	5	0	34	135
7:30 AM	18	13	0	31	23	101	0	124	34	6	0	40	195
7:45 AM	19	14	0	33	15	63	0	78	42	4	0	46	157
Hourly Total	53	52	0	105	69	290	0	359	133	19	0	152	616
8:00 AM	13	21	0	34	12	46	0	58	30	5	0	35	127
8:15 AM	19	16	0	35	16	31	0	47	31	7	0	38	120
8:30 AM	9	21	0	30	18	43	0	61	22	8	0	30	121
8:45 AM	17	18	0	35	20	29	0	49	31	5	0	36	120
Hourly Total	58	76	0	134	66	149	0	215	114	25	0	139	488
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	33	33	0	66	27	42	0	69	30	8	0	38	173
3:15 PM	42	45	0	87	35	35	0	70	18	6	0	24	181
3:30 PM	33	36	0	69	33	41	0	74	38	14	0	52	195
3:45 PM	48	32	0	80	27	32	0	59	19	6	0	25	164
Hourly Total	156	146	0	302	122	150	0	272	105	34	0	139	713
4:00 PM	42	44	0	86	41	43	0	84	32	9	0	41	211
4:15 PM	71	33	0	104	38	38	0	76	32	16	0	48	228
4:30 PM	50	54	0	104	42	44	0	86	33	12	0	45	235
4:45 PM	49	59	0	108	44	47	0	91	29	11	0	40	239
Hourly Total	212	190	0	402	165	172	0	337	126	48	0	174	913
5:00 PM	55	53	0	108	36	45	0	81	46	14	0	60	249
5:15 PM	57	52	0	109	33	51	0	84	38	11	0	49	242
5:30 PM	42	49	0	91	28	28	0	56	38	4	0	42	189
5:45 PM	29	42	0	71	21	31	0	52	32	4	0	36	159
Hourly Total	183	196	0	379	118	155	0	273	154	33	0	187	839
Grand Total	693	689	0	1382	571	1131	0	1702	721	172	0	893	3977
Approach %	50.1	49.9	-	-	33.5	66.5	-	-	80.7	19.3	-	-	-
Total %	17.4	17.3	-	34.7	14.4	28.4	-	42.8	18.1	4.3	-	22.5	-
Lights	689	687	-	1376	565	1120	-	1685	715	170	-	885	3946
% Lights	99.4	99.7	-	99.6	98.9	99.0	-	99.0	99.2	98.8	-	99.1	99.2
Other Vehicles	4	2	-	6	6	11	-	17	6	2	-	8	31
% Other Vehicles	0.6	0.3	-	0.4	1.1	1.0	-	1.0	0.8	1.2	-	0.9	0.8
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

Traffic Planning and Design, Inc
2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 4 AM PM Chestnut Hill Road & Camp Betty Washington Rd (SR 2005)
Site Code:
Start Date: 08/05/2026



Turning Movement Data Plot

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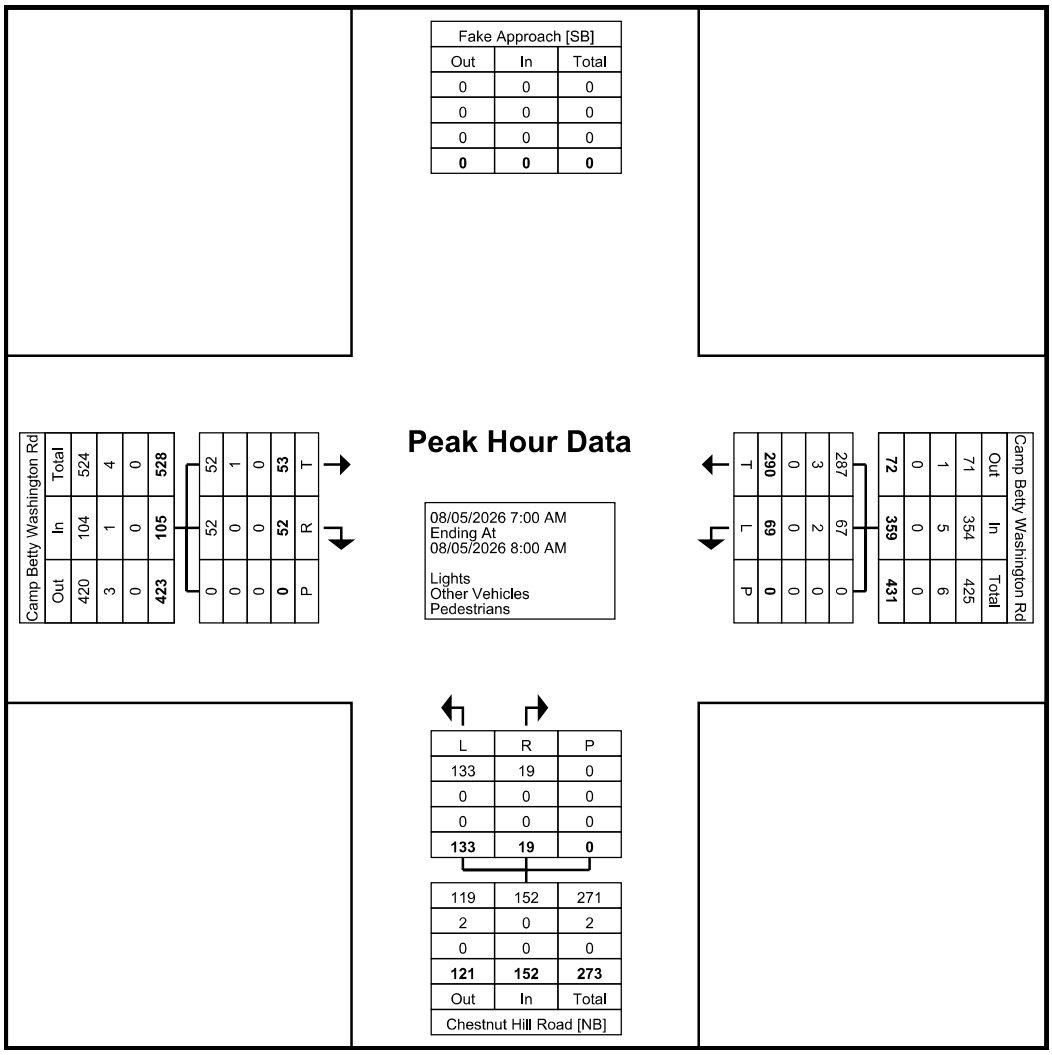
Turning Movement Peak Hour Data (7:00 AM)

Start Time	Camp Betty Washington Rd (SR 2005) Eastbound				Camp Betty Washington Rd (SR 2005) Westbound				Chestnut Hill Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
7:00 AM	4	14	0	18	14	65	0	79	28	4	0	32	129
7:15 AM	12	11	0	23	17	61	0	78	29	5	0	34	135
7:30 AM	18	13	0	31	23	101	0	124	34	6	0	40	195
7:45 AM	19	14	0	33	15	63	0	78	42	4	0	46	157
Total	53	52	0	105	69	290	0	359	133	19	0	152	616
Approach %	50.5	49.5	-	-	19.2	80.8	-	-	87.5	12.5	-	-	-
Total %	8.6	8.4	-	17.0	11.2	47.1	-	58.3	21.6	3.1	-	24.7	-
PHF	0.697	0.929	-	0.795	0.750	0.718	-	0.724	0.792	0.792	-	0.826	0.790
Lights	52	52	-	104	67	287	-	354	133	19	-	152	610
% Lights	98.1	100.0	-	99.0	97.1	99.0	-	98.6	100.0	100.0	-	100.0	99.0
Other Vehicles	1	0	-	1	2	3	-	5	0	0	-	0	6
% Other Vehicles	1.9	0.0	-	1.0	2.9	1.0	-	1.4	0.0	0.0	-	0.0	1.0
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Turning Movement Peak Hour Data Plot (7:00 AM)

Counter: MIO:
Set up By JH::

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Count Name: 4 AM PM Chestnut Hill Road & Camp Betty Washington Rd (SR 2005)
Site Code:
Start Date: 08/05/2026

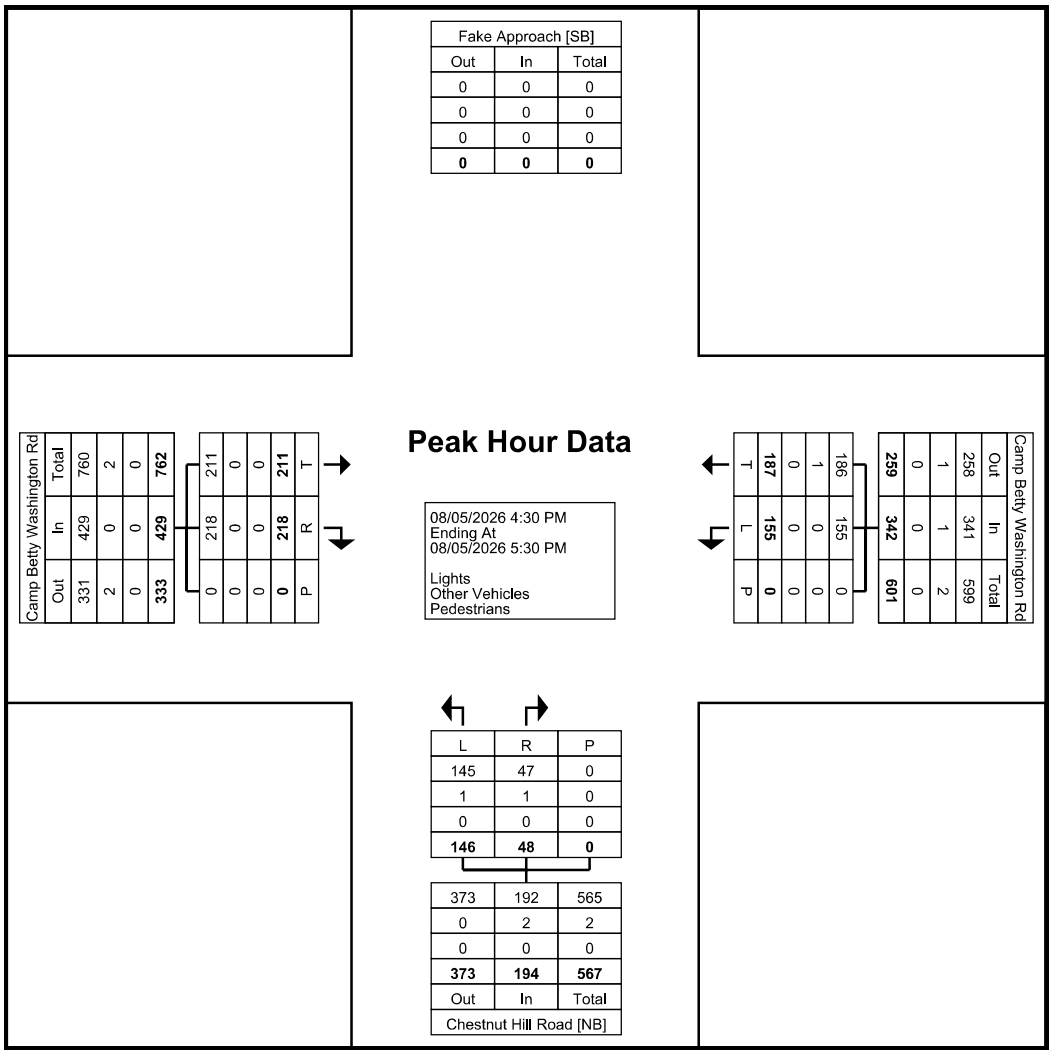
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Camp Betty Washington Rd (SR 2005) Eastbound				Camp Betty Washington Rd (SR 2005) Westbound				Chestnut Hill Road Northbound				
	Thru	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Int. Total
4:30 PM	50	54	0	104	42	44	0	86	33	12	0	45	235
4:45 PM	49	59	0	108	44	47	0	91	29	11	0	40	239
5:00 PM	55	53	0	108	36	45	0	81	46	14	0	60	249
5:15 PM	57	52	0	109	33	51	0	84	38	11	0	49	242
Total	211	218	0	429	155	187	0	342	146	48	0	194	965
Approach %	49.2	50.8	-	-	45.3	54.7	-	-	75.3	24.7	-	-	-
Total %	21.9	22.6	-	44.5	16.1	19.4	-	35.4	15.1	5.0	-	20.1	-
PHF	0.925	0.924	-	0.984	0.881	0.917	-	0.940	0.793	0.857	-	0.808	0.969
Lights	211	218	-	429	155	186	-	341	145	47	-	192	962
% Lights	100.0	100.0	-	100.0	100.0	99.5	-	99.7	99.3	97.9	-	99.0	99.7
Other Vehicles	0	0	-	0	0	1	-	1	1	1	-	2	3
% Other Vehicles	0.0	0.0	-	0.0	0.0	0.5	-	0.3	0.7	2.1	-	1.0	0.3
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

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Counter: MIO:
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Count Name: 4 AM PM Chestnut Hill Road & Camp Betty Washington Rd (SR 2005)
Site Code:
Start Date: 08/05/2026
Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

Counter: MIO:
Set up By JH::

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2500 East High Street
Suite 650
Pottstown, Pennsylvania, United States 19464
610.326.3100

Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
Site Code:
Start Date: 08/05/2026

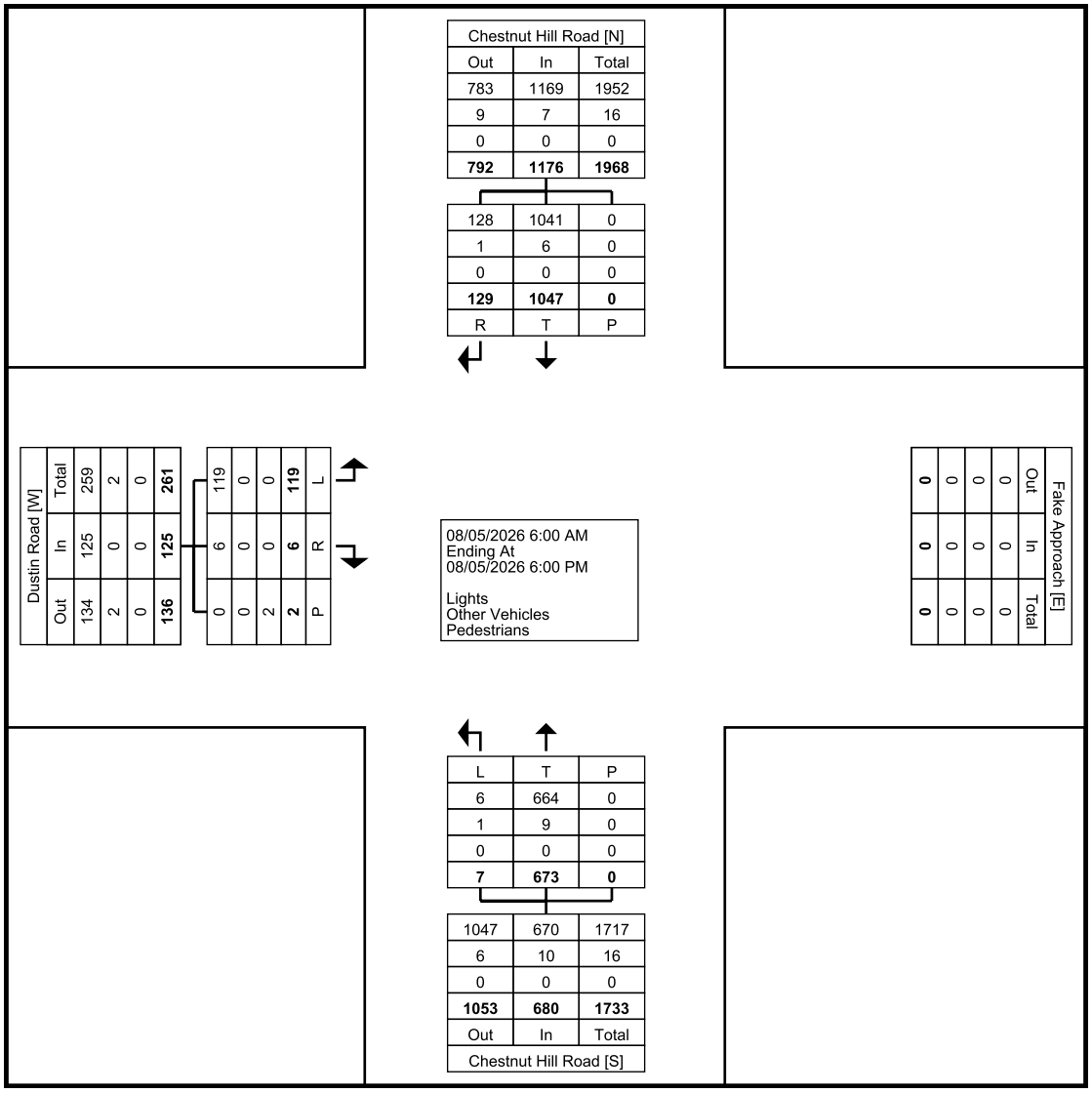
Turning Movement Data

Start Time	Dustin Road Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
6:00 AM	4	0	0	4	0	8	0	8	17	2	0	19	31
6:15 AM	6	0	0	6	0	13	0	13	3	2	0	5	24
6:30 AM	6	0	0	6	0	22	0	22	17	2	0	19	47
6:45 AM	6	0	0	6	0	24	0	24	16	0	0	16	46
Hourly Total	22	0	0	22	0	67	0	67	53	6	0	59	148
7:00 AM	4	0	0	4	0	22	0	22	30	3	0	33	59
7:15 AM	7	0	0	7	0	21	0	21	21	2	0	23	51
7:30 AM	11	0	0	11	0	23	0	23	35	1	0	36	70
7:45 AM	4	0	0	4	0	33	0	33	22	1	0	23	60
Hourly Total	26	0	0	26	0	99	0	99	108	7	0	115	240
8:00 AM	4	0	0	4	1	27	0	28	33	1	0	34	66
8:15 AM	3	2	0	5	0	30	0	30	26	2	0	28	63
8:30 AM	2	1	0	3	1	17	0	18	35	3	0	38	59
8:45 AM	4	0	0	4	1	28	0	29	35	2	0	37	70
Hourly Total	13	3	0	16	3	102	0	105	129	8	0	137	258
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	5	0	0	5	0	24	0	24	47	9	0	56	85
3:15 PM	5	0	0	5	1	23	0	24	55	13	0	68	97
3:30 PM	5	0	0	5	0	44	0	44	60	8	0	68	117
3:45 PM	4	1	0	5	0	18	0	18	53	6	0	59	82
Hourly Total	19	1	0	20	1	109	0	110	215	36	0	251	381
4:00 PM	5	0	1	5	1	36	0	37	62	8	0	70	112
4:15 PM	5	0	0	5	0	38	0	38	61	8	0	69	112
4:30 PM	3	1	0	4	1	38	0	39	71	8	0	79	122
4:45 PM	3	0	1	3	0	30	0	30	93	6	0	99	132
Hourly Total	16	1	2	17	2	142	0	144	287	30	0	317	478
5:00 PM	11	0	0	11	1	45	0	46	73	11	0	84	141
5:15 PM	6	0	0	6	0	47	0	47	69	13	0	82	135
5:30 PM	3	1	0	4	0	32	0	32	67	9	0	76	112
5:45 PM	3	0	0	3	0	30	0	30	46	9	0	55	88
Hourly Total	23	1	0	24	1	154	0	155	255	42	0	297	476
Grand Total	119	6	2	125	7	673	0	680	1047	129	0	1176	1981
Approach %	95.2	4.8	-	-	1.0	99.0	-	-	89.0	11.0	-	-	-
Total %	6.0	0.3	-	6.3	0.4	34.0	-	34.3	52.9	6.5	-	59.4	-
Lights	119	6	-	125	6	664	-	670	1041	128	-	1169	1964
% Lights	100.0	100.0	-	100.0	85.7	98.7	-	98.5	99.4	99.2	-	99.4	99.1
Other Vehicles	0	0	-	0	1	9	-	10	6	1	-	7	17
% Other Vehicles	0.0	0.0	-	0.0	14.3	1.3	-	1.5	0.6	0.8	-	0.6	0.9
Pedestrians	-	-	2	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
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Traffic Planning and Design, Inc
2500 East High Street
Suite 650
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Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
Site Code:
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Turning Movement Data Plot



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Counter: MIO:
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Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
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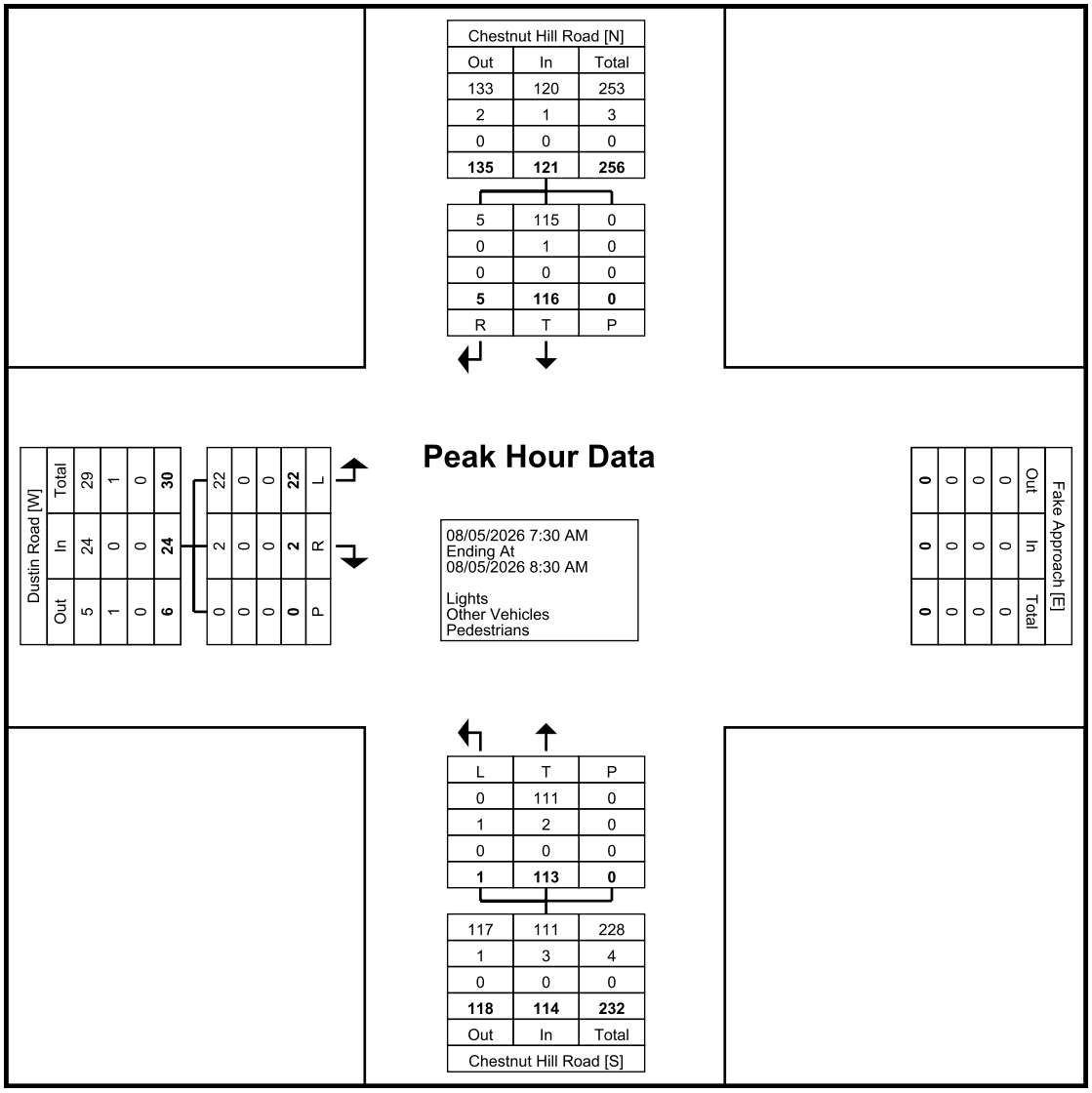
Turning Movement Peak Hour Data (7:30 AM)

Start Time	Dustin Road Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
7:30 AM	11	0	0	11	0	23	0	23	35	1	0	36	70
7:45 AM	4	0	0	4	0	33	0	33	22	1	0	23	60
8:00 AM	4	0	0	4	1	27	0	28	33	1	0	34	66
8:15 AM	3	2	0	5	0	30	0	30	26	2	0	28	63
Total	22	2	0	24	1	113	0	114	116	5	0	121	259
Approach %	91.7	8.3	-	-	0.9	99.1	-	-	95.9	4.1	-	-	-
Total %	8.5	0.8	-	9.3	0.4	43.6	-	44.0	44.8	1.9	-	46.7	-
PHF	0.500	0.250	-	0.545	0.250	0.856	-	0.864	0.829	0.625	-	0.840	0.925
Lights	22	2	-	24	0	111	-	111	115	5	-	120	255
% Lights	100.0	100.0	-	100.0	0.0	98.2	-	97.4	99.1	100.0	-	99.2	98.5
Other Vehicles	0	0	-	0	1	2	-	3	1	0	-	1	4
% Other Vehicles	0.0	0.0	-	0.0	100.0	1.8	-	2.6	0.9	0.0	-	0.8	1.5
Pedestrians	-	-	0	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-

Counter: MIO:
Set up By JH::

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2500 East High Street
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610.326.3100

Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
Site Code:
Start Date: 08/05/2026
Page No: 4



Turning Movement Peak Hour Data Plot (7:30 AM)

Traffic Planning and Design, Inc
2500 East High Street
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610.326.3100

Counter: MIO:
Set up By JH::

Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
Site Code:
Start Date: 08/05/2026

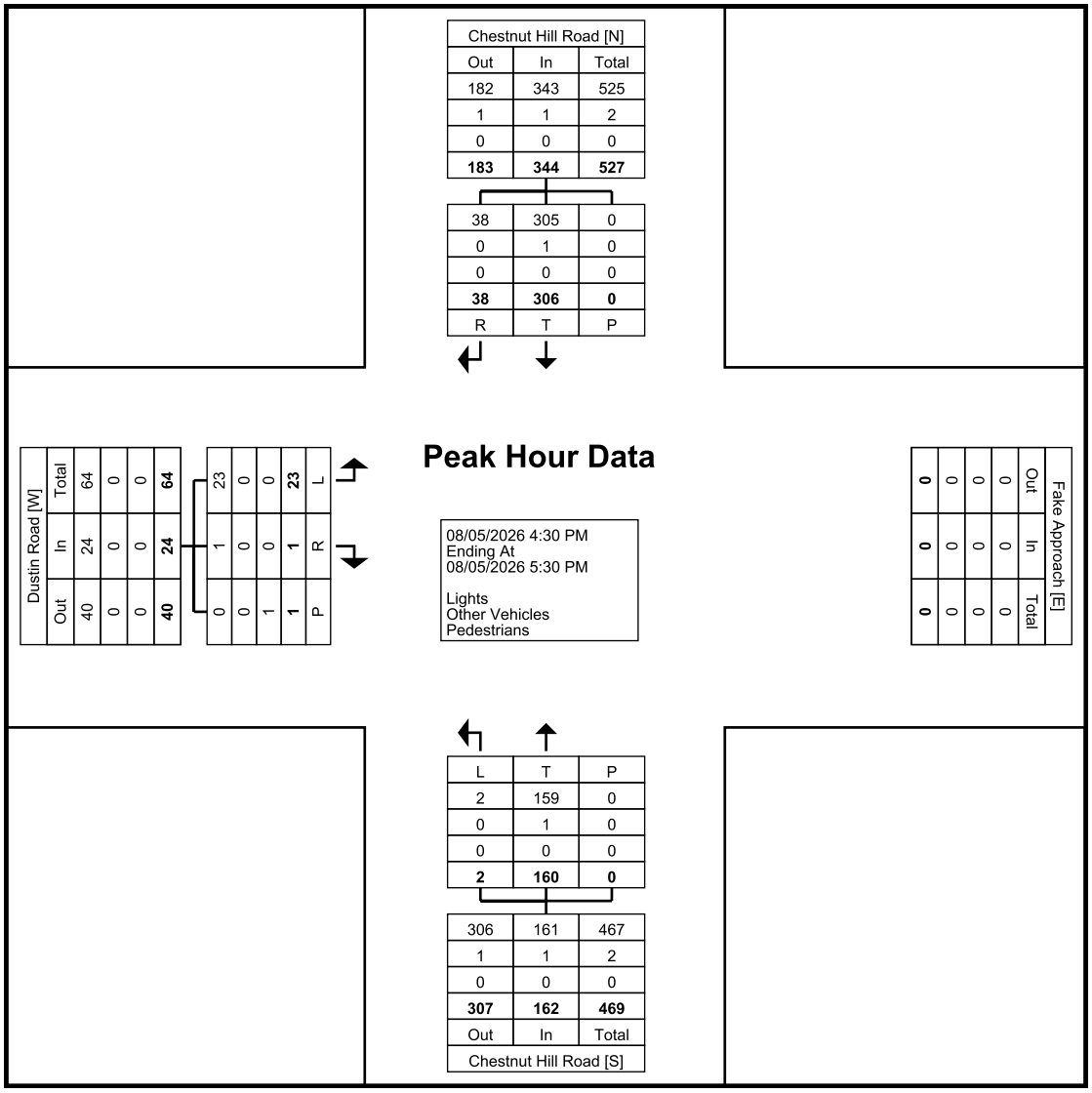
Turning Movement Peak Hour Data (4:30 PM)

Start Time	Dustin Road Eastbound				Chestnut Hill Road Northbound				Chestnut Hill Road Southbound				
	Left	Right	Peds	App. Total	Left	Thru	Peds	App. Total	Thru	Right	Peds	App. Total	Int. Total
4:30 PM	3	1	0	4	1	38	0	39	71	8	0	79	122
4:45 PM	3	0	1	3	0	30	0	30	93	6	0	99	132
5:00 PM	11	0	0	11	1	45	0	46	73	11	0	84	141
5:15 PM	6	0	0	6	0	47	0	47	69	13	0	82	135
Total	23	1	1	24	2	160	0	162	306	38	0	344	530
Approach %	95.8	4.2	-	-	1.2	98.8	-	-	89.0	11.0	-	-	-
Total %	4.3	0.2	-	4.5	0.4	30.2	-	30.6	57.7	7.2	-	64.9	-
PHF	0.523	0.250	-	0.545	0.500	0.851	-	0.862	0.823	0.731	-	0.869	0.940
Lights	23	1	-	24	2	159	-	161	305	38	-	343	528
% Lights	100.0	100.0	-	100.0	100.0	99.4	-	99.4	99.7	100.0	-	99.7	99.6
Other Vehicles	0	0	-	0	0	1	-	1	1	0	-	1	2
% Other Vehicles	0.0	0.0	-	0.0	0.0	0.6	-	0.6	0.3	0.0	-	0.3	0.4
Pedestrians	-	-	1	-	-	-	0	-	-	-	0	-	-
% Pedestrians	-	-	100.0	-	-	-	-	-	-	-	-	-	-

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Count Name: 6 AM PM Chestnut Hill Road & Dustin Road
Site Code:
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Page No: 6



Turning Movement Peak Hour Data Plot (4:30 PM)

APPENDIX E:
Volume Development Worksheets

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Shawna Avenue**
Synchro Node: **1**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**0**		**11**				**7**	**112**			**147**	**0**	277
Heavy Vehicles	0		0				1	6			7	0	14
Balancing & Seasonal Adjustment Factor (2024)	0		2				1	19			25	0	47
2026 Existing Volumes (Balanced)/Seasonal Adj	**0**	**0**	**13**	**0**	**0**	**0**	**8**	**131**	**0**	**0**	**172**	**0**	**324**
Base growth (0.33% compounded for 9 yrs)	0	0	0	0	0	0	0	4	0	0	5	0	9
2035 Base (No-Build) Volumes - Growth Rate Only	**0**	**0**	**13**	**0**	**0**	**0**	**8**	**135**	**0**	**0**	**177**	**0**	**333**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								4			2		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**
2035 Base (No-Build) Volumes	**0**	**0**	**13**	**0**	**0**	**0**	**8**	**139**	**0**	**0**	**179**	**0**	**339**
SITE TRIPS													
New Trips	37		48				15					12	112
													0
Total Site Trip Distribution	**37**	**0**	**48**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**12**	**112**
2035 Projected (Build) Volumes	**37**	**0**	**61**	**0**	**0**	**0**	**23**	**139**	**0**	**0**	**179**	**12**	**451**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**	**5%**	**0%**	**0%**	**5%**	**0%**	**0.92**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**	**5%**	**0%**	**0%**	**5%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**4**		**11**				**13**	**164**			**302**	**4**	498
Heavy Vehicles	0		0				0	4			2	0	6
Balancing & Seasonal Adjustment Factor (2024)	1		2				2	28			52	1	86
2026 Existing Volumes (Balanced)/Seasonal Adj	**5**	**0**	**13**	**0**	**0**	**0**	**15**	**192**	**0**	**0**	**354**	**5**	**584**
Base growth (0.33% compounded for 9 yrs)	0	0	0	0	0	0	0	6	0	0	11	0	17
2035 Base (No-Build) Volumes - Growth Rate Only	**5**	**0**	**13**	**0**	**0**	**0**	**15**	**198**	**0**	**0**	**365**	**5**	**601**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								2			4		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**6**
2035 Base (No-Build) Volumes	**5**	**0**	**13**	**0**	**0**	**0**	**15**	**200**	**0**	**0**	**369**	**5**	**607**
SITE TRIPS													
New Trips	24		30				47					37	138
													0
Total Site Trip Distribution	**24**	**0**	**30**	**0**	**0**	**0**	**47**	**0**	**0**	**0**	**0**	**37**	**138**
2035 Projected (Build) Volumes	**29**	**0**	**43**	**0**	**0**	**0**	**62**	**200**	**0**	**0**	**369**	**42**	**745**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**2%**	**0%**	**0%**	**1%**	**0%**	**0.94**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**2%**	**0%**	**0%**	**1%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Woodspring Drive**
Synchro Node: **2**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**13**	**0**	**5**	**17**	**0**	**4**	**4**	**100**	**5**	**1**	**151**	**7**	307
Heavy Vehicles	0	0	1	0	0	0	1	5	1	0	1	1	10
Balancing & Seasonal Adjustment Factor (2024)	2	0	1	3	0	1	1	17	1	0	26	1	53
2026 Existing Volumes (Balanced)/Seasonal Adj	**15**	**0**	**6**	**20**	**0**	**5**	**5**	**117**	**6**	**1**	**177**	**8**	**360**
Base growth (0.33% compounded for 9 yrs)	0	0	0	1	0	0	0	4	0	0	5	0	10
2035 Base (No-Build) Volumes - Growth Rate Only	**15**	**0**	**6**	**21**	**0**	**5**	**5**	**121**	**6**	**1**	**182**	**8**	**370**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								4			2		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**
2035 Base (No-Build) Volumes	**15**	**0**	**6**	**21**	**0**	**5**	**5**	**125**	**6**	**1**	**184**	**8**	**376**
SITE TRIPS													
New Trips			15				5	15			48		83
													0
Total Site Trip Distribution	**0**	**0**	**15**	**0**	**0**	**0**	**5**	**15**	**0**	**0**	**48**	**0**	**83**
2035 Projected (Build) Volumes	**15**	**0**	**21**	**21**	**0**	**5**	**10**	**140**	**6**	**1**	**232**	**8**	**459**
Existing/Base	**0%**	**0%**	**20%**	**0%**	**0%**	**0%**	**25%**	**5%**	**20%**	**0%**	**1%**	**14%**	**0.93**
Projected HV % - Full Build-out	**0%**	**0%**	**20%**	**0%**	**0%**	**0%**	**25%**	**5%**	**20%**	**0%**	**1%**	**14%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**18**	**3**	**5**	**22**	**0**	**1**	**7**	**159**	**20**	**4**	**289**	**25**	553
Heavy Vehicles	2	0	0	0	0	0	1	0	0	0	1	0	4
Balancing & Seasonal Adjustment Factor (2024)	3	1	1	4	0	0	1	27	3	1	50	4	95
2026 Existing Volumes (Balanced)/Seasonal Adj	**21**	**4**	**6**	**26**	**0**	**1**	**8**	**186**	**23**	**5**	**339**	**29**	**648**
Base growth (0.33% compounded for 9 yrs)	1	0	0	1	0	0	0	6	1	0	10	1	20
2035 Base (No-Build) Volumes - Growth Rate Only	**22**	**4**	**6**	**27**	**0**	**1**	**8**	**192**	**24**	**5**	**349**	**30**	**668**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								2			4		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**6**
2035 Base (No-Build) Volumes	**22**	**4**	**6**	**27**	**0**	**1**	**8**	**194**	**24**	**5**	**353**	**30**	**674**
SITE TRIPS													
New Trips			9				15	47			30		101
													0
Total Site Trip Distribution	**0**	**0**	**9**	**0**	**0**	**0**	**15**	**47**	**0**	**0**	**30**	**0**	**101**
2035 Projected (Build) Volumes	**22**	**4**	**15**	**27**	**0**	**1**	**23**	**241**	**24**	**5**	**383**	**30**	**775**
Existing/Base	**11%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0.91**
Projected HV % - Full Build-out	**11%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**	**0%**	**0%**	**0%**	**1%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Alperton Drive**
Synchro Node: **3**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**5**		**16**				**10**	**93**			**167**	**5**	296
Heavy Vehicles	1		1				1	5			6	0	14
Balancing & Seasonal Adjustment Factor (2024)	1		3				2	16			29	1	52
2026 Existing Volumes (Balanced)/Seasonal Adj	**6**	**0**	**19**	**0**	**0**	**0**	**12**	**109**	**0**	**0**	**196**	**6**	**348**
Base growth (0.33% compounded for 9 yrs)	0	0	1	0	0	0	0	3	0	0	6	0	10
2035 Base (No-Build) Volumes - Growth Rate Only	**6**	**0**	**20**	**0**	**0**	**0**	**12**	**112**	**0**	**0**	**202**	**6**	**358**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								4			2		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**
2035 Base (No-Build) Volumes	**6**	**0**	**20**	**0**	**0**	**0**	**12**	**116**	**0**	**0**	**204**	**6**	**364**
SITE TRIPS													
New Trips			30				10	20			63		123
													0
Total Site Trip Distribution	**0**	**0**	**30**	**0**	**0**	**0**	**10**	**20**	**0**	**0**	**63**	**0**	**123**
2035 Projected (Build) Volumes	**6**	**0**	**50**	**0**	**0**	**0**	**22**	**136**	**0**	**0**	**267**	**6**	**487**
Existing/Base	**20%**	**0%**	**6%**	**0%**	**0%**	**0%**	**10%**	**5%**	**0%**	**0%**	**4%**	**0%**	**0.88**
Projected HV % - Full Build-out	**20%**	**0%**	**6%**	**0%**	**0%**	**0%**	**10%**	**5%**	**0%**	**0%**	**4%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**13**		**31**				**32**	**174**			**271**	**29**	550
Heavy Vehicles	0		0				0	1			1	0	2
Balancing & Seasonal Adjustment Factor (2024)	2		5				6	30			47	5	95
2026 Existing Volumes (Balanced)/Seasonal Adj	**15**	**0**	**36**	**0**	**0**	**0**	**38**	**204**	**0**	**0**	**318**	**34**	**645**
Base growth (0.33% compounded for 9 yrs)	0	0	1	0	0	0	1	6	0	0	10	1	19
2035 Base (No-Build) Volumes - Growth Rate Only	**15**	**0**	**37**	**0**	**0**	**0**	**39**	**210**	**0**	**0**	**328**	**35**	**664**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								2			4		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**6**
2035 Base (No-Build) Volumes	**15**	**0**	**37**	**0**	**0**	**0**	**39**	**212**	**0**	**0**	**332**	**35**	**670**
SITE TRIPS													
New Trips			19				29	62			39		149
													0
Total Site Trip Distribution	**0**	**0**	**19**	**0**	**0**	**0**	**29**	**62**	**0**	**0**	**39**	**0**	**149**
2035 Projected (Build) Volumes	**15**	**0**	**56**	**0**	**0**	**0**	**68**	**274**	**0**	**0**	**371**	**35**	**819**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0.93**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Springwood Road (SR 2002)**
Synchro Node: **4**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**27**	**170**	**11**	**15**	**438**	**8**	**23**	**59**	**32**	**8**	**44**	**154**	989
Heavy Vehicles	2	7	1	0	4	0	1	3	0	0	3	0	21
Balancing & Seasonal Adjustment Factor (2024)	5	29	2	3	75	1	4	10	6	1	8	26	170
2026 Existing Volumes (Balanced)/Seasonal Adj	**32**	**199**	**13**	**18**	**513**	**9**	**27**	**69**	**38**	**9**	**52**	**180**	**1159**
Base growth (0.33% compounded for 9 yrs)	1	6	0	1	15	0	1	2	1	0	2	5	34
2035 Base (No-Build) Volumes - Growth Rate Only	**33**	**205**	**13**	**19**	**528**	**9**	**28**	**71**	**39**	**9**	**54**	**185**	**1193**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted	4	6	2		3		1					2	18
Total Background Development Trips	**4**	**6**	**2**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**18**
2035 Base (No-Build) Volumes	**37**	**211**	**15**	**19**	**531**	**9**	**29**	**71**	**39**	**9**	**54**	**187**	**1211**
SITE TRIPS													
New Trips	14					12		4		37	14	42	123
													0
Total Site Trip Distribution	**14**	**0**	**0**	**0**	**0**	**12**	**0**	**4**	**0**	**37**	**14**	**42**	**123**
2035 Projected (Build) Volumes	**51**	**211**	**15**	**19**	**531**	**21**	**29**	**75**	**39**	**46**	**68**	**229**	**1334**
Existing/Base	**7%**	**4%**	**9%**	**0%**	**1%**	**0%**	**4%**	**5%**	**0%**	**0%**	**7%**	**0%**	**0.90**
Projected HV % - Full Build-out	**7%**	**4%**	**9%**	**0%**	**1%**	**0%**	**4%**	**5%**	**0%**	**0%**	**7%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**110**	**374**	**15**	**48**	**301**	**20**	**22**	**95**	**83**	**39**	**145**	**114**	1366
Heavy Vehicles	0	0	0	0	2	0	0	0	0	0	0	0	2
Balancing & Seasonal Adjustment Factor (2024)	19	64	3	8	52	3	4	16	14	7	25	20	235
2026 Existing Volumes (Balanced)/Seasonal Adj	**129**	**438**	**18**	**56**	**353**	**23**	**26**	**111**	**97**	**46**	**170**	**134**	**1601**
Base growth (0.33% compounded for 9 yrs)	4	13	1	2	11	1	1	3	3	1	5	4	49
2035 Base (No-Build) Volumes - Growth Rate Only	**133**	**451**	**19**	**58**	**364**	**24**	**27**	**114**	**100**	**47**	**175**	**138**	**1650**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted	2	4	2		7		2					4	21
Total Background Development Trips	**2**	**4**	**2**	**0**	**7**	**0**	**2**	**0**	**0**	**0**	**0**	**4**	**21**
2035 Base (No-Build) Volumes	**135**	**455**	**21**	**58**	**371**	**24**	**29**	**114**	**100**	**47**	**175**	**142**	**1671**
SITE TRIPS													
New Trips	41					37		13		24	8	26	149
													0
Total Site Trip Distribution	**41**	**0**	**0**	**0**	**0**	**37**	**0**	**13**	**0**	**24**	**8**	**26**	**149**
2035 Projected (Build) Volumes	**176**	**455**	**21**	**58**	**371**	**61**	**29**	**127**	**100**	**71**	**183**	**168**	**1820**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0.98**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Camp Betty Washington Road (SR 2005)**
Synchro Node: **5**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts		**53**	**52**	**69**	**290**		**133**		**19**				616
Heavy Vehicles		1	0	2	3		0		0				6
Balancing & Seasonal Adjustment Factor (2024)		9	9	12	50		23		3				106
2026 Existing Volumes (Balanced)/Seasonal Adj	**0**	**62**	**61**	**81**	**340**	**0**	**156**	**0**	**22**	**0**	**0**	**0**	**722**
Base growth (0.33% compounded for 9 yrs)	0	2	2	2	10	0	5	0	1	0	0	0	22
2035 Base (No-Build) Volumes - Growth Rate Only	**0**	**64**	**63**	**83**	**350**	**0**	**161**	**0**	**23**	**0**	**0**	**0**	**744**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted			1	1			2		2				6
Total Background Development Trips	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**6**
2035 Base (No-Build) Volumes	**0**	**64**	**64**	**84**	**350**	**0**	**163**	**0**	**25**	**0**	**0**	**0**	**750**
SITE TRIPS													
New Trips			10	8			31		26				75
													0
Total Site Trip Distribution	**0**	**0**	**10**	**8**	**0**	**0**	**31**	**0**	**26**	**0**	**0**	**0**	**75**
2035 Projected (Build) Volumes	**0**	**64**	**74**	**92**	**350**	**0**	**194**	**0**	**51**	**0**	**0**	**0**	**825**
Existing/Base	**0%**	**2%**	**0%**	**3%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0.79**
Projected HV % - Full Build-out	**0%**	**2%**	**0%**	**3%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts		**211**	**218**	**155**	**187**		**146**		**48**				965
Heavy Vehicles		0	0	0	1		1		1				3
Balancing & Seasonal Adjustment Factor (2024)		36	37	27	32		25		8				165
2026 Existing Volumes (Balanced)/Seasonal Adj	**0**	**247**	**255**	**182**	**219**	**0**	**171**	**0**	**56**	**0**	**0**	**0**	**1130**
Base growth (0.33% compounded for 9 yrs)	0	7	8	5	7	0	5	0	2	0	0	0	34
2035 Base (No-Build) Volumes - Growth Rate Only	**0**	**254**	**263**	**187**	**226**	**0**	**176**	**0**	**58**	**0**	**0**	**0**	**1164**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted			2	2			1		1				6
Total Background Development Trips	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**6**
2035 Base (No-Build) Volumes	**0**	**254**	**265**	**189**	**226**	**0**	**177**	**0**	**59**	**0**	**0**	**0**	**1170**
SITE TRIPS													
New Trips			31	25			20		16				92
													0
Total Site Trip Distribution	**0**	**0**	**31**	**25**	**0**	**0**	**20**	**0**	**16**	**0**	**0**	**0**	**92**
2035 Projected (Build) Volumes	**0**	**254**	**296**	**214**	**226**	**0**	**197**	**0**	**75**	**0**	**0**	**0**	**1262**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**1%**	**0%**	**2%**	**0%**	**0%**	**0%**	**0.97**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**1%**	**0%**	**2%**	**0%**	**0%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Chestnut Hill Road & Dustin Road**
Synchro Node: **6**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**22**		**2**				**1**	**113**			**116**	**5**	259
Heavy Vehicles	0		0				1	2			1	0	4
Balancing & Seasonal Adjustment Factor (2024)	4	0	0				0	19			20	1	44
2026 Existing Volumes (Balanced)/Seasonal Adj	**26**	**0**	**2**	**0**	**0**	**0**	**1**	**132**	**0**	**0**	**136**	**6**	**303**
Base growth (0.33% compounded for 9 yrs)	1	0	0	0	0	0	0	4	0	0	4	0	9
2035 Base (No-Build) Volumes - Growth Rate Only	**27**	**0**	**2**	**0**	**0**	**0**	**1**	**136**	**0**	**0**	**140**	**6**	**312**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								4			2		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**0**	**6**
2035 Base (No-Build) Volumes	**27**	**0**	**2**	**0**	**0**	**0**	**1**	**140**	**0**	**0**	**142**	**6**	**318**
SITE TRIPS													
New Trips	20							37			12	6	75
													0
Total Site Trip Distribution	**20**	**0**	**0**	**0**	**0**	**0**	**0**	**37**	**0**	**0**	**12**	**6**	**75**
2035 Projected (Build) Volumes	**47**	**0**	**2**	**0**	**0**	**0**	**1**	**177**	**0**	**0**	**154**	**12**	**393**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**	**2%**	**0%**	**0%**	**1%**	**0%**	**0.93**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**100%**	**2%**	**0%**	**0%**	**1%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**23**		**1**				**2**	**160**			**306**	**38**	530
Heavy Vehicles	0		0				0	1			1	0	2
Balancing & Seasonal Adjustment Factor (2024)	4	0	0				0	28			53	7	92
2026 Existing Volumes (Balanced)/Seasonal Adj	**27**	**0**	**1**	**0**	**0**	**0**	**2**	**188**	**0**	**0**	**359**	**45**	**622**
Base growth (0.33% compounded for 9 yrs)	1	0	0	0	0	0	0	6	0	0	11	1	19
2035 Base (No-Build) Volumes - Growth Rate Only	**28**	**0**	**1**	**0**	**0**	**0**	**2**	**194**	**0**	**0**	**370**	**46**	**641**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted								2			4		6
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**4**	**0**	**6**
2035 Base (No-Build) Volumes	**28**	**0**	**1**	**0**	**0**	**0**	**2**	**196**	**0**	**0**	**374**	**46**	**647**
SITE TRIPS													
New Trips	12							24			37	19	92
													0
Total Site Trip Distribution	**12**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**0**	**37**	**19**	**92**
2035 Projected (Build) Volumes	**40**	**0**	**1**	**0**	**0**	**0**	**2**	**220**	**0**	**0**	**411**	**65**	**739**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0%**	**0.94**
Projected HV % - Full Build-out	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**1%**	**0%**	**0%**	**1%**	**0%**	

TPD# INCH.00013
8/26/2026
Traffic Volumes Worksheet
Intersection: **Shawna Avenue & Proposed Site Access**
Synchro Node: **7**

Time Period: Weekday A.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**0**		**0**				**0**	**7**			**11**	**0**	18
Heavy Vehicles								1			0		1
Balancing & Seasonal Adjustment Factor (2024)	0		0				0	1			2		3
2026 Existing Volumes (Balanced)/Seasonal Adj	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**13**	**0**	**21**
Base growth (0.33% compounded for 9 yrs)	0	0	0	0	0	0	0	0	0	0	0	0	0
2035 Base (No-Build) Volumes - Growth Rate Only	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**13**	**0**	**21**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted													0
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2035 Base (No-Build) Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**13**	**0**	**21**
SITE TRIPS													
New Trips	20		85				27					6	138
													0
Total Site Trip Distribution	**20**	**0**	**85**	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**	**6**	**138**
2035 Projected (Build) Volumes	**20**	**0**	**85**	**0**	**0**	**0**	**27**	**8**	**0**	**0**	**13**	**6**	**159**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**	**0%**	**0%**	**0%**	**0%**	**0.90**
Projected HV % - Full Build-out	**2%**	**0%**	**2%**	**0%**	**0%**	**0%**	**2%**	**14%**	**0%**	**0%**	**0%**	**0%**	

Time Period: Weekday P.M. Peak Hour

	Eastbound			Westbound			Northbound			Southbound			Intersection
	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Volume
2026 Existing Counts	**0**	**0**	**0**				**0**	**17**			**15**	**0**	32
Heavy Vehicles								0			0		0
Balancing & Seasonal Adjustment Factor (2024)	0	0	0				0	3			3	0	6
2026 Existing Volumes (Balanced)/Seasonal Adj	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**18**	**0**	**38**
Base growth (0.33% compounded for 9 yrs)	0	0	0	0	0	0	0	1	0	0	1	0	2
2035 Base (No-Build) Volumes - Growth Rate Only	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**19**	**0**	**40**
BACKGROUND DEVELOPMENTS													
Bridgewater (Remaining Build-Out) Age Restricted													0
Total Background Development Trips	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
2035 Base (No-Build) Volumes	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	**0**	**0**	**19**	**0**	**40**
SITE TRIPS													
New Trips	12		54				84					19	169
													0
Total Site Trip Distribution	**12**	**0**	**54**	**0**	**0**	**0**	**84**	**0**	**0**	**0**	**0**	**19**	**169**
2035 Projected (Build) Volumes	**12**	**0**	**54**	**0**	**0**	**0**	**84**	**21**	**0**	**0**	**19**	**19**	**209**
Existing/Base	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0.90**
Projected HV % - Full Build-out	**2%**	**0%**	**2%**	**0%**	**0%**	**0%**	**2%**	**0%**	**0%**	**0%**	**0%**	**0%**	

Traffic Pattern Group (TPG)

Highway traffic characteristics can vary by geographical area, roadway type, and population density. Therefore, individual traffic volume counts are categorized into one of ten Traffic Pattern Groups (TPGs). The TPGs are based on highway functional classification, geographic area, and urban/rural characteristics. Each permanent site is associated with one of the ten TPGs listed below.

TRAFFIC PATTERN GROUP	DESCRIPTION
TPG 1	URBAN - INTERSTATE
TPG 2	RURAL - INTERSTATE
TPG 3	URBAN - OTHER PRINCIPAL ARTERIALS
TPG 4	RURAL - OTHER PRINCIPAL ARTERIALS
TPG 5	URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS
TPG 6	NORTH RURAL - MINOR ARTERIALS
TPG 7	CENTRAL RURAL- MINOR ARTERIALS
TPG 8	NORTH RURAL - COLLECTORS AND LOCAL ROADS
TPG 9	CENTRAL RURAL- COLLECTORS AND LOCAL ROADS
TPG 10	SPECIAL RECREATIONAL

Permanent Site data is used in computing:

- Daily, monthly, and seasonal adjustment factors by highway functional classification and geographic location.
- Yearly growth factors which are used to update older counts in the Department's Roadway Management System (RMS).
- Design hour factors (peak hour, 30th highest, and 50th highest hour) used for the design of highways.

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles

The following 12 tables show average day of week factors by month compiled for total vehicles for the year 2024. Current year permanent site traffic data is assembled and the data is placed in the respective TPG. Annual Average Daily Traffic (AADT) is tabulated individually for each of permanent site stations utilized in 2024. A factor is calculated for each day from each station and a list is tabulated by month and day of the week. This data is assembled by day and TPG for each station. The result is a group factor, which can be applied to a 24-hour raw traffic count taken during any day of the year to develop an AADT volume.

January 2024										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.950	0.967	1.095	1.213	1.208	1.108	1.160	1.290	1.241	1.745
Tuesday	0.974	1.058	0.973	1.096	1.027	0.998	1.084	1.233	1.111	1.749
Wednesday	0.855	0.920	0.899	1.021	0.939	0.960	0.968	1.040	1.008	1.593
Thursday	0.804	0.879	0.876	0.986	0.892	0.856	0.944	1.021	0.968	1.413
Friday	1.003	0.815	0.882	0.917	0.967	0.829	0.884	0.927	0.922	1.300
Saturday	1.275	1.117	1.237	1.286	1.254	1.326	1.151	1.472	1.490	1.543
Sunday	1.309	1.249	1.494	1.628	1.537	1.840	1.511	1.774	1.684	2.044
DAY OF MONTH	1.024	1.001	1.065	1.164	1.118	1.131	1.100	1.251	1.203	1.627

February 2024										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.832	0.874	0.898	1.005	0.968	0.916	0.991	1.016	1.015	1.444
Tuesday	0.869	0.930	0.866	1.020	0.915	0.883	0.980	1.014	1.019	1.475
Wednesday	0.812	0.873	0.854	0.974	0.905	0.915	0.911	0.966	0.973	1.401
Thursday	0.781	0.853	0.842	0.957	0.889	0.891	0.936	0.973	0.954	1.383
Friday	0.742	0.793	0.805	0.890	0.876	0.820	0.891	0.895	0.915	1.222
Saturday	0.946	1.045	1.032	1.205	1.202	1.183	1.102	1.263	1.244	1.452
Sunday	1.071	1.113	1.244	1.344	1.377	1.326	1.319	1.383	1.427	1.593
DAY OF MONTH	0.865	0.926	0.934	1.056	1.019	0.991	1.019	1.073	1.078	1.424

Table 355
Average Day of Week by Month Factors Compiled for Total Vehicles (Continued)

June 2024										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.796	0.775	0.807	0.900	0.862	0.792	0.878	0.873	0.894	0.851
Tuesday	0.776	0.780	0.782	0.896	0.835	0.778	0.852	0.869	0.865	0.828
Wednesday	0.768	0.749	0.777	0.881	0.844	0.760	0.826	0.864	0.854	0.844
Thursday	0.738	0.706	0.753	0.837	0.821	0.722	0.820	0.803	0.843	0.768
Friday	0.705	0.667	0.731	0.792	0.834	0.678	0.773	0.754	0.818	0.648
Saturday	0.853	0.838	0.922	0.969	1.005	0.901	0.864	0.939	0.981	0.577
Sunday	0.908	0.813	1.054	1.090	1.177	1.032	1.040	1.036	1.144	0.734
DAY OF MONTH	0.792	0.761	0.832	0.909	0.911	0.809	0.865	0.877	0.914	0.750

July 2024										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.766	0.755	0.839	0.897	0.888	0.786	0.878	0.830	0.894	0.808
Tuesday	0.761	0.778	0.807	0.884	0.866	0.770	0.860	0.836	0.853	0.819
Wednesday	0.744	0.745	0.787	0.857	0.841	0.749	0.824	0.823	0.833	0.798
Thursday	0.801	0.780	0.878	0.930	0.934	0.810	0.888	0.839	0.921	0.714
Friday	0.710	0.689	0.777	0.810	0.861	0.700	0.804	0.737	0.828	0.583
Saturday	0.812	0.810	0.951	0.966	1.035	0.862	0.892	0.911	0.987	0.525
Sunday	0.850	0.759	1.081	1.043	1.185	0.954	1.016	0.960	1.134	0.624
DAY OF MONTH	0.778	0.759	0.874	0.912	0.944	0.804	0.880	0.848	0.922	0.696

August 2024										
DAY	TPG 1	TPG 2	TPG 3	TPG 4	TPG 5	TPG 6	TPG 7	TPG 8	TPG 9	TPG 10
Monday	0.802	0.773	0.855	0.889	0.859	0.779	0.871	0.867	0.895	0.898
Tuesday	0.791	0.801	0.832	0.881	0.837	0.764	0.847	0.873	0.862	0.914
Wednesday	0.776	0.778	0.813	0.852	0.828	0.727	0.820	0.849	0.847	0.888
Thursday	0.746	0.712	0.796	0.824	0.801	0.729	0.809	0.805	0.847	0.823
Friday	0.722	0.677	0.789	0.785	0.832	0.689	0.800	0.785	0.841	0.701
Saturday	0.855	0.825	0.980	0.971	1.026	0.870	0.917	0.965	1.025	0.628
Sunday	0.902	0.810	1.120	1.053	1.165	1.007	1.059	1.082	1.152	0.722
DAY OF MONTH	0.799	0.768	0.883	0.894	0.907	0.795	0.875	0.889	0.924	0.796

Existing Traffic Volumes to be increased by 17.2%

APPENDIX F:
Capacity Analysis Worksheets

Initial Queue Observation								
Springwood Road (SR 2002) & Chestnut Hill Road								
Camera:	MIOPNA0101							
7:30 – 8:30 A.M	EB L	EB T/R	WB L	WB T/R	NB L	NB T/R	SB L	SB T/R
Signal Cycle 1	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
4:30 – 5:30 P.M.								
Signal Cycle 1	0	0	0	0	0	0	0	0
Signal Cycle 2	0	0	0	0	0	0	0	0
Signal Cycle 3	0	0	0	0	0	0	0	0
Average	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

INCH.00013 Suburban T-Intersection (2 lanes)

Chestnut Hill Road & Shawna Avenue

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

			tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	NB L	4.3	1	14%	0	2	0	**4.4**
	PM	NB L	4.3	1	0%	0	2	0	**4.3**
minor right	AM	EB R	6.2	1	0%	0.1	-1	0	**6.1**
	PM	EB R	6.2	1	0%	0.1	-1	0	**6.1**
minor left	AM	EB L	7.1	1	0%	0.2	-1	0.7	**6.2**
	PM	EB L	7.1	1	0%	0.2	-1	0.7	**6.2**

Follow-up headway

				t fhv	phv	**Follow-up**
major left	AM	NB L	3	0.9	14%	**3.1**
	PM	NB L	3	0.9	0%	**3.0**
minor right	AM	EB R	3.1	0.9	0%	**3.1**
	PM	EB R	3.1	0.9	0%	**3.1**
minor left	AM	EB L	3	0.9	0%	**3.0**
	PM	EB L	3	0.9	0%	**3.0**

INCH.00013 Suburban 4-Leg Intersection (2 lanes)

Chestnut Hill Road & Woodspring Drive

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

		Movement	tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	NB L	4.3	1	25%	0	0	0	**4.6**
	PM	NB L	4.3	1	14%	0	0	0	**4.4**
	AM	SB L	4.3	1	0%	0	-1	0	**4.3**
	PM	SB L	4.3	1	0%	0	-1	0	**4.3**
minor right	AM	EB R	6.2	1	20%	0.1	2	0	**6.6**
	PM	EB R	6.2	1	0%	0.1	2	0	**6.4**
	AM	WB R	6.2	1	0%	0.1	-1	0	**6.1**
	PM	WB R	6.2	1	0%	0.1	-1	0	**6.1**
minor left	AM	EB L	7.1	1	0%	0.2	2	0	**7.5**
	PM	EB L	7.1	1	11%	0.2	2	0	**7.6**
	AM	WB L	7.1	1	0%	0.2	-1	0	**6.9**
	PM	WB L	7.1	1	0%	0.2	-1	0	**6.9**

Follow-up headway

		Movement	t fbase	t fhv	phv	**Follow-up**
major left	AM	NB L	3	0.9	25%	**3.2**
	PM	NB L	3	0.9	14%	**3.1**
	AM	SB L	3	0.9	0%	**3.0**
	PM	SB L	3	0.9	0%	**3.0**
minor right	AM	EB R	3.1	0.9	20%	**3.3**
	PM	EB R	3.1	0.9	0%	**3.1**
	AM	WB R	3.1	0.9	0%	**3.1**
	PM	WB R	3.1	0.9	0%	**3.1**
minor left	AM	EB L	3	0.9	0%	**3.0**
	PM	EB L	3	0.9	11%	**3.1**
	AM	WB L	3	0.9	0%	**3.0**
	PM	WB L	3	0.9	0%	**3.0**

INCH.00013 Suburban T-Intersection (2 lanes)

Chestnut Hill Road & Alperton Drive

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

			tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	NB L	4.3	1	10%	0	4	0	**4.4**
	PM	NB L	4.3	1	0%	0	4	0	**4.3**
minor right	AM	EB R	6.2	1	6%	0.1	-1	0	**6.2**
	PM	EB R	6.2	1	0%	0.1	-1	0	**6.1**
minor left	AM	EB L	7.1	1	20%	0.2	-1	0.7	**6.4**
	PM	EB L	7.1	1	0%	0.2	-1	0.7	**6.2**

Follow-up headway

				t fhv	phv	**Follow-up**
major left	AM	NB L	3	0.9	10%	**3.1**
	PM	NB L	3	0.9	0%	**3.0**
minor right	AM	EB R	3.1	0.9	6%	**3.2**
	PM	EB R	3.1	0.9	0%	**3.1**
minor left	AM	EB L	3	0.9	20%	**3.2**
	PM	EB L	3	0.9	0%	**3.0**

INCH.00013 Suburban T-Intersection (2 lanes)

Chestnut Hill Road & Camp Betty Washington Road (SR 2005)

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

			tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	WB L	4.3	1	3%	0	0	0	**4.3**
	PM	WB L	4.3	1	0%	0	0	0	**4.3**
minor right	AM	NB R	6.2	1	0%	0.1	2	0	**6.4**
	PM	NB R	6.2	1	2%	0.1	2	0	**6.4**
minor left	AM	NB L	7.1	1	0%	0.2	2	0.7	**6.8**
	PM	NB L	7.1	1	1%	0.2	2	0.7	**6.8**

Follow-up headway

				t fhv	phv	**Follow-up**
major left	AM	WB L	3	0.9	3%	**3.0**
	PM	WB L	3	0.9	0%	**3.0**
minor right	AM	NB R	3.1	0.9	0%	**3.1**
	PM	NB R	3.1	0.9	2%	**3.1**
minor left	AM	NB L	3	0.9	0%	**3.0**
	PM	NB L	3	0.9	1%	**3.0**

INCH.00013 Suburban T-Intersection (2 lanes)

Chestnut Hill Road & Dustin Road

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

			tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	NB L	4.3	1	100%	0	-2	0	**5.3**
	PM	NB L	4.3	1	0%	0	-2	0	**4.3**
minor right	AM	EB R	6.2	1	0%	0.1	2	0	**6.4**
	PM	EB R	6.2	1	0%	0.1	2	0	**6.4**
minor left	AM	EB L	7.1	1	0%	0.2	2	0.7	**6.8**
	PM	EB L	7.1	1	0%	0.2	2	0.7	**6.8**

Follow-up headway

				t fhv	phv	**Follow-up**
major left	AM	NB L	3	0.9	100%	**3.9**
	PM	NB L	3	0.9	0%	**3.0**
minor right	AM	EB R	3.1	0.9	0%	**3.1**
	PM	EB R	3.1	0.9	0%	**3.1**
minor left	AM	EB L	3	0.9	0%	**3.0**
	PM	EB L	3	0.9	0%	**3.0**

INCH.00013 Suburban T-Intersection (2 lanes)

Shawna Avenue & Proposed Site Access

2026 Existing/2035 Base (No-Build)/2035 Projected (Build) Conditions

Crititcal Headway

			tc base	tc hv	phv	t cg	G	t 3lt	**Base Crit**
major left	AM	NB L	4.3	1	2%	0	3	0	**4.3**
	PM	NB L	4.3	1	2%	0	3	0	**4.3**
minor right	AM	EB R	6.2	1	2%	0.1	0	0	**6.2**
	PM	EB R	6.2	1	2%	0.1	0	0	**6.2**
minor left	AM	EB L	7.1	1	2%	0.2	0	0.7	**6.4**
	PM	EB L	7.1	1	2%	0.2	0	0.7	**6.4**

Follow-up headway

				t fhv	phv	**Follow-up**
major left	AM	NB L	3	0.9	2%	**3.0**
	PM	NB L	3	0.9	2%	**3.0**
minor right	AM	EB R	3.1	0.9	2%	**3.1**
	PM	EB R	3.1	0.9	2%	**3.1**
minor left	AM	EB L	3	0.9	2%	**3.0**
	PM	EB L	3	0.9	2%	**3.0**



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	13	8	131	172	0
Future Volume (vph)	0	13	8	131	172	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	14%	5%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	151	187	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	8	131	172	0
Future Vol, veh/h	0	13	8	131	172	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, %	-1	-	-	2	5	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	5	5	0
Mvmt Flow	0	14	9	142	187	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	347	187	187	0	-	0
Stage 1	187	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.4	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	760	916	1000	-	-	-
Stage 1	989	-	-	-	-	-
Stage 2	1018	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	753	916	1000	-	-	-
Mov Cap-2 Maneuver	753	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	1018	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.99	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	104	-	916	-	-
HCM Lane V/C Ratio	0.009	-	0.015	-	-
HCM Ctrl Dly (s/v)	8.6	0	9	-	-
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)	15	0	6	20	0	5	5	117	6	1	177	8
Future Volume (vph)	15	0	6	20	0	5	5	117	6	1	177	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	20%	0%	0%	0%	25%	5%	20%	0%	1%	14%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	27	0	0	137	0	0	200	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	6	20	0	5	5	117	6	1	177	8
Future Vol, veh/h	15	0	6	20	0	5	5	117	6	1	177	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	20	0	0	0	25	5	20	0	1	14
Mvmt Flow	16	0	6	22	0	5	5	126	6	1	190	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	333	340	195	332	341	129	199	0	0	132	0	0
Stage 1	197	197	-	140	140	-	-	-	-	-	-	-
Stage 2	137	143	-	192	201	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.6	6.9	6.3	6.1	4.6	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.3	3	4	3.1	3.2	-	-	3	-	-
Pot Cap-1 Maneuver	686	563	834	727	595	986	952	-	-	1082	-	-
Stage 1	912	726	-	1011	791	-	-	-	-	-	-	-
Stage 2	992	770	-	947	747	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	678	559	834	716	591	986	952	-	-	1082	-	-
Mov Cap-2 Maneuver	678	559	-	716	591	-	-	-	-	-	-	-
Stage 1	911	725	-	1005	786	-	-	-	-	-	-	-
Stage 2	981	765	-	939	746	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.19	9.93	0.34	0.04
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	70	-	-	716	757	10	-	-
HCM Lane V/C Ratio	0.006	-	-	0.032	0.035	0.001	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	10.2	9.9	8.3	0	-
HCM Lane LOS	A	A	-	B	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	19	12	109	196	6
Future Volume (vph)	6	19	12	109	196	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	20%	6%	10%	5%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	0	138	230	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	19	12	109	196	6
Future Vol, veh/h	6	19	12	109	196	6
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, %	-1	-	-	4	3	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	20	6	10	5	4	0
Mvmt Flow	7	22	14	124	223	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	377	226	230	0	-	0
Stage 1	226	-	-	-	-	-
Stage 2	151	-	-	-	-	-
Critical Hdwy	6.4	6.16	4.4	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.2	3.2	3.1	-	-	-
Pot Cap-1 Maneuver	677	843	967	-	-	-
Stage 1	885	-	-	-	-	-
Stage 2	958	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	667	843	967	-	-	-
Mov Cap-2 Maneuver	667	-	-	-	-	-
Stage 1	871	-	-	-	-	-
Stage 2	958	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.71	0.87	0
HCM LOS	A		

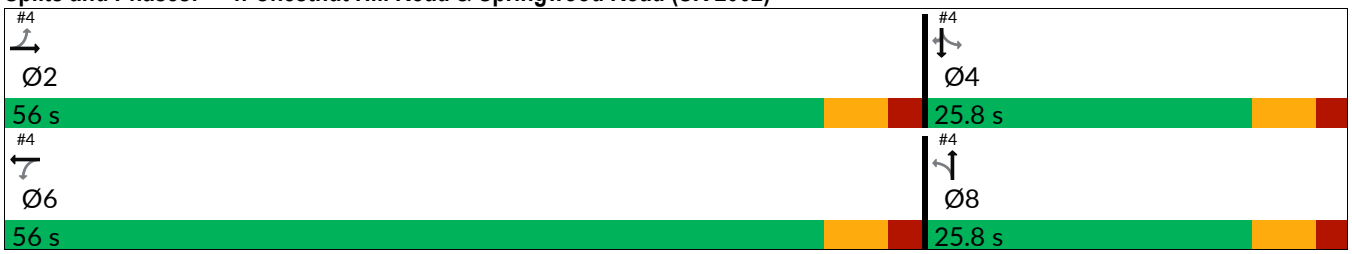
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	179	-	793	-	-
HCM Lane V/C Ratio	0.014	-	0.036	-	-
HCM Ctrl Dly (s/v)	8.8	0	9.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	199	13	18	513	9	27	69	38	9	52	180
Future Volume (vph)	32	199	13	18	513	9	27	69	38	9	52	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	9%	0%	1%	0%	4%	5%	0%	0%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	235	0	20	580	0	30	119	0	0	68	200
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	56.0	56.0		56.0	56.0		25.8	25.8		25.8	25.8	25.8
Total Split (%)	68.5%	68.5%		68.5%	68.5%		31.5%	31.5%		31.5%	31.5%	31.5%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	20.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.12	0.26		0.04	0.62		0.11	0.28			0.21	0.42
Control Delay (s/veh)	5.8	5.8		4.7	10.0		16.3	13.7			16.8	6.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	5.8	5.8		4.7	10.0		16.3	13.7			16.8	6.5
Queue Length 50th (ft)	4	23		2	75		5	16			12	0
Queue Length 95th (ft)	15	57		9	167		26	61			48	42
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	577	1651		996	1722		640	991			789	879
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.06	0.14		0.02	0.34		0.05	0.12			0.09	0.23

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 40.9	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	199	13	18	513	9	27	69	38	9	52	180
Future Volume (veh/h)	32	199	13	18	513	9	27	69	38	9	52	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1775	1818	1747	1711	1697	1711	1855	1914	1988	1599	1501	1599
Adj Flow Rate, veh/h	36	221	14	20	570	10	30	77	28	10	58	124
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	4	9	0	1	0	4	5	0	0	7	0
Cap, veh/h	508	1075	68	766	1056	19	307	220	80	101	223	223
Arrive On Green	0.64	0.64	0.62	0.64	0.64	0.62	0.16	0.16	0.14	0.14	0.16	0.16
Sat Flow, veh/h	792	1691	107	1048	1662	29	1192	1340	487	98	1358	1355
Grp Volume(v), veh/h	36	0	235	20	0	580	30	0	105	68	0	124
Grp Sat Flow(s),veh/h/ln	792	0	1798	1048	0	1691	1192	0	1827	1457	0	1355
Q Serve(g_s), s	1.3	0.0	2.7	0.4	0.0	9.3	1.1	0.0	2.5	0.0	0.0	4.1
Cycle Q Clear(g_c), s	10.1	0.0	2.7	2.6	0.0	9.3	2.6	0.0	2.5	2.0	0.0	4.1
Prop In Lane	1.00		0.06	1.00		0.02	1.00		0.27	0.15		1.00
Lane Grp Cap(c), veh/h	508	0	1143	766	0	1075	307	0	300	294	0	223
V/C Ratio(X)	0.07	0.00	0.21	0.03	0.00	0.54	0.10	0.00	0.35	0.23	0.00	0.56
Avail Cap(c_a), veh/h	830	0	1874	1192	0	1763	623	0	784	667	0	582
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.6	0.0	3.8	4.2	0.0	5.0	18.8	0.0	18.3	18.0	0.0	18.8
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.0	0.0	1.5	0.1	0.0	0.7	0.4	0.0	2.2
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(50%),veh/ln	0.2	0.0	0.6	0.1	0.0	2.1	0.3	0.0	1.0	0.6	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	7.8	0.0	4.1	4.2	0.0	6.5	18.9	0.0	19.0	18.4	0.0	21.0
LnGrp LOS	A		A	A		A	B		B	B		C
Approach Vol, veh/h		271			600			135			192	
Approach Delay, s/veh		4.6			6.4			18.9			20.1	
Approach LOS		A			A			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.1		12.8		36.1		12.8				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		50.0		20.0		50.0		20.0				
Max Q Clear Time (g_c+I1), s		12.6		6.6		11.3		5.1				
Green Ext Time (p_c), s		7.0		0.5		18.8		0.3				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.6									
HCM 7th LOS			A									



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	62	61	81	340	156	22
Future Volume (vph)	62	61	81	340	156	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	0		45	0
Storage Lanes		0	0		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	3%	1%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	155	0	0	533	197	28
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	62	61	81	340	156	22
Future Vol, veh/h	62	61	81	340	156	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	-	-	-	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	0	3	1	0	0
Mvmt Flow	78	77	103	430	197	28

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	156	0	753	117
Stage 1	-	-	-	-	117	-
Stage 2	-	-	-	-	635	-
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	-	-	1062	-	390	991
Stage 1	-	-	-	-	1043	-
Stage 2	-	-	-	-	555	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1062	-	340	991
Mov Cap-2 Maneuver	-	-	-	-	340	-
Stage 1	-	-	-	-	911	-
Stage 2	-	-	-	-	555	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.68	26.67
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	340	991	-	-	346	-
HCM Lane V/C Ratio	0.58	0.028	-	-	0.097	-
HCM Ctrl Dly (s/v)	29.2	8.7	-	-	8.8	0
HCM Lane LOS	D	A	-	-	A	A
HCM 95th %tile Q(veh)	3.5	0.1	-	-	0.3	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	26	2	1	132	136	6
Future Volume (vph)	26	2	1	132	136	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	100%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	143	152	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	2	1	132	136	6
Future Vol, veh/h	26	2	1	132	136	6
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, %	2	-	-	-2	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	100	2	1	0
Mvmt Flow	28	2	1	142	146	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	294	149	153	0	-	0
Stage 1	149	-	-	-	-	-
Stage 2	144	-	-	-	-	-
Critical Hdwy	6.8	6.4	5.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.9	-	-	-
Pot Cap-1 Maneuver	777	949	800	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	1010	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	776	949	800	-	-	-
Mov Cap-2 Maneuver	776	-	-	-	-	-
Stage 1	1002	-	-	-	-	-
Stage 2	1010	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.76	0.07	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	14	-	786	-	-
HCM Lane V/C Ratio	0.001	-	0.038	-	-
HCM Ctrl Dly (s/v)	9.5	0	9.8	-	-
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)	5	13	15	192	354	5
Future Volume (vph)	5	13	15	192	354	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)			5			5
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	220	382	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	CBD
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	13	15	192	354	5
Future Vol, veh/h	5	13	15	192	354	5
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	5	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	5	14	16	204	377	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	620	384	387	0	-	0
Stage 1	384	-	-	-	-	-
Stage 2	236	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	528	711	884	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	940	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	514	707	879	-	-	-
Mov Cap-2 Maneuver	514	-	-	-	-	-
Stage 1	784	-	-	-	-	-
Stage 2	940	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.8	0.66	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	130	-	640	-	-
HCM Lane V/C Ratio	0.018	-	0.03	-	-
HCM Ctrl Dly (s/v)	9.2	0	10.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	4	6	26	0	1	8	186	23	5	339	29
Future Volume (vph)	21	4	6	26	0	1	8	186	23	5	339	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	0%	0%	0%	0%	0%	14%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	34	0	0	30	0	0	238	0	0	410	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	21	4	6	26	0	1	8	186	23	5	339	29
Future Vol, veh/h	21	4	6	26	0	1	8	186	23	5	339	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	11	0	0	0	0	0	14	0	0	0	1	0
Mvmt Flow	23	4	7	29	0	1	9	204	25	5	373	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	621	647	388	620	650	217	404	0	0	230	0	0
Stage 1	399	399	-	235	235	-	-	-	-	-	-	-
Stage 2	222	247	-	386	415	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.9	6.4	6.9	6.3	6.1	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.1	3	4	3.1	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	404	365	685	468	405	881	839	-	-	1002	-	-
Stage 1	659	579	-	899	724	-	-	-	-	-	-	-
Stage 2	849	686	-	746	610	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	396	358	685	449	397	881	839	-	-	1002	-	-
Mov Cap-2 Maneuver	396	358	-	449	397	-	-	-	-	-	-	-
Stage 1	654	575	-	889	715	-	-	-	-	-	-	-
Stage 2	837	678	-	728	605	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.22	13.41	0.34	0.12
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	65	-	-	425	457	24	-	-
HCM Lane V/C Ratio	0.01	-	-	0.08	0.065	0.005	-	-
HCM Ctrl Dly (s/v)	9.3	0	-	14.2	13.4	8.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	36	38	204	318	34
Future Volume (vph)	15	36	38	204	318	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	260	379	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	36	38	204	318	34
Future Vol, veh/h	15	36	38	204	318	34
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, %	-1	-	-	4	3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	16	39	41	219	342	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	661	360	378	0	-	0
Stage 1	360	-	-	-	-	-
Stage 2	301	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	500	734	890	-	-	-
Stage 1	826	-	-	-	-	-
Stage 2	878	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	474	734	890	-	-	-
Mov Cap-2 Maneuver	474	-	-	-	-	-
Stage 1	782	-	-	-	-	-
Stage 2	878	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.24	1.45	0
HCM LOS	B		

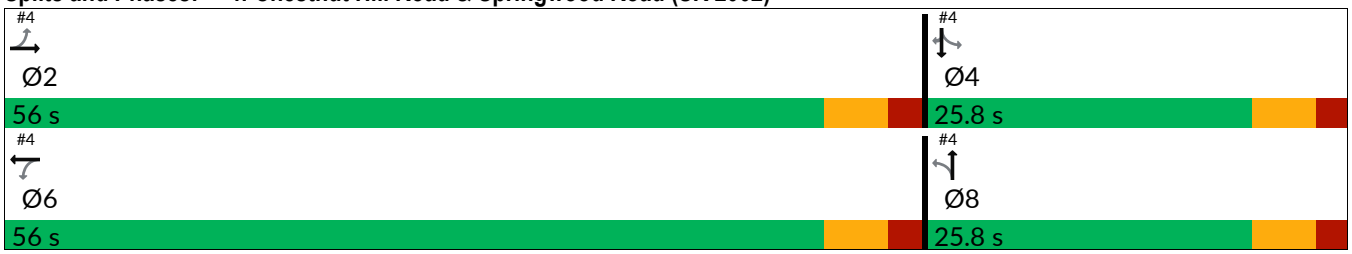
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	283	-	632	-	-
HCM Lane V/C Ratio	0.046	-	0.087	-	-
HCM Ctrl Dly (s/v)	9.2	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	129	438	18	56	353	23	26	111	97	46	170	134
Future Volume (vph)	129	438	18	56	353	23	26	111	97	46	170	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	465	0	57	383	0	27	212	0	0	220	137
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	56.0	56.0		56.0	56.0		25.8	25.8		25.8	25.8	25.8
Total Split (%)	68.5%	68.5%		68.5%	68.5%		31.5%	31.5%		31.5%	31.5%	31.5%
Maximum Green (s)	50.0	50.0		50.0	50.0		20.0	20.0		20.0	20.0	20.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.34	0.58		0.18	0.48		0.08	0.35			0.49	0.25
Control Delay (s/veh)	10.8	12.2		9.0	10.6		13.8	12.1			18.1	4.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	10.8	12.2		9.0	10.6		13.8	12.1			18.1	4.8
Queue Length 50th (ft)	18	70		7	54		4	28			42	0
Queue Length 95th (ft)	58	175		28	139		22	89			119	32
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	824	1689		670	1674		572	999			779	839
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.16	0.28		0.09	0.23		0.05	0.21			0.28	0.16

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 43.1	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	129	438	18	56	353	23	26	111	97	46	170	134
Future Volume (veh/h)	129	438	18	56	353	23	26	111	97	46	170	134
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1875	1875	1875	1711	1697	1711	1912	1988	1988	1599	1599	1599
Adj Flow Rate, veh/h	132	447	16	57	360	22	27	113	69	47	173	82
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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	601	1035	37	518	911	56	252	271	165	129	286	318
Arrive On Green	0.58	0.58	0.56	0.58	0.58	0.56	0.23	0.23	0.21	0.21	0.23	0.23
Sat Flow, veh/h	1003	1799	64	850	1583	97	1149	1156	706	186	1221	1355
Grp Volume(v), veh/h	132	0	463	57	0	382	27	0	182	220	0	82
Grp Sat Flow(s),veh/h/ln	1003	0	1863	850	0	1679	1149	0	1861	1407	0	1355
Q Serve(g_s), s	4.2	0.0	7.2	2.1	0.0	6.5	1.1	0.0	4.3	3.2	0.0	2.5
Cycle Q Clear(g_c), s	10.2	0.0	7.2	8.8	0.0	6.5	8.1	0.0	4.3	7.5	0.0	2.5
Prop In Lane	1.00		0.03	1.00		0.06	1.00		0.38	0.21		1.00
Lane Grp Cap(c), veh/h	601	0	1072	518	0	966	252	0	436	387	0	318
V/C Ratio(X)	0.22	0.00	0.43	0.11	0.00	0.40	0.11	0.00	0.42	0.57	0.00	0.26
Avail Cap(c_a), veh/h	1017	0	1844	870	0	1662	452	0	759	635	0	552
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.6	0.0	6.2	8.5	0.0	6.0	21.5	0.0	16.9	17.9	0.0	16.1
Incr Delay (d2), s/veh	0.7	0.0	1.0	0.3	0.0	1.0	0.2	0.0	0.6	1.3	0.0	0.4
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(50%),veh/ln	0.8	0.0	2.1	0.3	0.0	1.7	0.3	0.0	1.7	2.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	9.3	0.0	7.2	8.9	0.0	7.0	21.6	0.0	17.5	19.3	0.0	16.5
LnGrp LOS	A		A	A		A	C		B	B		B
Approach Vol, veh/h		595			439			209			302	
Approach Delay, s/veh		7.7			7.2			18.1			18.5	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.6		16.9		34.6		16.9				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		50.0		20.0		50.0		20.0				
Max Q Clear Time (g_c+I1), s		12.7		9.5		11.3		10.6				
Green Ext Time (p_c), s		16.0		0.8		12.3		0.5				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.1									
HCM 7th LOS			B									



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	247	255	182	219	171	56
Future Volume (vph)	247	255	182	219	171	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	0		45	0
Storage Lanes		0	0		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	518	0	0	414	176	58
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	15.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	247	255	182	219	171	56
Future Vol, veh/h	247	255	182	219	171	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	1	2
Mvmt Flow	255	263	188	226	176	58

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	518	0	987	386
Stage 1	-	-	-	-	386	-
Stage 2	-	-	-	-	601	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.81	-
Critical Hdwy Stg 2	-	-	-	-	5.81	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	796	-	273	687
Stage 1	-	-	-	-	753	-
Stage 2	-	-	-	-	578	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	796	-	199	687
Mov Cap-2 Maneuver	-	-	-	-	199	-
Stage 1	-	-	-	-	550	-
Stage 2	-	-	-	-	578	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	4.95	67.25
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	199	687	-	-	696	-
HCM Lane V/C Ratio	0.885	0.084	-	-	0.236	-
HCM Ctrl Dly (s/v)	85.8	10.7	-	-	10.9	0
HCM Lane LOS	F	B	-	-	B	A
HCM 95th %tile Q(veh)	6.8	0.3	-	-	0.9	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	1	2	188	359	45
Future Volume (vph)	27	1	2	188	359	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	202	430	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	1	2	188	359	45
Future Vol, veh/h	27	1	2	188	359	45
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	-2	2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	29	1	2	200	382	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	611	407	431	0	-	0
Stage 1	407	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.8	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	483	668	854	-	-	-
Stage 1	735	-	-	-	-	-
Stage 2	939	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	481	667	853	-	-	-
Mov Cap-2 Maneuver	481	-	-	-	-	-
Stage 1	732	-	-	-	-	-
Stage 2	939	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.9	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	19	-	486	-	-
HCM Lane V/C Ratio	0.002	-	0.061	-	-
HCM Ctrl Dly (s/v)	9.2	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	13	8	139	179	0
Future Volume (vph)	0	13	8	139	179	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	14%	5%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	0	0	160	195	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	13	8	139	179	0
Future Vol, veh/h	0	13	8	139	179	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, %	-1	-	-	2	5	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	5	5	0
Mvmt Flow	0	14	9	151	195	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	363	195	195	0	-	0
Stage 1	195	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.4	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	744	907	994	-	-	-
Stage 1	981	-	-	-	-	-
Stage 2	1008	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	737	907	994	-	-	-
Mov Cap-2 Maneuver	737	-	-	-	-	-
Stage 1	972	-	-	-	-	-
Stage 2	1008	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.03	0.47	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	98	-	907	-	-
HCM Lane V/C Ratio	0.009	-	0.016	-	-
HCM Ctrl Dly (s/v)	8.7	0	9	-	-
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)	15	0	6	21	0	5	5	125	6	1	184	8
Future Volume (vph)	15	0	6	21	0	5	5	125	6	1	184	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	20%	0%	0%	0%	25%	5%	20%	0%	1%	14%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	28	0	0	145	0	0	208	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	6	21	0	5	5	125	6	1	184	8
Future Vol, veh/h	15	0	6	21	0	5	5	125	6	1	184	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	20	0	0	0	25	5	20	0	1	14
Mvmt Flow	16	0	6	23	0	5	5	134	6	1	198	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	349	356	202	348	357	138	206	0	0	141	0	0
Stage 1	204	204	-	148	148	-	-	-	-	-	-	-
Stage 2	145	152	-	200	209	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.6	6.9	6.3	6.1	4.6	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.3	3	4	3.1	3.2	-	-	3	-	-
Pot Cap-1 Maneuver	668	551	825	709	584	975	946	-	-	1075	-	-
Stage 1	902	720	-	1000	785	-	-	-	-	-	-	-
Stage 2	980	763	-	939	742	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	659	547	825	698	579	975	946	-	-	1075	-	-
Mov Cap-2 Maneuver	659	547	-	698	579	-	-	-	-	-	-	-
Stage 1	901	719	-	994	780	-	-	-	-	-	-	-
Stage 2	969	758	-	930	741	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.32	10.06	0.32	0.04
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	66	-	-	699	739	9	-	-
HCM Lane V/C Ratio	0.006	-	-	0.032	0.038	0.001	-	-
HCM Ctrl Dly (s/v)	8.8	0	-	10.3	10.1	8.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	20	12	116	204	6
Future Volume (vph)	6	20	12	116	204	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	20%	6%	10%	5%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	30	0	0	146	239	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	20	12	116	204	6
Future Vol, veh/h	6	20	12	116	204	6
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, %	-1	-	-	4	3	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	20	6	10	5	4	0
Mvmt Flow	7	23	14	132	232	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	394	235	239	0	-	0
Stage 1	235	-	-	-	-	-
Stage 2	159	-	-	-	-	-
Critical Hdwy	6.4	6.16	4.4	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.2	3.2	3.1	-	-	-
Pot Cap-1 Maneuver	662	834	960	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	950	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	651	834	960	-	-	-
Mov Cap-2 Maneuver	651	-	-	-	-	-
Stage 1	863	-	-	-	-	-
Stage 2	950	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.78	0.83	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	169	-	783	-	-
HCM Lane V/C Ratio	0.014	-	0.038	-	-
HCM Ctrl Dly (s/v)	8.8	0	9.8	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

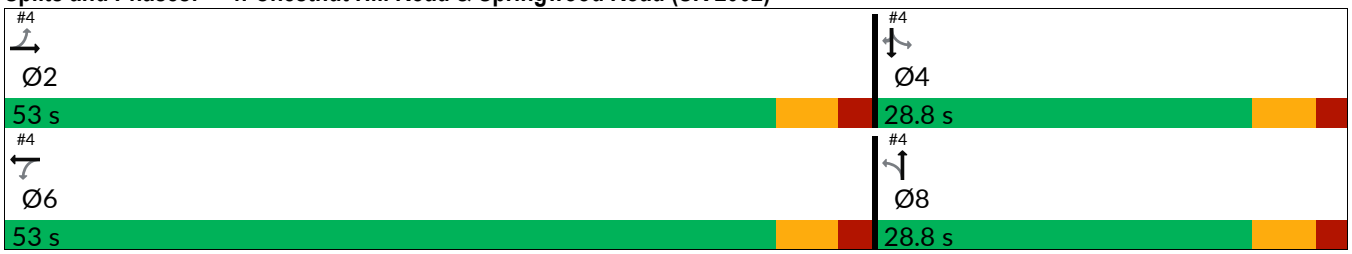


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	37	211	15	19	531	9	29	71	39	9	54	187
Future Volume (vph)	37	211	15	19	531	9	29	71	39	9	54	187
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	9%	0%	1%	0%	4%	5%	0%	0%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	41	251	0	21	600	0	32	122	0	0	70	208
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	53.0	53.0		53.0	53.0		28.8	28.8		28.8	28.8	28.8
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	35.2%
Maximum Green (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.14	0.28		0.04	0.64		0.12	0.28			0.21	0.43
Control Delay (s/veh)	6.3	6.1		4.9	10.7		16.1	13.5			16.6	6.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	6.3	6.1		4.9	10.7		16.1	13.5			16.6	6.3
Queue Length 50th (ft)	4	26		2	80		6	16			13	0
Queue Length 95th (ft)	17	64		9	185		27	60			48	42
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	543	1631		971	1704		728	1125			901	978
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.08	0.15		0.02	0.35		0.04	0.11			0.08	0.21

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 41	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	211	15	19	531	9	29	71	39	9	54	187
Future Volume (veh/h)	37	211	15	19	531	9	29	71	39	9	54	187
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1775	1818	1747	1711	1697	1711	1855	1914	1988	1599	1501	1599
Adj Flow Rate, veh/h	41	234	17	21	590	10	32	79	29	10	60	132
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	4	9	0	1	0	4	5	0	0	7	0
Cap, veh/h	487	1059	77	746	1052	18	309	227	83	99	233	231
Arrive On Green	0.63	0.63	0.61	0.63	0.63	0.61	0.17	0.17	0.15	0.15	0.17	0.17
Sat Flow, veh/h	777	1674	122	1032	1663	28	1181	1336	490	93	1366	1355
Grp Volume(v), veh/h	41	0	251	21	0	600	32	0	108	70	0	132
Grp Sat Flow(s),veh/h/ln	777	0	1796	1032	0	1692	1181	0	1826	1459	0	1355
Q Serve(g_s), s	1.5	0.0	3.0	0.4	0.0	10.0	1.2	0.0	2.6	0.0	0.0	4.5
Cycle Q Clear(g_c), s	11.1	0.0	3.0	2.9	0.0	10.0	2.7	0.0	2.6	2.0	0.0	4.5
Prop In Lane	1.00		0.07	1.00		0.02	1.00		0.27	0.14		1.00
Lane Grp Cap(c), veh/h	487	0	1136	746	0	1070	309	0	311	302	0	231
V/C Ratio(X)	0.08	0.00	0.22	0.03	0.00	0.56	0.10	0.00	0.35	0.23	0.00	0.57
Avail Cap(c_a), veh/h	746	0	1734	1090	0	1633	679	0	882	742	0	654
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	3.9	4.4	0.0	5.2	18.9	0.0	18.3	18.0	0.0	19.0
Incr Delay (d2), s/veh	0.3	0.0	0.4	0.1	0.0	1.7	0.1	0.0	0.7	0.4	0.0	2.2
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(50%),veh/ln	0.2	0.0	0.7	0.1	0.0	2.3	0.3	0.0	1.0	0.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.5	0.0	4.3	4.5	0.0	6.9	19.1	0.0	19.0	18.4	0.0	21.2
LnGrp LOS	A		A	A		A	B		B	B		C
Approach Vol, veh/h		292			621			140			202	
Approach Delay, s/veh		4.9			6.8			19.0			20.2	
Approach LOS		A			A			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.4		13.3		36.4		13.3				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		47.0		23.0		47.0		23.0				
Max Q Clear Time (g_c+I1), s		13.6		7.0		12.0		5.2				
Green Ext Time (p_c), s		7.3		0.6		18.4		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			9.9									
HCM 7th LOS			A									



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	64	64	84	350	163	25
Future Volume (vph)	64	64	84	350	163	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	3%	1%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	106	443	206	32
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	64	84	350	163	25
Future Vol, veh/h	64	64	84	350	163	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	0	3	1	0	0
Mvmt Flow	81	81	106	443	206	32

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	162	0	777	122
Stage 1	-	-	-	-	122	-
Stage 2	-	-	-	-	656	-
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	-	-	1057	-	376	985
Stage 1	-	-	-	-	1037	-
Stage 2	-	-	-	-	542	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1057	-	338	985
Mov Cap-2 Maneuver	-	-	-	-	338	-
Stage 1	-	-	-	-	933	-
Stage 2	-	-	-	-	542	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.7	28.07
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	338	985	-	-	1057	-
HCM Lane V/C Ratio	0.611	0.032	-	-	0.101	-
HCM Ctrl Dly (s/v)	31	8.8	-	-	8.8	-
HCM Lane LOS	D	A	-	-	A	-
HCM 95th %tile Q(veh)	3.8	0.1	-	-	0.3	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	27	2	1	140	142	6
Future Volume (vph)	27	2	1	140	142	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	100%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	0	0	152	159	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	27	2	1	140	142	6
Future Vol, veh/h	27	2	1	140	142	6
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, %	2	-	-	-2	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	100	2	1	0
Mvmt Flow	29	2	1	151	153	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	309	156	159	0	-	0
Stage 1	156	-	-	-	-	-
Stage 2	153	-	-	-	-	-
Critical Hdwy	6.8	6.4	5.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.9	-	-	-
Pot Cap-1 Maneuver	760	941	795	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	999	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	759	941	795	-	-	-
Mov Cap-2 Maneuver	759	-	-	-	-	-
Stage 1	994	-	-	-	-	-
Stage 2	999	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	9.88	0.07	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	13	-	769	-	-
HCM Lane V/C Ratio	0.001	-	0.041	-	-
HCM Ctrl Dly (s/v)	9.5	0	9.9	-	-
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)	5	13	15	200	369	5
Future Volume (vph)	5	13	15	200	369	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)			5			5
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	229	398	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	CBD
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	13	15	200	369	5
Future Vol, veh/h	5	13	15	200	369	5
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	5	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	5	14	16	213	393	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	645	400	403	0	-	0
Stage 1	400	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	511	697	873	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	932	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	497	693	868	-	-	-
Mov Cap-2 Maneuver	497	-	-	-	-	-
Stage 1	771	-	-	-	-	-
Stage 2	932	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.95	0.64	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	126	-	624	-	-
HCM Lane V/C Ratio	0.018	-	0.031	-	-
HCM Ctrl Dly (s/v)	9.2	0	10.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	4	6	27	0	1	8	194	24	5	353	30
Future Volume (vph)	22	4	6	27	0	1	8	194	24	5	353	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	0%	0%	0%	0%	0%	14%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	0	31	0	0	248	0	0	426	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	4	6	27	0	1	8	194	24	5	353	30
Future Vol, veh/h	22	4	6	27	0	1	8	194	24	5	353	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	11	0	0	0	0	0	14	0	0	0	1	0
Mvmt Flow	24	4	7	30	0	1	9	213	26	5	388	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	646	673	404	645	676	226	421	0	0	240	0	0
Stage 1	415	415	-	244	244	-	-	-	-	-	-	-
Stage 2	231	257	-	401	432	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.9	6.4	6.9	6.3	6.1	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.1	3	4	3.1	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	387	352	670	451	392	871	828	-	-	994	-	-
Stage 1	644	569	-	889	717	-	-	-	-	-	-	-
Stage 2	838	679	-	732	600	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	379	345	670	432	385	871	828	-	-	994	-	-
Mov Cap-2 Maneuver	379	345	-	432	385	-	-	-	-	-	-	-
Stage 1	640	565	-	878	709	-	-	-	-	-	-	-
Stage 2	827	671	-	714	596	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	14.67	13.8	0.33	0.11
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	62	-	-	407	440	23	-	-
HCM Lane V/C Ratio	0.011	-	-	0.086	0.07	0.006	-	-
HCM Ctrl Dly (s/v)	9.4	0	-	14.7	13.8	8.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.2	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	37	39	212	332	35
Future Volume (vph)	15	37	39	212	332	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	56	0	0	270	395	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	37	39	212	332	35
Future Vol, veh/h	15	37	39	212	332	35
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, %	-1	-	-	4	3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	16	40	42	228	357	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	688	376	395	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	482	719	879	-	-	-
Stage 1	812	-	-	-	-	-
Stage 2	869	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	456	719	879	-	-	-
Mov Cap-2 Maneuver	456	-	-	-	-	-
Stage 1	768	-	-	-	-	-
Stage 2	869	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	11.42	1.45	0
HCM LOS	B		

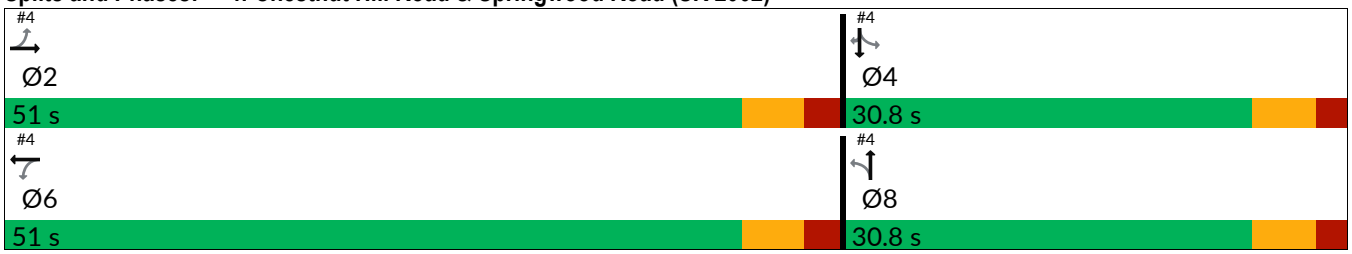
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	280	-	616	-	-
HCM Lane V/C Ratio	0.048	-	0.091	-	-
HCM Ctrl Dly (s/v)	9.3	0	11.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	135	455	21	58	371	24	29	114	100	47	175	142
Future Volume (vph)	135	455	21	58	371	24	29	114	100	47	175	142
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	138	485	0	59	403	0	30	218	0	0	227	145
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	51.0	51.0		51.0	51.0		30.8	30.8		30.8	30.8	30.8
Total Split (%)	62.3%	62.3%		62.3%	62.3%		37.7%	37.7%		37.7%	37.7%	37.7%
Maximum Green (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	25.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.37	0.61		0.20	0.51		0.09	0.36			0.50	0.26
Control Delay (s/veh)	11.7	12.9		9.5	11.2		13.9	12.0			18.4	4.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	11.7	12.9		9.5	11.2		13.9	12.0			18.4	4.7
Queue Length 50th (ft)	19	77		8	61		5	29			44	0
Queue Length 95th (ft)	64	190		30	151		24	91			124	33
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	756	1623		612	1609		685	1196			940	987
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.18	0.30		0.10	0.25		0.04	0.18			0.24	0.15

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 44.3	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	455	21	58	371	24	29	114	100	47	175	142
Future Volume (veh/h)	135	455	21	58	371	24	29	114	100	47	175	142
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1875	1875	1875	1711	1697	1711	1912	1988	1988	1599	1599	1599
Adj Flow Rate, veh/h	138	464	19	59	379	23	30	116	72	48	179	90
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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	577	1022	42	497	905	55	253	278	172	128	297	328
Arrive On Green	0.57	0.57	0.55	0.57	0.57	0.55	0.24	0.24	0.22	0.22	0.24	0.24
Sat Flow, veh/h	985	1788	73	834	1583	96	1135	1148	712	186	1226	1355
Grp Volume(v), veh/h	138	0	483	59	0	402	30	0	188	227	0	90
Grp Sat Flow(s),veh/h/ln	985	0	1861	834	0	1679	1135	0	1860	1412	0	1355
Q Serve(g_s), s	4.7	0.0	7.9	2.3	0.0	7.1	1.3	0.0	4.5	3.3	0.0	2.8
Cycle Q Clear(g_c), s	11.3	0.0	7.9	9.7	0.0	7.1	8.6	0.0	4.5	7.8	0.0	2.8
Prop In Lane	1.00		0.04	1.00		0.06	1.00		0.38	0.21		1.00
Lane Grp Cap(c), veh/h	577	0	1064	497	0	960	253	0	450	398	0	328
V/C Ratio(X)	0.24	0.00	0.45	0.12	0.00	0.42	0.12	0.00	0.42	0.57	0.00	0.27
Avail Cap(c_a), veh/h	876	0	1630	750	0	1470	540	0	920	759	0	671
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.4	0.0	6.5	9.2	0.0	6.4	21.8	0.0	17.0	18.0	0.0	16.2
Incr Delay (d2), s/veh	0.8	0.0	1.1	0.4	0.0	1.1	0.2	0.0	0.6	1.3	0.0	0.4
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(50%),veh/ln	0.9	0.0	2.4	0.4	0.0	2.0	0.3	0.0	1.8	2.4	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.1	0.0	7.6	9.5	0.0	7.4	22.0	0.0	17.6	19.3	0.0	16.6
LnGrp LOS	B		A	A		A	C		B	B		B
Approach Vol, veh/h		621			461			218			317	
Approach Delay, s/veh		8.2			7.7			18.2			18.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.0		17.5		35.0		17.5				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		45.0		25.0		45.0		25.0				
Max Q Clear Time (g_c+I1), s		13.8		9.8		12.2		11.1				
Green Ext Time (p_c), s		15.2		0.9		12.1		0.6				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.4									
HCM 7th LOS			B									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	254	265	189	226	177	59
Future Volume (vph)	254	265	189	226	177	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	535	0	195	233	182	61
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	17.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	254	265	189	226	177	59
Future Vol, veh/h	254	265	189	226	177	59
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	1	2
Mvmt Flow	262	273	195	233	182	61

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	535	0	1021	398
Stage 1	-	-	-	-	398	-
Stage 2	-	-	-	-	623	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.81	-
Critical Hdwy Stg 2	-	-	-	-	5.81	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	785	-	259	676
Stage 1	-	-	-	-	741	-
Stage 2	-	-	-	-	563	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	785	-	195	676
Mov Cap-2 Maneuver	-	-	-	-	195	-
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	563	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	5.05	76.81
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	195	676	-	-	785	-
HCM Lane V/C Ratio	0.937	0.09	-	-	0.248	-
HCM Ctrl Dly (s/v)	98.8	10.9	-	-	11.1	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	7.5	0.3	-	-	1	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	28	1	2	196	374	46
Future Volume (vph)	28	1	2	196	374	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	0	0	211	447	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	28	1	2	196	374	46
Future Vol, veh/h	28	1	2	196	374	46
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	-2	2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	30	1	2	209	398	49

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	636	423	448	0	-	0
Stage 1	423	-	-	-	-	-
Stage 2	213	-	-	-	-	-
Critical Hdwy	6.8	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	465	653	842	-	-	-
Stage 1	720	-	-	-	-	-
Stage 2	929	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	463	652	841	-	-	-
Mov Cap-2 Maneuver	463	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	929	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.24	0.09	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	18	-	468	-	-
HCM Lane V/C Ratio	0.003	-	0.066	-	-
HCM Ctrl Dly (s/v)	9.3	0	13.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	37	61	23	139	179	12
Future Volume (vph)	37	61	23	139	179	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	14%	5%	5%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	106	0	0	176	208	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	61	23	139	179	12
Future Vol, veh/h	37	61	23	139	179	12
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, %	-1	-	-	2	5	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	14	5	5	0
Mvmt Flow	40	66	25	151	195	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	402	201	208	0	-	0
Stage 1	201	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.4	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.1	-	-	-
Pot Cap-1 Maneuver	707	900	984	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	975	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	687	900	984	-	-	-
Mov Cap-2 Maneuver	687	-	-	-	-	-
Stage 1	948	-	-	-	-	-
Stage 2	975	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.15	1.24	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	256	-	805	-	-
HCM Lane V/C Ratio	0.025	-	0.132	-	-
HCM Ctrl Dly (s/v)	8.8	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	0	21	21	0	5	10	140	6	1	232	8
Future Volume (vph)	15	0	21	21	0	5	10	140	6	1	232	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	20%	0%	0%	0%	25%	5%	20%	0%	1%	14%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	39	0	0	28	0	0	168	0	0	259	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	0	21	21	0	5	10	140	6	1	232	8
Future Vol, veh/h	15	0	21	21	0	5	10	140	6	1	232	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	20	0	0	0	25	5	20	0	1	14
Mvmt Flow	16	0	23	23	0	5	11	151	6	1	249	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	428	434	254	427	435	154	258	0	0	157	0	0
Stage 1	256	256	-	175	175	-	-	-	-	-	-	-
Stage 2	172	178	-	252	260	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.9	6.6	6.9	6.3	6.1	4.6	-	-	4.3	-	-
Critical Hdwy Stg 1	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3	4	3.3	3	4	3.1	3.2	-	-	3	-	-
Pot Cap-1 Maneuver	585	493	768	629	530	955	905	-	-	1061	-	-
Stage 1	839	680	-	968	765	-	-	-	-	-	-	-
Stage 2	944	741	-	881	707	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	573	486	768	602	522	955	905	-	-	1061	-	-
Mov Cap-2 Maneuver	573	486	-	602	522	-	-	-	-	-	-	-
Stage 1	838	679	-	955	755	-	-	-	-	-	-	-
Stage 2	927	731	-	854	706	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.68	10.8	0.58	0.03
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	114	-	-	673	648	7	-	-
HCM Lane V/C Ratio	0.012	-	-	0.058	0.043	0.001	-	-
HCM Ctrl Dly (s/v)	9	0	-	10.7	10.8	8.4	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	50	22	136	267	6
Future Volume (vph)	6	50	22	136	267	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	20%	6%	10%	5%	4%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	0	180	310	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	50	22	136	267	6
Future Vol, veh/h	6	50	22	136	267	6
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, %	-1	-	-	4	3	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	20	6	10	5	4	0
Mvmt Flow	7	57	25	155	303	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	511	307	310	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	205	-	-	-	-	-
Critical Hdwy	6.4	6.16	4.4	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.2	3.2	3.1	-	-	-
Pot Cap-1 Maneuver	564	760	906	-	-	-
Stage 1	811	-	-	-	-	-
Stage 2	905	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	547	760	906	-	-	-
Mov Cap-2 Maneuver	547	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	905	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.4	1.27	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	251	-	730	-	-
HCM Lane V/C Ratio	0.028	-	0.087	-	-
HCM Ctrl Dly (s/v)	9.1	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-

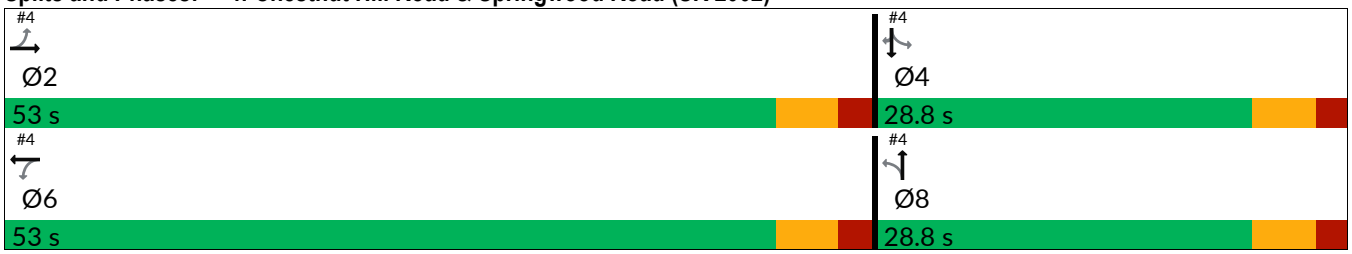


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	211	15	19	531	21	29	75	39	46	68	229
Future Volume (vph)	51	211	15	19	531	21	29	75	39	46	68	229
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	7%	4%	9%	0%	1%	0%	4%	5%	0%	0%	7%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	251	0	21	613	0	32	126	0	0	127	254
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	53.0	53.0		53.0	53.0		28.8	28.8		28.8	28.8	28.8
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	35.2%
Maximum Green (s)	47.0	47.0		47.0	47.0		23.0	23.0		23.0	23.0	23.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.22	0.29		0.04	0.69		0.11	0.26			0.38	0.45
Control Delay (s/veh)	8.5	7.0		5.8	12.8		16.8	14.0			20.0	5.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	8.5	7.0		5.8	12.8		16.8	14.0			20.0	5.9
Queue Length 50th (ft)	7	30		2	96		6	19			27	0
Queue Length 95th (ft)	29	78		11	232		29	68			87	48
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	479	1565		932	1630		657	1070			764	958
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.12	0.16		0.02	0.38		0.05	0.12			0.17	0.27

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 44.9	
Natural Cycle: 45	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	51	211	15	19	531	21	29	75	39	46	68	229
Future Volume (veh/h)	51	211	15	19	531	21	29	75	39	46	68	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1775	1818	1747	1711	1697	1711	1855	1914	1988	1599	1501	1599
Adj Flow Rate, veh/h	57	234	17	21	590	23	32	83	29	51	76	178
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	7	4	9	0	1	0	4	5	0	0	7	0
Cap, veh/h	444	1030	75	714	998	39	280	274	96	168	194	274
Arrive On Green	0.62	0.62	0.60	0.62	0.62	0.60	0.20	0.20	0.18	0.18	0.20	0.20
Sat Flow, veh/h	768	1674	122	1032	1622	63	1116	1355	474	364	959	1355
Grp Volume(v), veh/h	57	0	251	21	0	613	32	0	112	127	0	178
Grp Sat Flow(s),veh/h/ln	768	0	1796	1032	0	1685	1116	0	1829	1323	0	1355
Q Serve(g_s), s	2.6	0.0	3.4	0.5	0.0	11.8	1.4	0.0	2.8	1.6	0.0	6.5
Cycle Q Clear(g_c), s	13.9	0.0	3.4	3.4	0.0	11.8	5.2	0.0	2.8	4.4	0.0	6.5
Prop In Lane	1.00		0.07	1.00		0.04	1.00		0.26	0.40		1.00
Lane Grp Cap(c), veh/h	444	0	1105	714	0	1037	280	0	370	337	0	274
V/C Ratio(X)	0.13	0.00	0.23	0.03	0.00	0.59	0.11	0.00	0.30	0.38	0.00	0.65
Avail Cap(c_a), veh/h	657	0	1603	1001	0	1505	552	0	817	646	0	605
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	4.6	5.3	0.0	6.3	20.9	0.0	18.3	18.9	0.0	19.7
Incr Delay (d2), s/veh	0.5	0.0	0.4	0.1	0.0	2.0	0.2	0.0	0.5	0.7	0.0	2.6
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(50%),veh/ln	0.4	0.0	0.9	0.1	0.0	3.1	0.3	0.0	1.1	1.3	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	10.8	0.0	5.0	5.3	0.0	8.2	21.1	0.0	18.8	19.6	0.0	22.3
LnGrp LOS	B		A	A		A	C		B	B		C
Approach Vol, veh/h		308			634			144			305	
Approach Delay, s/veh		6.1			8.1			19.3			21.2	
Approach LOS		A			A			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		38.1		15.7		38.1		15.7				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		47.0		23.0		47.0		23.0				
Max Q Clear Time (g_c+I1), s		16.4		9.0		13.8		7.7				
Green Ext Time (p_c), s		7.3		0.9		18.2		0.4				

Intersection Summary												
HCM 7th Control Delay, s/veh			11.7									
HCM 7th LOS			B									



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	64	74	92	350	194	51
Future Volume (vph)	64	74	92	350	194	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	3%	1%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	175	0	116	443	246	65
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	12.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	74	92	350	194	51
Future Vol, veh/h	64	74	92	350	194	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	2	0	3	1	0	0
Mvmt Flow	81	94	116	443	246	65

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	175	0	804	128
Stage 1	-	-	-	-	128	-
Stage 2	-	-	-	-	676	-
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	-	-	1047	-	361	977
Stage 1	-	-	-	-	1030	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1047	-	321	977
Mov Cap-2 Maneuver	-	-	-	-	321	-
Stage 1	-	-	-	-	915	-
Stage 2	-	-	-	-	528	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.85	37.56
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	321	977	-	-	1047	-
HCM Lane V/C Ratio	0.766	0.066	-	-	0.111	-
HCM Ctrl Dly (s/v)	45.1	8.9	-	-	8.9	-
HCM Lane LOS	E	A	-	-	A	-
HCM 95th %tile Q(veh)	6	0.2	-	-	0.4	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	47	2	1	177	154	12
Future Volume (vph)	47	2	1	177	154	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	100%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	0	191	179	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	47	2	1	177	154	12
Future Vol, veh/h	47	2	1	177	154	12
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, %	2	-	-	-2	2	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	100	2	1	0
Mvmt Flow	51	2	1	190	166	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	365	172	178	0	-	0
Stage 1	172	-	-	-	-	-
Stage 2	192	-	-	-	-	-
Critical Hdwy	6.8	6.4	5.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3.9	-	-	-
Pot Cap-1 Maneuver	699	920	781	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	698	920	781	-	-	-
Mov Cap-2 Maneuver	698	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	10.52	0.05	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	10	-	705	-	-
HCM Lane V/C Ratio	0.001	-	0.075	-	-
HCM Ctrl Dly (s/v)	9.6	0	10.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	20	85	27	8	13	6
Future Volume (vph)	20	85	27	8	13	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16
Grade (%)	0%			3%	-1%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			25	25	
Link Distance (ft)	467			241	335	
Travel Time (s)	12.7			6.6	9.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	14%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	116	0	0	39	21	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	CBD
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	20	85	27	8	13	6
Future Vol, veh/h	20	85	27	8	13	6
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	-	-	3	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	14	0	2
Mvmt Flow	22	94	30	9	14	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	87	18	21	0	-	0
Stage 1	18	-	-	-	-	-
Stage 2	69	-	-	-	-	-
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	1066	1135	1180	-	-	-
Stage 1	1177	-	-	-	-	-
Stage 2	1113	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	1039	1135	1180	-	-	-
Mov Cap-2 Maneuver	1039	-	-	-	-	-
Stage 1	1147	-	-	-	-	-
Stage 2	1113	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.61	6.27	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1175	-	1115	-	-
HCM Lane V/C Ratio	0.025	-	0.105	-	-
HCM Ctrl Dly (s/v)	8.1	0	8.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	29	43	62	200	369	42
Future Volume (vph)	29	43	62	200	369	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	11	11	11
Grade (%)	-1%			2%	5%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	241			365	879	
Travel Time (s)	6.6			8.3	20.0	
Confl. Peds. (#/hr)			5			5
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	77	0	0	279	438	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	CBD
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	29	43	62	200	369	42
Future Vol, veh/h	29	43	62	200	369	42
Conflicting Peds, #/hr	0	0	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	2	5	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	1	0
Mvmt Flow	31	46	66	213	393	45

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	765	420	442	0	-	0
Stage 1	420	-	-	-	-	-
Stage 2	345	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	435	679	846	-	-	-
Stage 1	775	-	-	-	-	-
Stage 2	839	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	394	675	841	-	-	-
Mov Cap-2 Maneuver	394	-	-	-	-	-
Stage 1	702	-	-	-	-	-
Stage 2	839	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	13.04	2.28	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	426	-	524	-	-
HCM Lane V/C Ratio	0.078	-	0.146	-	-
HCM Ctrl Dly (s/v)	9.6	0	13	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	4	15	27	0	1	23	241	24	5	383	30
Future Volume (vph)	22	4	15	27	0	1	23	241	24	5	383	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16	11	11	11	11	11	11
Grade (%)		2%			-1%			0%			-1%	
Storage Length (ft)	0		0	0		0	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		387			1405			1007			365	
Travel Time (s)		10.6			38.3			22.9			8.3	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	11%	0%	0%	0%	0%	0%	14%	0%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	31	0	0	316	0	0	459	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	22	4	15	27	0	1	23	241	24	5	383	30
Future Vol, veh/h	22	4	15	27	0	1	23	241	24	5	383	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	2	-	-	-1	-	-	0	-	-	-1	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	11	0	0	0	0	0	14	0	0	0	1	0
Mvmt Flow	24	4	16	30	0	1	25	265	26	5	421	33

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	764	790	437	763	793	278	454	0	0	291	0	0
Stage 1	448	448	-	329	329	-	-	-	-	-	-	-
Stage 2	315	342	-	434	465	-	-	-	-	-	-	-
Critical Hdwy	7.6	6.9	6.4	6.9	6.3	6.1	4.4	-	-	4.3	-	-
Critical Hdwy Stg 1	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.61	5.9	-	5.9	5.3	-	-	-	-	-	-	-
Follow-up Hdwy	3.1	4	3.1	3	4	3.1	3.1	-	-	3	-	-
Pot Cap-1 Maneuver	316	297	640	376	338	815	806	-	-	954	-	-
Stage 1	615	548	-	801	662	-	-	-	-	-	-	-
Stage 2	743	618	-	702	581	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	301	284	640	345	323	815	806	-	-	954	-	-
Mov Cap-2 Maneuver	301	284	-	345	323	-	-	-	-	-	-	-
Stage 1	610	544	-	771	637	-	-	-	-	-	-	-
Stage 2	714	595	-	673	577	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	16.04	16.21	0.77	0.11
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	141	-	-	371	352	21	-	-
HCM Lane V/C Ratio	0.031	-	-	0.121	0.087	0.006	-	-
HCM Ctrl Dly (s/v)	9.6	0	-	16	16.2	8.8	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.3	0	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	56	68	274	371	35
Future Volume (vph)	15	56	68	274	371	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	11	11	11	11
Grade (%)	-1%			4%	3%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	428			2285	1007	
Travel Time (s)	11.7			51.9	22.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	76	0	0	368	437	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	56	68	274	371	35
Future Vol, veh/h	15	56	68	274	371	35
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, %	-1	-	-	4	3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	16	60	73	295	399	38

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	859	418	437	0	-	0
Stage 1	418	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Critical Hdwy	6.2	6.1	4.3	-	-	-
Critical Hdwy Stg 1	5.2	-	-	-	-	-
Critical Hdwy Stg 2	5.2	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	383	681	850	-	-	-
Stage 1	777	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	344	681	850	-	-	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	697	-	-	-	-	-
Stage 2	759	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	12.38	1.92	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	358	-	564	-	-
HCM Lane V/C Ratio	0.086	-	0.135	-	-
HCM Ctrl Dly (s/v)	9.6	0	12.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.3	-	0.5	-	-

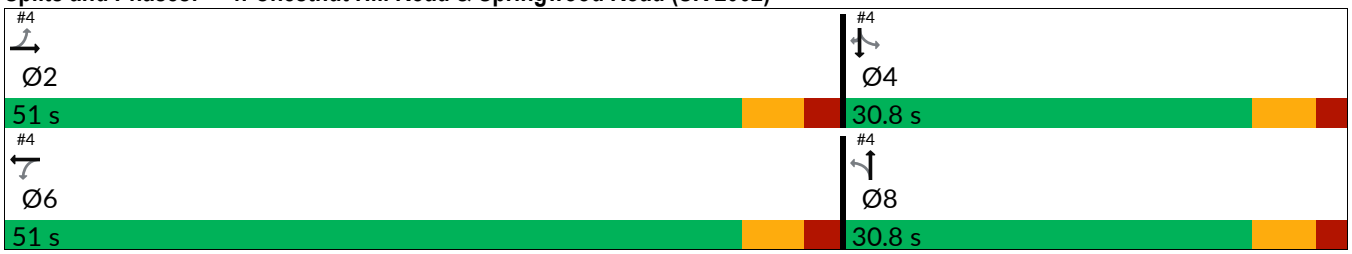


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	176	455	21	58	371	61	29	127	100	71	183	168
Future Volume (vph)	176	455	21	58	371	61	29	127	100	71	183	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	11	11	10	12	12	11	15	15	11	11	12
Grade (%)		-2%			4%			-3%			6%	
Storage Length (ft)	150		0	80		0	100		0	0		100
Storage Lanes	1		0	1		0	1		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		858			628			358			2285	
Travel Time (s)		16.7			12.2			7.0			44.5	
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
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
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	180	485	0	59	441	0	30	232	0	0	259	171
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	2	2		6	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		3.0	3.0		3.0	3.0	3.0
Minimum Split (s)	16.0	16.0		16.0	16.0		8.8	8.8		8.8	8.8	8.8
Total Split (s)	51.0	51.0		51.0	51.0		30.8	30.8		30.8	30.8	30.8
Total Split (%)	62.3%	62.3%		62.3%	62.3%		37.7%	37.7%		37.7%	37.7%	37.7%
Maximum Green (s)	45.0	45.0		45.0	45.0		25.0	25.0		25.0	25.0	25.0
Yellow Time (s)	3.8	3.8		3.8	3.8		3.8	3.8		3.8	3.8	3.8
All-Red Time (s)	2.2	2.2		2.2	2.2		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
Total Lost Time (s)	5.0	5.0		5.0	5.0		4.8	4.8			4.8	4.8
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	6.0	6.0		6.0	6.0		3.0	3.0		3.0	3.0	3.0
Minimum Gap (s)	4.0	4.0		4.0	4.0		3.0	3.0		3.0	3.0	3.0
Time Before Reduce (s)	25.0	25.0		25.0	25.0		0.0	0.0		0.0	0.0	0.0
Time To Reduce (s)	13.0	13.0		13.0	13.0		0.0	0.0		0.0	0.0	0.0
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Walk Time (s)												
Flash Don't Walk (s)												
Pedestrian Calls (#/hr)												
v/c Ratio	0.55	0.62		0.21	0.57		0.09	0.36			0.55	0.28
Control Delay (s/veh)	18.2	14.4		11.0	13.2		14.1	12.4			19.8	4.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay (s/veh)	18.2	14.4		11.0	13.2		14.1	12.4			19.8	4.4
Queue Length 50th (ft)	31	86		8	74		5	35			55	0
Queue Length 95th (ft)	108	223		35	196		25	103			150	35
Internal Link Dist (ft)		778			548			278			2205	
Turn Bay Length (ft)	150			80			100					100
Base Capacity (vph)	651	1562		568	1532		606	1128			841	945
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.28	0.31		0.10	0.29		0.05	0.21			0.31	0.18

Intersection Summary	
Area Type:	Other
Cycle Length: 81.8	
Actuated Cycle Length: 48.1	
Natural Cycle: 40	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 4: Chestnut Hill Road & Springwood Road (SR 2002)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	176	455	21	58	371	61	29	127	100	71	183	168
Future Volume (veh/h)	176	455	21	58	371	61	29	127	100	71	183	168
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.04	1.04	1.00	1.00	1.00
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	1875	1875	1875	1711	1697	1711	1912	1988	1988	1599	1599	1599
Adj Flow Rate, veh/h	180	464	19	59	379	61	30	130	72	72	187	116
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
Percent Heavy Veh, %	0	0	0	0	1	0	0	0	0	0	0	0
Cap, veh/h	512	1011	41	468	806	130	216	331	184	144	284	374
Arrive On Green	0.57	0.57	0.55	0.57	0.57	0.55	0.28	0.28	0.26	0.26	0.28	0.28
Sat Flow, veh/h	951	1788	73	834	1426	229	1100	1202	666	252	1029	1355
Grp Volume(v), veh/h	180	0	483	59	0	440	30	0	202	259	0	116
Grp Sat Flow(s),veh/h/ln	951	0	1861	834	0	1655	1100	0	1868	1281	0	1355
Q Serve(g_s), s	8.4	0.0	9.4	2.7	0.0	9.7	1.6	0.0	5.4	6.5	0.0	4.2
Cycle Q Clear(g_c), s	17.7	0.0	9.4	11.6	0.0	9.7	13.0	0.0	5.4	11.9	0.0	4.2
Prop In Lane	1.00		0.04	1.00		0.14	1.00		0.36	0.28		1.00
Lane Grp Cap(c), veh/h	512	0	1053	468	0	936	216	0	515	407	0	374
V/C Ratio(X)	0.35	0.00	0.46	0.13	0.00	0.47	0.14	0.00	0.39	0.64	0.00	0.31
Avail Cap(c_a), veh/h	683	0	1387	618	0	1234	376	0	787	607	0	571
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	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.0	0.0	7.9	11.1	0.0	8.0	26.2	0.0	18.3	20.6	0.0	17.7
Incr Delay (d2), s/veh	1.5	0.0	1.1	0.4	0.0	1.3	0.3	0.0	0.5	1.7	0.0	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	3.2	0.5	0.0	3.0	0.4	0.0	2.2	3.4	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	14.5	0.0	9.0	11.6	0.0	9.3	26.5	0.0	18.8	22.3	0.0	18.2
LnGrp LOS	B		A	B		A	C		B	C		B
Approach Vol, veh/h		663			499			232			375	
Approach Delay, s/veh		10.5			9.6			19.8			21.0	
Approach LOS		B			A			B			C	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		39.9		21.8		39.9		21.8				
Change Period (Y+Rc), s		6.0		5.8		6.0		5.8				
Max Green Setting (Gmax), s		45.0		25.0		45.0		25.0				
Max Q Clear Time (g_c+I1), s		20.2		13.9		14.1		15.5				
Green Ext Time (p_c), s		13.8		1.0		12.9		0.5				

Intersection Summary												
HCM 7th Control Delay, s/veh			13.7									
HCM 7th LOS			B									

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	254	296	214	226	197	75
Future Volume (vph)	254	296	214	226	197	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	567	0	221	233	203	77
Sign Control	Free			Free	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	33.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	254	296	214	226	197	75
Future Vol, veh/h	254	296	214	226	197	75
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	175	-	45	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	-1	-	-	0	2	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	0	0	1	1	2
Mvmt Flow	262	305	221	233	203	77

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	567	0	1089	414
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	674	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	-	-	-	-	5.81	-
Critical Hdwy Stg 2	-	-	-	-	5.81	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuver	-	-	765	-	234	661
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	528	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	765	-	~ 166	661
Mov Cap-2 Maneuver	-	-	-	-	~ 166	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	528	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	5.64	145.56
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	166	661	-	-	765	-
HCM Lane V/C Ratio	1.222	0.117	-	-	0.288	-
HCM Ctrl Dly (s/v)	196.7	11.2	-	-	11.6	-
HCM Lane LOS	F	B	-	-	B	-
HCM 95th %tile Q(veh)	11.3	0.4	-	-	1.2	-

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



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	40	1	2	220	411	65
Future Volume (vph)	40	1	2	220	411	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	10	10	10	10
Grade (%)	2%			-2%	2%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			30	30	
Link Distance (ft)	312			705	877	
Travel Time (s)	8.5			16.0	19.9	
Confl. Peds. (#/hr)			1			1
Confl. Bikes (#/hr)						
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	0	0	236	506	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	1	2	220	411	65
Future Vol, veh/h	40	1	2	220	411	65
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	2	-	-	-2	2	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	1	1	0
Mvmt Flow	43	1	2	234	437	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	711	473	507	0	-	0
Stage 1	473	-	-	-	-	-
Stage 2	238	-	-	-	-	-
Critical Hdwy	6.8	6.4	4.3	-	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuver	415	610	803	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	901	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	413	609	802	-	-	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	901	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	14.65	0.09	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	16	-	417	-	-
HCM Lane V/C Ratio	0.003	-	0.105	-	-
HCM Ctrl Dly (s/v)	9.5	0	14.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	12	54	84	21	19	19
Future Volume (vph)	12	54	84	21	19	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	16	16	16	16
Grade (%)	0%			3%	-1%	
Storage Length (ft)	0	0	0			0
Storage Lanes	1	0	0			0
Taper Length (ft)	25	25	25			25
Link Speed (mph)	25			25	25	
Link Distance (ft)	467			241	335	
Travel Time (s)	12.7			6.6	9.1	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	0%	0%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	73	0	0	116	42	0
Sign Control	Stop			Free	Free	

Intersection Summary	
Area Type:	CBD
Control Type: Unsignalized	

Intersection	
Int Delay, s/veh	6.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	12	54	84	21	19	19
Future Vol, veh/h	12	54	84	21	19	19
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	-	-	3	-1	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	0	0	2
Mvmt Flow	13	60	93	23	21	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	242	32	42	0	-	0
Stage 1	32	-	-	-	-	-
Stage 2	210	-	-	-	-	-
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	861	1115	1161	-	-	-
Stage 1	1159	-	-	-	-	-
Stage 2	953	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	791	1115	1161	-	-	-
Mov Cap-2 Maneuver	791	-	-	-	-	-
Stage 1	1065	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	EB	NB	SB
HCM Ctrl Dly, s/v	8.73	6.7	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1146	-	1037	-	-
HCM Lane V/C Ratio	0.08	-	0.071	-	-
HCM Ctrl Dly (s/v)	8.4	0	8.7	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0.3	-	0.2	-	-



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	64	74	92	350	194	51
Future Volume (vph)	64	74	92	350	194	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	0%	3%	1%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	175	0	116	443	246	65
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	64	74	92	350	194	51
Future Vol, veh/h	64	74	92	350	194	51
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	0	3	1	0	0
Mvmt Flow	81	94	116	443	246	65
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	11.2	19.6	14.5
HCM LOS	B	C	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	46%	0%	100%
Vol Right, %	0%	100%	54%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	194	51	138	92	350
LT Vol	194	0	0	92	0
Through Vol	0	0	64	0	350
RT Vol	0	51	74	0	0
Lane Flow Rate	246	65	175	116	443
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.475	0.103	0.283	0.206	0.716
Departure Headway (Hd)	6.966	5.75	5.834	6.355	5.815
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	518	622	615	565	620
Service Time	4.708	3.491	3.876	4.089	3.548
HCM Lane V/C Ratio	0.475	0.105	0.285	0.205	0.715
HCM Control Delay, s/veh	15.9	9.2	11.2	10.7	21.9
HCM Lane LOS	C	A	B	B	C
HCM 95th-tile Q	2.5	0.3	1.2	0.8	5.9



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	254	296	214	226	197	75
Future Volume (vph)	254	296	214	226	197	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	11	11
Grade (%)	-1%			0%	2%	
Storage Length (ft)		0	175		45	0
Storage Lanes		0	1		1	1
Taper Length (ft)		25	25		25	25
Link Speed (mph)	35			35	30	
Link Distance (ft)	545			818	877	
Travel Time (s)	10.6			15.9	19.9	
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Shared Lane Traffic (%)						
Lane Group Flow (vph)	567	0	221	233	203	77
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Intersection	
Intersection Delay, s/veh	23.9
Intersection LOS	C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	254	296	214	226	197	75
Future Vol, veh/h	254	296	214	226	197	75
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	0	0	0	1	1	2
Mvmt Flow	262	305	221	233	203	77
Number of Lanes	1	0	1	1	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	2	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	2	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	2	0	2
HCM Control Delay, s/veh	36.7	13.8	14.5
HCM LOS	E	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2
Vol Left, %	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	46%	0%	100%
Vol Right, %	0%	100%	54%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	197	75	550	214	226
LT Vol	197	0	0	214	0
Through Vol	0	0	254	0	226
RT Vol	0	75	296	0	0
Lane Flow Rate	203	77	567	221	233
Geometry Grp	5	5	3b	5	5
Degree of Util (X)	0.43	0.138	0.884	0.415	0.407
Departure Headway (Hd)	7.623	6.414	5.613	6.774	6.282
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	471	557	646	529	571
Service Time	5.387	4.177	3.665	4.538	4.046
HCM Lane V/C Ratio	0.431	0.138	0.878	0.418	0.408
HCM Control Delay, s/veh	16.1	10.2	36.7	14.3	13.3
HCM Lane LOS	C	B	E	B	B
HCM 95th-tile Q	2.1	0.5	10.6	2	2

APPENDIX G:

Auxiliary Turn Lane Warrant Analysis Worksheets

Chestnut Hill Road & Shawna Avenue

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Chestnut Hill Road & Shawna Avenue - Northbound Left

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	30	**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	14.0%	28
	Through	-	139	5.0%	150
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	179	5.0%	193
	Right	Yes	12	0.0%	12

Advancing Volume:	178
Opposing Volume:	205
Left Turn Volume:	28
% Left Turns in Advancing Volume:	15.73%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	179	5.0%	N/A
	Right	-	12	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:	28
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

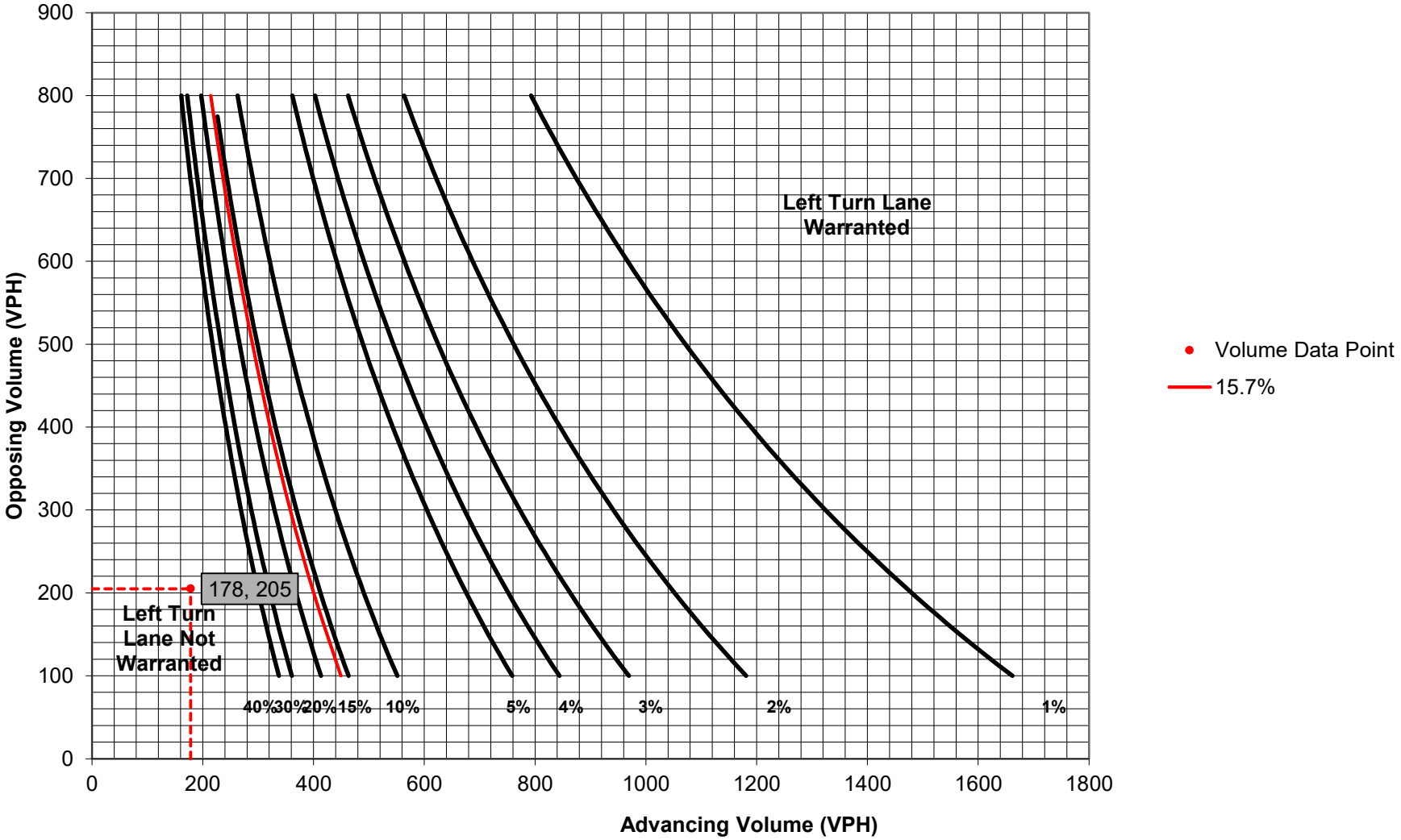
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Chestnut Hill Road & Shawna Avenue - Southbound Right

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	30		**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	23	14.0%	N/A
	Through	-	139	5.0%	N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	179	5.0%	N/A
	Right	Yes	12	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	0	0.0%	N/A
	Through	-	179	5.0%	193
	Right	-	12	0.0%	12

Advancing Volume:	205
Right Turn Volume:	12

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:	12
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

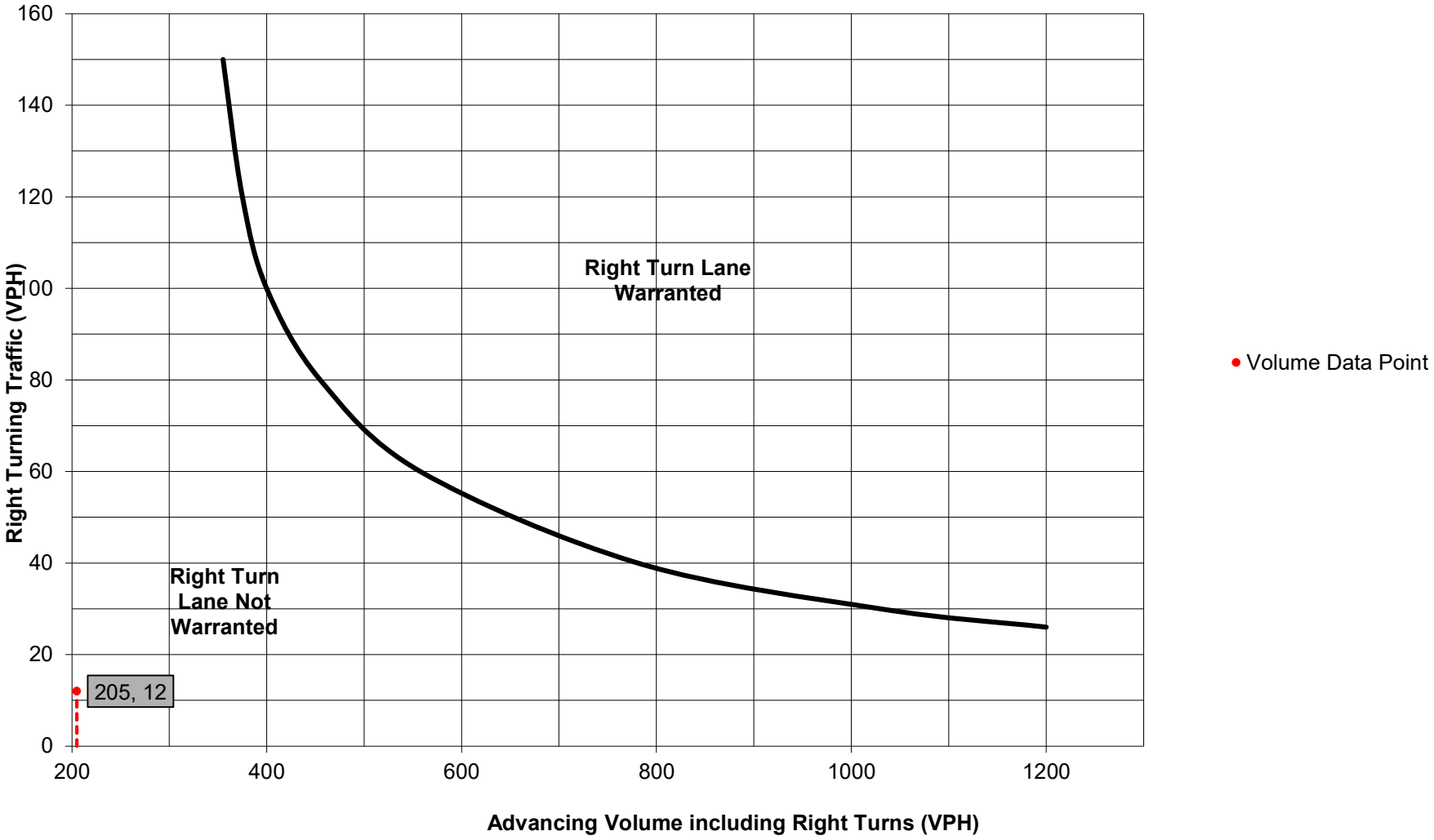
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Chestnut Hill Road & Shawna Avenue - Northbound Left

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	30	**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	62	0.0%	62
	Through	-	200	2.0%	206
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	369	1.0%	375
	Right	Yes	42	0.0%	42

Advancing Volume:	268
Opposing Volume:	417
Left Turn Volume:	62
% Left Turns in Advancing Volume:	23.13%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	369	1.0%	N/A
	Right	-	42	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:	62
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

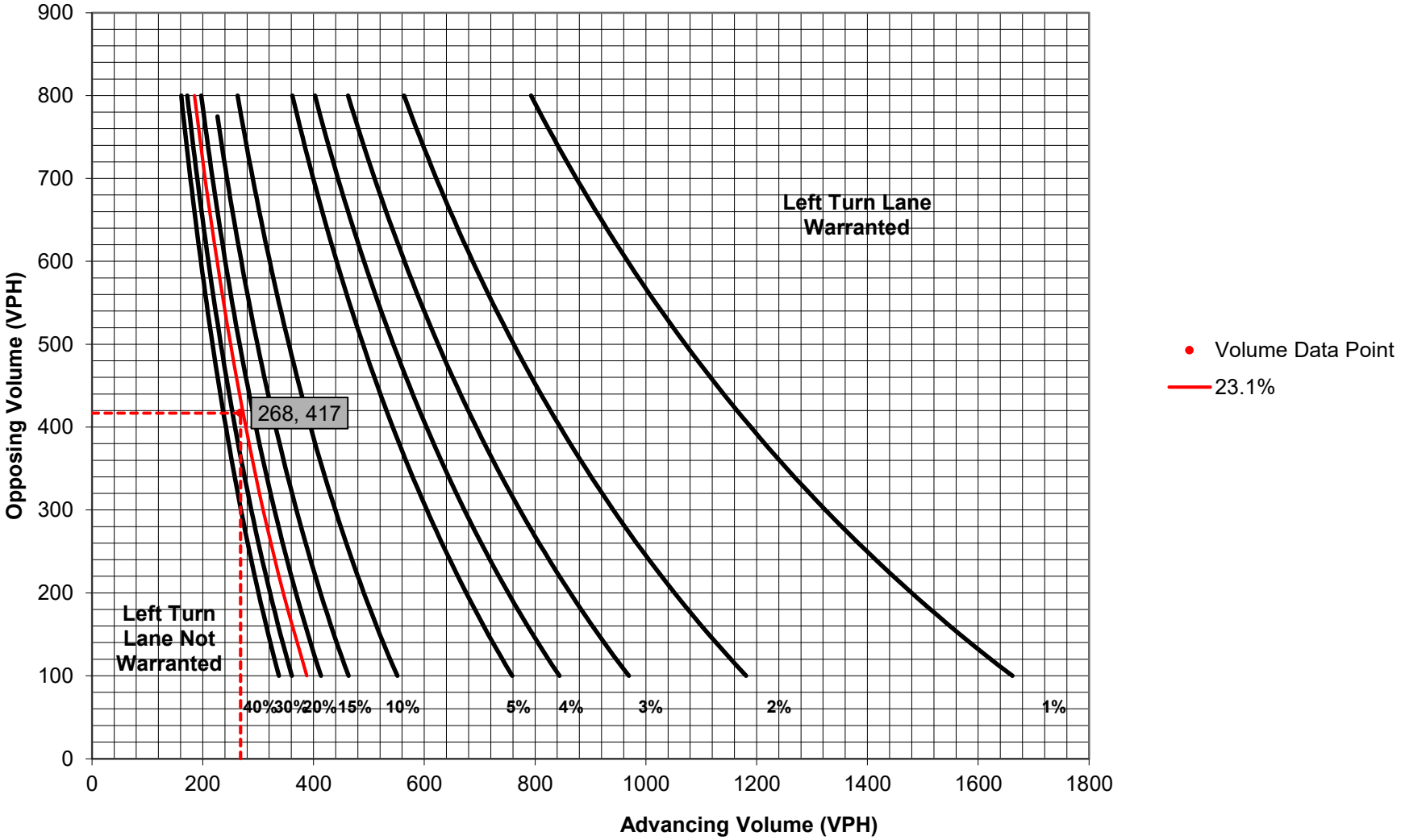
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Chestnut Hill Road & Shawna Avenue - Southbound Right

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	30	**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	62	0.0%	N/A
	Through	-	200	2.0%	N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	369	1.0%	N/A
	Right	Yes	42	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	0	0.0%	N/A
	Through	-	369	1.0%	375
	Right	-	42	0.0%	42

Advancing Volume:	417
Right Turn Volume:	42

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:	42
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

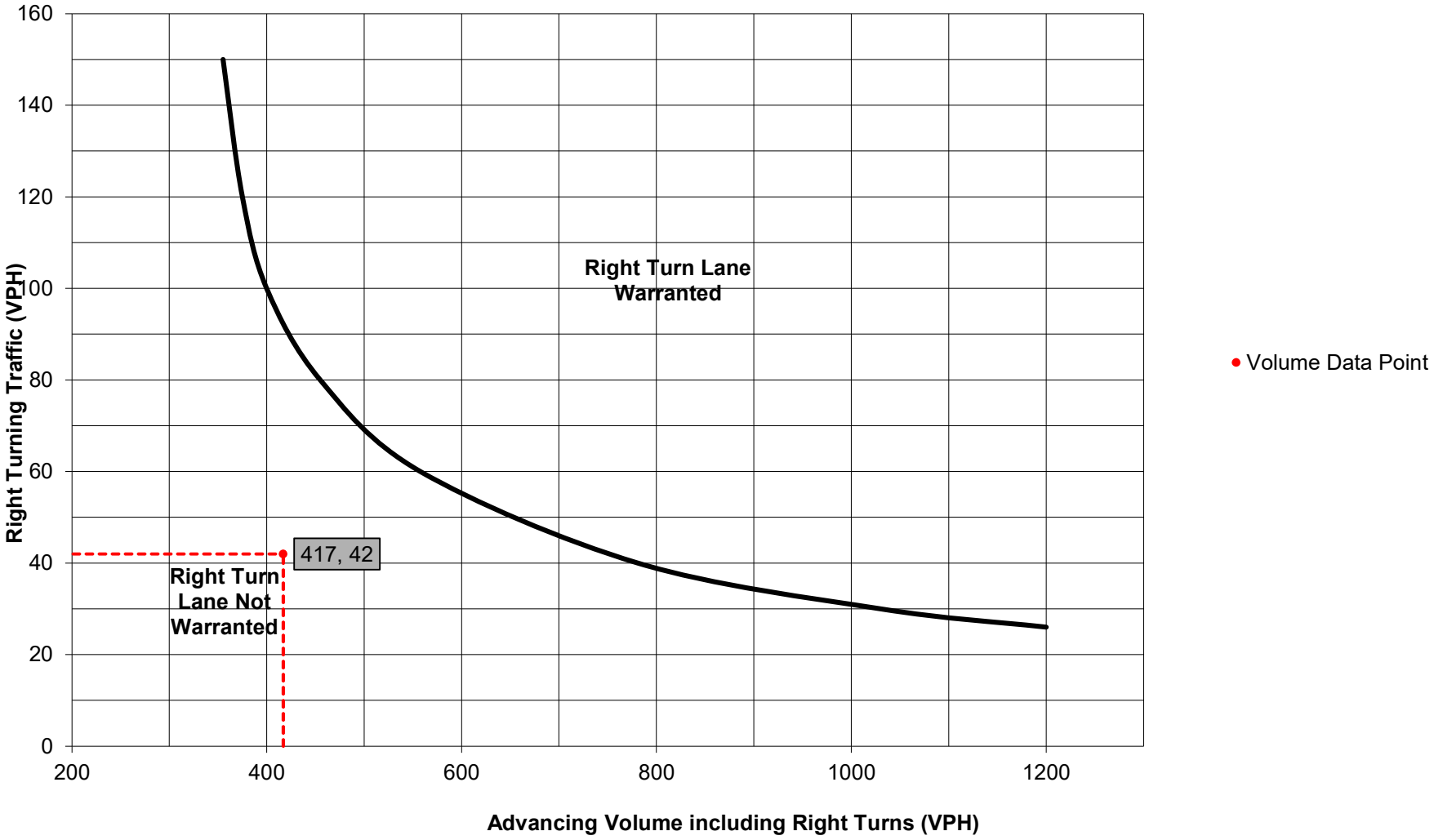
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



Shawna Avenue & Proposed Site Access

Turn Lane Warrant and Length Analysis Workbook

STUDY LOCATION AND ANALYSIS INFORMATION

Municipality:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Shawna Avenue & Proposed Site Access - Northbound Left

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**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	27	2.0%	28
	Through	-	8	14.0%	9
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	13	0.0%	13
	Right	Yes	6	2.0%	7

Advancing Volume:	37
Opposing Volume:	20
Left Turn Volume:	28
% Left Turns in Advancing Volume:	75.68%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	13	0.0%	N/A
	Right	-	6	2.0%	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:	28
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

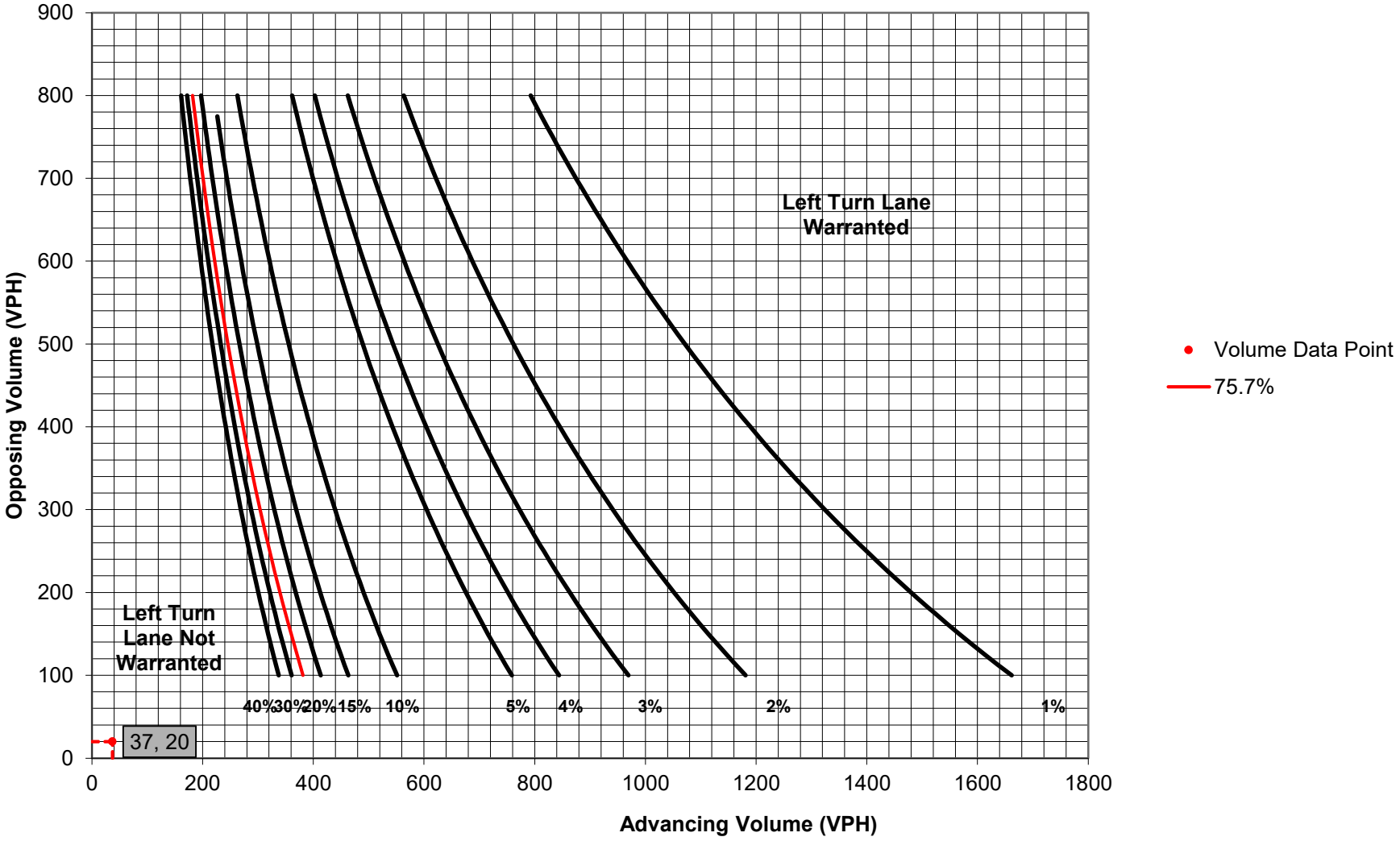
Left Turn Lane Storage Length, Condition A:	N/A	Feet
Condition B:	N/A	Feet
Condition C:	N/A	Feet
Required Left Turn Lane Storage Length:	N/A	Feet

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Shawna Avenue & Proposed Site Access - Southbound Right

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	AM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	27	2.0%	N/A
	Through	-	8	14.0%	N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	13	0.0%	N/A
	Right	Yes	6	2.0%	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	0	0.0%	N/A
	Through	-	13	0.0%	13
	Right	-	6	2.0%	7

Advancing Volume:	20
Right Turn Volume:	7

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:	7
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

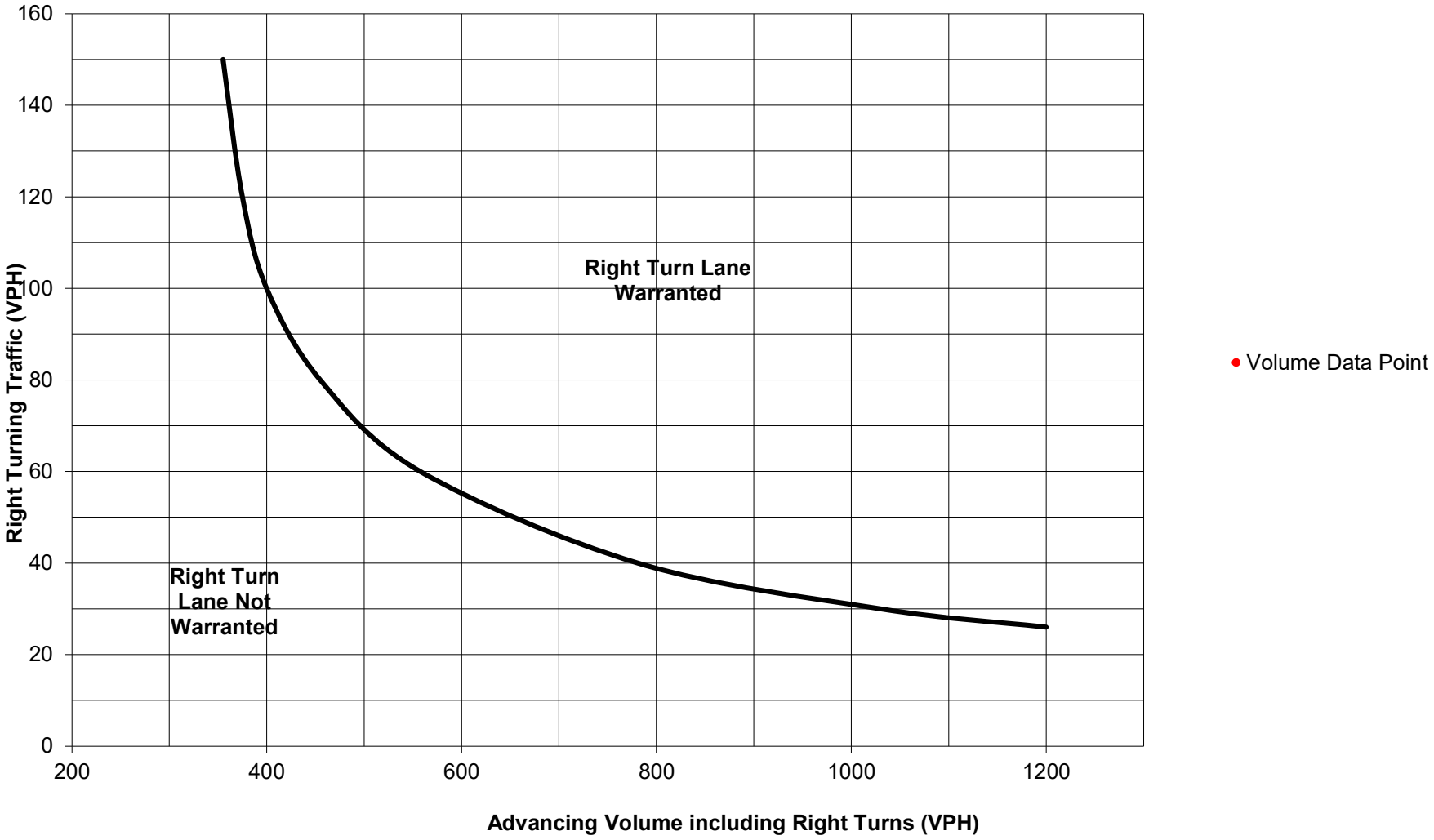
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Shawna Avenue & Proposed Site Access - Northbound Left

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**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	84	2.0%	85
	Through	-	21	0.0%	21
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	19	0.0%	19
	Right	Yes	19	2.0%	20

Advancing Volume:	106
Opposing Volume:	39
Left Turn Volume:	85
% Left Turns in Advancing Volume:	80.19%

Right Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	No	0	0.0%	N/A
	Through	-	19	0.0%	N/A
	Right	-	19	2.0%	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:	85
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**

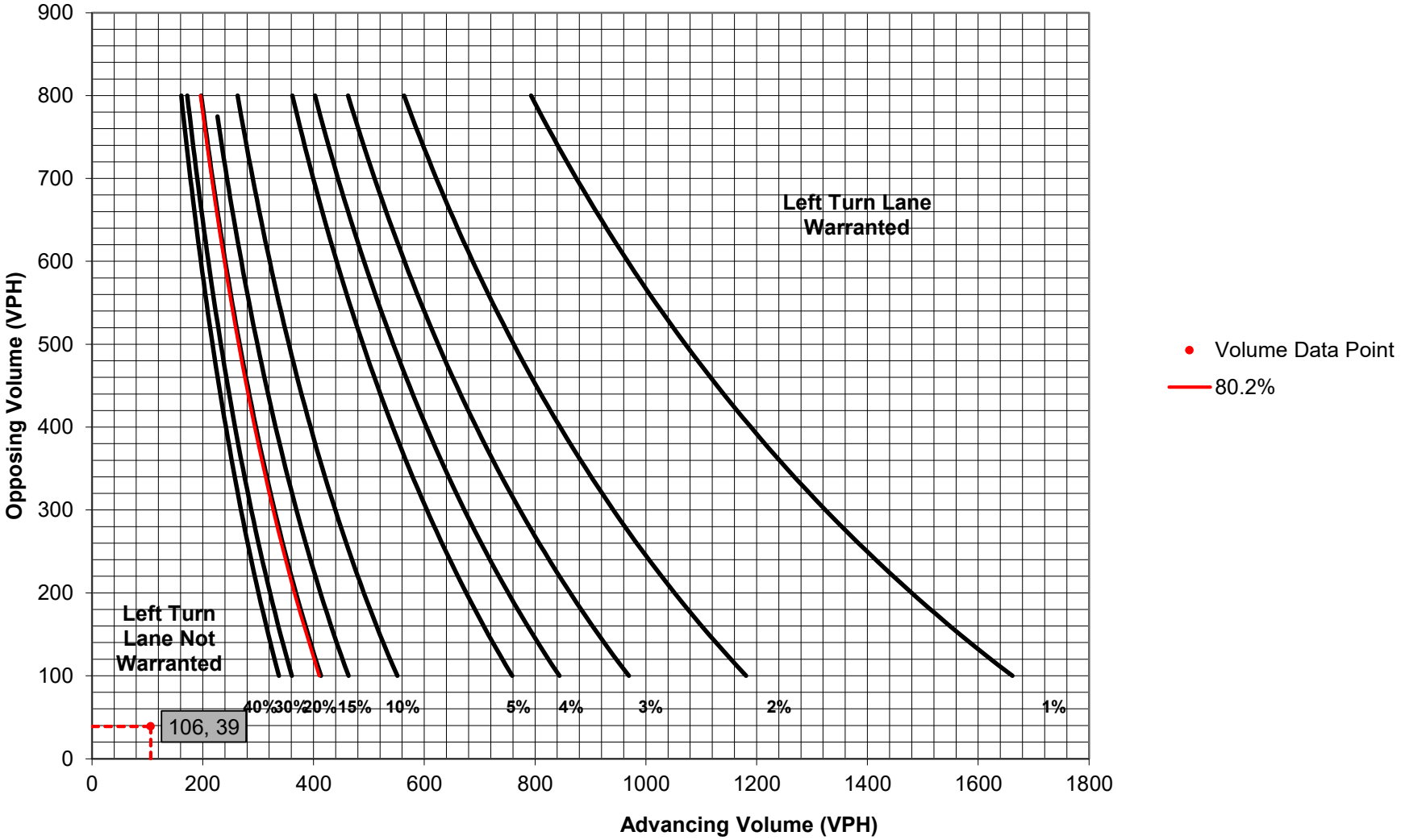
Additional Findings:

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:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DL
PennDOT Engineering District:	8	**Checked By:**	JW
		Agency/Company Name:	TPD, Inc.

Intersection & Approach Description: Shawna Avenue & Proposed Site Access - Southbound Right

Analysis Period:	2035 Projected (Build)	**Number of Approach Lanes:**	1
Design Hour:	PM Peak Hour	**Undivided or Divided Highway:**	Undivided
Intersection Control:	Unsignalized		
Posted Speed Limit (MPH):	25	**Type of Analysis**	
Type of Terrain:	Level	**Left or Right-Turn Lane Analysis?:**	Right Turn Lane

VOLUME CALCULATIONS

Left Turn Lane Volume Calculations

Movement		Include?	Volume	% Trucks	PCEV
Advancing	Left	Yes	84	2.0%	N/A
	Through	-	21	0.0%	N/A
	Right	No			N/A
Opposing	Left	No			N/A
	Through	-	19	0.0%	N/A
	Right	Yes	19	2.0%	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	0	0.0%	N/A
	Through	-	19	0.0%	19
	Right	-	19	2.0%	20

Advancing Volume:	39
Right Turn Volume:	20

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:	20
Cycles Per Hour (Assumed):	60
Cycles Per Hour (If Known):	

Average # of Vehicles/Cycle: N/A

PennDOT Publication 46, Exhibit 11-6

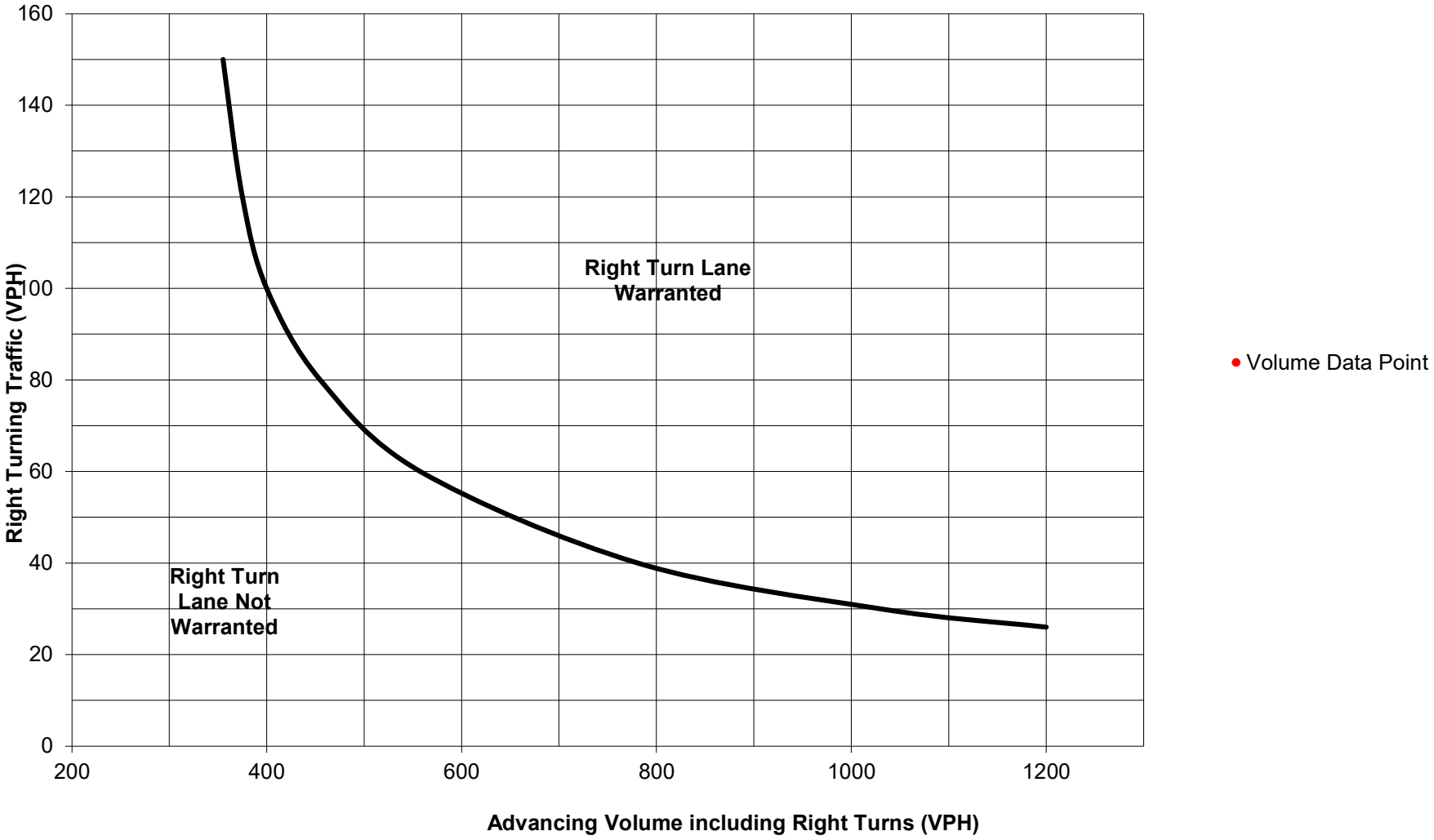
Type of Traffic Control	Speed (MPH)					
	25-35		40-45		50-60	
	Turn Demand Volume					
	High	Low	High	Low	High	Low
Signalized	A	A	B or C	B or C	B or C	B or C
Unsignalized	A	A	C	B	B or C	B

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)



APPENDIX H:
Traffic Signal Permit Plans

DISTRICT	COUNTY	ROUTE	SE
8-0	YORK	CHR	
	YORK TWP		
NO.	REVISIONS		

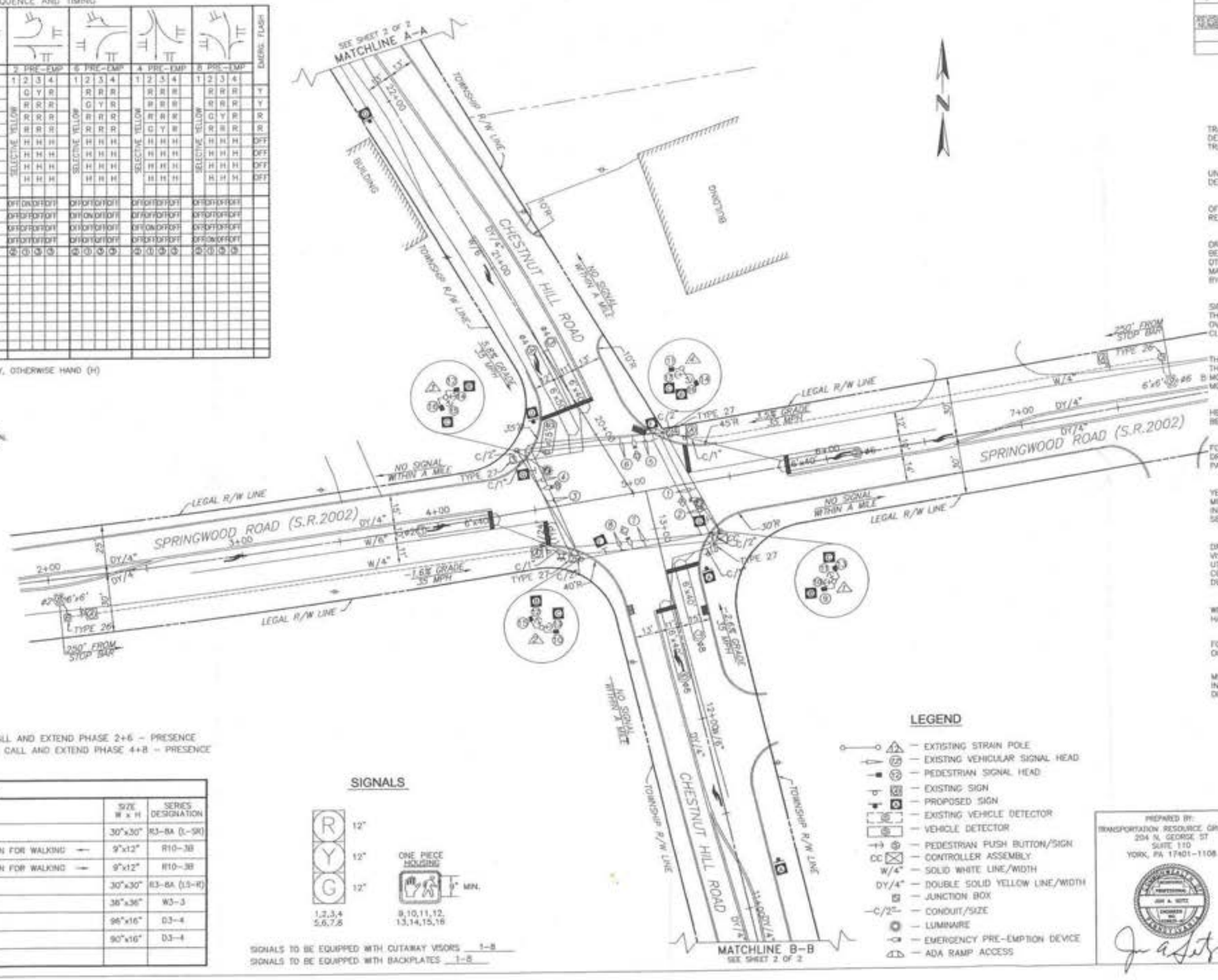
MOVEMENT, SEQUENCE AND TIMING

PHASE	2 + 6				4 + 8				2 PRE-EMP				6 PRE-EMP				4 PRE-EMP				8 PRE-EMP				EMERG. FLASH
MOVEMENT	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1,2	G	G	Y	R	R	R	R	R		G	Y	R		R	R	R		R	R	R		R	R	R	Y
3,4	G	G	Y	R	R	R	R	R		R	R	R		G	Y	R		R	R	R		R	R	R	Y
5,6	R	R	R	R	G	G	Y	R	SELECTIVE YELLOW	R	R	R	SELECTIVE YELLOW	R	R	R	SELECTIVE YELLOW	R	R	R	SELECTIVE YELLOW	G	Y	R	R
7,8	R	R	R	R	G	G	Y	R		R	R	R		R	R	R		G	Y	R		R	R	R	R
9,10	M	FH	H	H	H	H	H	H		H	H	H		H	H	H		H	H	H		H	H	H	OFF
11,12	M	FH	H	H	H	H	H	H		H	H	H		H	H	H		H	H	H		H	H	H	OFF
13,14	H	H	H	H	M	FH	H	H		H	H	H		H	H	H		H	H	H		H	H	H	OFF
15,16	H	H	H	H	M	FH	H	H		H	H	H		H	H	H		H	H	H		H	H	H	OFF
FAIL-SAFE LAMP A	OFF	OFF	OFF		OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
FAIL-SAFE LAMP B	OFF	OFF	OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
FAIL-SAFE LAMP C	OFF	OFF	OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	
FAIL-SAFE LAMP D	OFF	OFF	OFF		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	
FIXED			3.0	2.2			5.0	3.0	②	①	③	⑤	②	①	④	⑤	④	①	③	⑤	④	①	④	⑤	
MINIMUM	10				3																				
SEC/ACT	7.5																								
MAX INT	25																								
PASSAGE	5				3																				
TBR	25																								
TIW	13																								
MIN GAP	4																								
MAX I	50				20																				
PED **	10	11			7	9	13																		
MEMORY	MIN-RECALL				NON-LOCK																				

** UPON PEDESTRIAN ACTUATION ONLY, OTHERWISE HAND (H)

SIGNALIZATION NOTES

1. FOR DURATION OF PRE-EMPTION
2. SELECTIVE YELLOW INTERVAL INCLUDES THE NORMAL ALL-RED PHASE INTERVAL
3. NORMAL YELLOW AND ALL-RED PHASE TIMINGS SHALL BE UTILIZED



DETECTOR NOTES

- DETECTORS 1, 2, 8 AND 9 CALL AND EXTEND PHASE 2+6 – PRESENCE
- DETECTORS 3, 4, 5, 6 AND 7 CALL AND EXTEND PHASE 4+8 – PRESENCE

SIGNS

PLAN SYMBOL	DESCRIPTION	SIZE W x H	SERIES DESIGNATION
A	LANE USE CONTROL SIGN	30"x30"	R3-8A (L-SK)
B	EDUCATIONAL PUSH BUTTON FOR WALKING ←	9"x12"	R10-3B
C	EDUCATIONAL PUSH BUTTON FOR WALKING →	9"x12"	R10-3B
D	LANE USE CONTROL SIGN	30"x30"	R3-8A (LS-R)
E	SIGNAL AHEAD	36"x36"	W3-3
F	Springwood Rd	96"x16"	D3-4
G	Chestnut Hill	90"x16"	D3-4

SIGNALS

SIGNALS TO BE EQUIPPED WITH CUTAWAY VISORS 1-8
SIGNALS TO BE EQUIPPED WITH BACKPLATES 1-8

LEGEND

- EXTISTING STRAIN POLE
- EXISTING VEHICULAR SIGNAL HEAD
- PEDESTRIAN SIGNAL HEAD
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING VEHICLE DETECTOR
- VEHICLE DETECTOR
- PEDESTRIAN PUSH BUTTON/SIGN
- CONTROLLER ASSEMBLY
- W/4" — SOLID WHITE LINE/WIDTH
- DY/4" — DOUBLE SOLID YELLOW LINE/WIDTH
- JUNCTION BOX
- C/2" — CONDUIT/SIZE
- LUMINAIRE
- EMERGENCY PRE-EMPTION DEVICE
- ADA RAMP ACCESS

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTEN TRAFFIC SIGNAL SHALL BE IN ACCORDANCE W DEPARTMENT OF TRANSPORTATION REGULATION TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION UNLESS PRIOR APPROVAL IS GRANTED, IN WR DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PRC OF THE SIGNALS, INCLUDING TRIMMING TREES, RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS R DRAWING ARE CONSIDERED PART OF THE PER BE INSTALLED AND MAINTAINED BY THE PERM OTHERWISE INDICATED. EXCEPT THE LONGITUD MARKINGS ON STATE HIGHWAYS, WHICH WILL BY THE DEPARTMENT.

POST MOUNTED SIGNALS SHALL BE INS SIGNAL HEADS A MINIMUM OF 2 FEET BEHINC THE CURB OR EDGE OF THE SHOULDER. SUP OVERHEAD SIGNALS SHALL ALSO HAVE A MINI CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SI THE ROADWAY SHALL NOT BE LESS THAN 15 THAN 19 FEET ABOVE THE ROADWAY. THE BO MOUNTED SIGNAL HEADS SHALL NOT BE LESS MORE THAN 15 FEET ABOVE THE SIDEWALK (

THE MINIMUM HORIZONTAL DISTANCE BE HEADS, MEASURED AT RIGHT ANGLES TO THE BE 8 FEET.

PERMITTEE SHALL OBTAIN A HIGHWAY C FOR EMBANKMENT REMOVAL, CURBING AND/O DRAINAGE STRUCTURES, CHANGES IN HIGHWA PAVEMENT WIDENING, OR INSTALLATION OF AC

CONDUIT INSTALLED IN BITUMINOUS RO YEARS OLD, OR CONCRETE ROADWAY REGARD MUST BE BORED OR JACKED UNDER THE RO IN ACCORDANCE WITH TRAFFIC SIGNAL STAND SERIES.

THIS DRAWING CANNOT BE USED AS A DRAWING UNLESS THE PERMITTEE COMPLIES VISIONS OF ACT 187, PREVENTION OF DAMAG UTILITIES. PRIOR TO CONSTRUCTION, CONSULT COMPANIES TO RESOLVE ANY PROBLEMS WH DUE TO THE LOCATION OF UTILITIES.

PAVEMENT MARKINGS SHALL BE PLACE WITH THE DEPARTMENT OF TRANSPORTATION HANDBOOK.

PERMITTEE IS RESPONSIBLE FOR OBTAI FOR INSTALLATION OF TRAFFIC SIGNAL DEVICE OUTSIDE HIGHWAY RIGHT-OF-WAY.

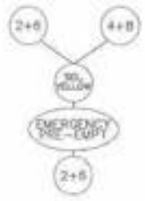
TRAFFIC SIGNALS INSTALLED USING LIQ MUST CONFORM TO DEPARTMENT SPECIFICATI IN CURRENT PUBLICATION 408, SUPPLEMENTS DRAWINGS.

PREPARED BY:
TRANSPORTATION RESOURCE GROUP, INC.
204 N. GEORGE ST
SUITE 110
YORK, PA 17401-1108

County: YORK
Municipality: YORK TOWI
Intersection: SPRINGWOOD ROAD & CHESTNUT HILL RO
Scale: 25 0 Fee

DISTRICT	COUNTY	ROUTE	SI
8-D	YORK	CHR	
	YORK TWP		
REVISION NUMBER	REVISIONS		

EMERGENCY VEHICLE - PRE-EMPTION SEQUENCE

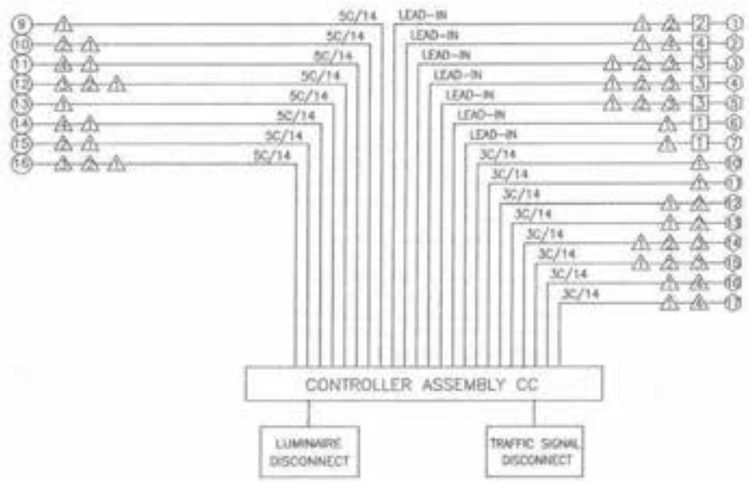


EMERGENCY PRE-EMPTION NOTES

CONTROLLER TO BE EQUIPPED WITH EMERGENCY PRE-EMPTION FOR THE NB, SB, EB AND WB APPROACHES. THE SIGNALS, WHEN ACTUATED BY EMERGENCY VEHICLES SHALL PROVIDE AN APPROPRIATE SELECTIVE YELLOW TIME, FOLLOWED BY A GREEN INDICATION FOR THE NB, SB, EB AND WB EMERGENCY PRE-EMPTION PHASE AND A RED INDICATION FOR ALL OTHER PHASES. PRE-EMPTED APPROACH SHALL PROVIDE AN INDICATION (FAIL-SAFE LAMP) TO THE DRIVER OF THE APPROACHING EMERGENCY VEHICLE WHEN THE EQUIPMENT HAS PRE-EMPTED THE TRAFFIC SIGNAL FOR THAT APPROACH. THE FAIL-SAFE INDICATION SHALL BE A FLASHING WHITE LIGHT ON THE APPROACH WHICH PRE-EMPTION IS PROVIDED. IF EMERGENCY PRE-EMPTION OCCURS DURING FLASHING ALL SIGNALS SHALL REMAIN FLASHING

IF THE SIGNALS HAVE BEEN ACTUATED BY PEDESTRIAN PUSH BUTTON, AND THE SIGNAL IS PRE-EMPTED, THE PEDESTRIAN TIME SHALL TIME OUT FOLLOWED BY THE APPROPRIATE SELECTIVE CLEARANCES, BEFORE GOING INTO EMERGENCY PRE-EMPTION.

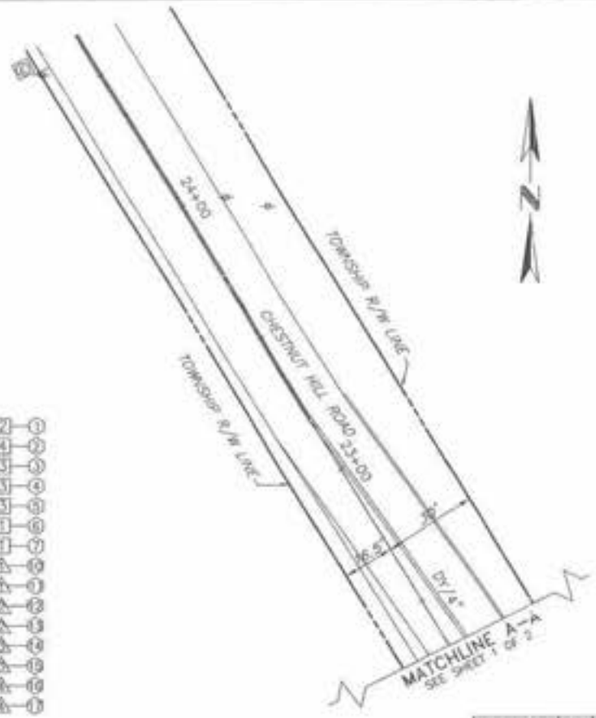
WIRING DIAGRAM

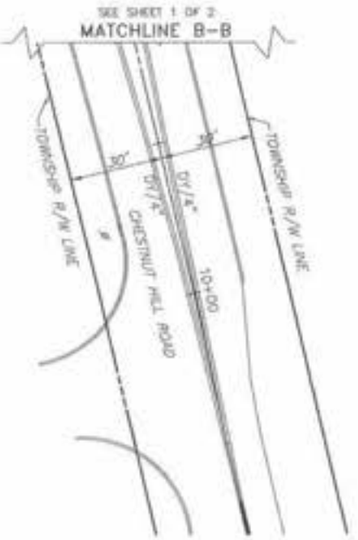


LEGEND

① — SIGNAL HEAD
② — DETECTOR
⚠ — SIGNAL SUPPORT
[4] — JUNCTION BOX
— LUMINAIRE

5C/14 - CABLE (NO. OF CONDUCTORS / SIZE AWG)





TRENCH, CONDUIT, JUNCTION BOX, ELECTRICAL ITEMS

DESCRIPTION	1 INCH CONDUIT	2 INCH CONDUIT	DETECTOR LEAD-IN CABLE	TRENCH AND BACKFILL, TYPE 1	SIGNAL CABLE, 14 AWG, 3 COND	SIGNAL CABLE, 14 AWG, 5 COND	JUNCTION BOX, JB-27		
ITEM NUMBER	0854 0011	0854 0012	0856 0001	0864 0101	0864 0301	0864 0302	0864 0362		
UNIT	LF	LF	LF	LF	LF	LF	EA		
LOCATION									
LOOP 1 TO JB #2	14			14					
LOOP 2 TO JB #4	21			21					
LOOP 3, 4, 5 TO JB #3	5			5					
LOOP 6, 7 TO JB #1	7			7					
JB #1 TO POLE 1	15	10		10					
JB #2 TO POLE 2	34	5		5					
JB #3 TO POLE 3	25	5		5					
JB #4 TO POLE 4	41	5		5					
POLE 3 TO POLE 2			65		162	156			
POLE 2 TO POLE 1			72		160	170			
POLE 4 TO POLE 1			58		148	142			
POLE 1 TO CC			15		2	4			
JB # 1,2,3,4							4		
TOTAL	162	25	210	72	472	472	4		

DETECTORS

AMPLIFIER							SENSOR									
ITEM NO.	QTY	UNIT	DESCRIPTION	LOCATION	OPERATION	SENSOR #	ITEM NO.	QTY	UNIT	DESCRIPTION	SIZE	LEAD-IN WIRE	ROUTE	STATION	SIDE	LANE NO.
0956-0112	1	EA	LOOP AMPLIFIER, 2 CHANNEL SHELF MOUNTED	CC	PRESENCE	1	0956-0101	354	LF	LOOP SENSOR	6x40	II	S.R.2002	4+10	RT	1
0956-0112	1	EA	LOOP AMPLIFIER, 2 CHANNEL SHELF MOUNTED	CC	PRESENCE	2	0956-0101	372	LF	LOOP SENSOR	6x40	II	S.R.2003	6+00	LT WT	0
0956-0112	1	EA	LOOP AMPLIFIER, 2 CHANNEL SHELF MOUNTED	CC	PRESENCE	3	0956-0101	367	LF	LOOP SENSOR	6x40	II	CHESTNUT HILL	20+33	RT	4
				CC	PRESENCE	4	0956-0101	288	LF	LOOP SENSOR	6x50	II	CHESTNUT HILL	20+31	LT	7
0956-0112	1	EA	LOOP AMPLIFIER, 2 CHANNEL SHELF MOUNTED	CC	PRESENCE	5	0956-0101	177	LF	LOOP SENSOR	6x15	II	CHESTNUT HILL	20+10	LT	21
0956-0112	1	EA	LOOP AMPLIFIER, 2 CHANNEL SHELF MOUNTED	CC	PRESENCE	6	0956-0101	354	LF	LOOP SENSOR	6x40	II	CHESTNUT HILL	12+42	RT	4
				CC	PRESENCE	7	0956-0101	328	LF	LOOP SENSOR	6x40	II	CHESTNUT HILL	12+60	LT	8
							TOTAL	2240	LF							
				POLE 1		10,11	0956-0500	2	EA	PEDESTRIAN PUSH BUTTON			S.R.2002	5+41	RT	30
				POLE 2		12,13	0956-0500	2	EA	PEDESTRIAN PUSH BUTTON			S.R.2002	4+69	RT	29
				POLE 3		14,15	0956-0500	2	EA	PEDESTRIAN PUSH BUTTON			S.R.2002	4+46	LT	32
				POLE 4		16,17	0956-0500	2	EA	PEDESTRIAN PUSH BUTTON			S.R.2002	5+22	LT	28
							TOTAL	8	EA							
				STRAIN		A	9952-9002	1	EA	PRE-EMP. DETECTOR			S.R.2002		RT	9
				STRAIN		B	9952-9002	1	EA	PRE-EMP. DETECTOR			S.R.2002		LT	9
				STRAIN		C	9952-9002	1	EA	PRE-EMP. DETECTOR			CHESTNUT HILL		LT	13
				STRAIN		D	9952-9002	1	EA	PRE-EMP. DETECTOR			CHESTNUT HILL		RT	15
							TOTAL	4	EA							

PAVEMENT MARKINGS

	ITEM NO.	QTY	UNIT	DESCRIPTION
▲	0960-0005	458	LF	6" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS
▲	0960-0021	101	LF	24" WHITE HOT THERMOPLASTIC PAVEMENT MARKINGS
▲	0960-0222	2	EA	WHITE HOT THERMOPLASTIC LEGEND, "RIGHT ARROW" 12'-0"x3'-0"
▲	0960-0224	6	EA	WHITE HOT THERMOPLASTIC LEGEND, "LEFT ARROW" 12'-0"x3'-0"
▲	0962-1000	925	LF	4" WHITE WATERBORNE PAVEMENT MARKINGS
▲	0962-1001	533	LF	6" WHITE WATERBORNE PAVEMENT MARKINGS
▲	0962-1005	3706	LF	4" YELLOW WATERBORNE PAVEMENT MARKINGS

▲ - SEE CHESTNUT HILL ROAD SIGNING AND PAVEMENT MARKING PLAN FOR TABULATION. ITEMS SHOWN ON THIS SHEET FOR INFORMATION ONLY.

SIGNS

	PLAN SYMBOL	DESCRIPTION		SIZE W x H	SQ FT EA	TYPE B 0931-0001 QTY	TYPE B 0931-0001 TOTAL S.F.	TYPE F 0935-0001 QTY	TYPE F 0935-0001 TOTAL S.F.	STR 0936- QTY
▲	A	LANE USE CONTROL	(R3-8A L-SR)	30"x30"	6.25	2	12.50			
▲	B	EDUCATIONAL PUSH BUTTON SIGN	(R10-3B)	9"x12"	.75			4	3.0	
▲	C	EDUCATIONAL PUSH BUTTON SIGN	(R10-3B)	9"x12"	.75			4	3.0	
▲	D	LANE USE CONTROL	(R3-8A LS-R)	30"x30"	6.25	2	12.50			
▲	F	SPRINGWOOD RD	(D3-4)	96"X16"	10.7					2
▲	G	CHESTNUT HILL	(D3-4)	90"X16"	10.0					2

▲ - SEE CHESTNUT HILL ROAD SIGNING AND PAVEMENT MARKING PLAN FOR TABULATION. ITEMS SHOWN ON THIS SHEET FOR INFORMATION ONLY.

MISCELLANEOUS

	QTY	UNIT	DESCRIPTION	LOCATION
0955-3721	8	EA.	PEDESTRIAN SIGNAL HEAD, TYPE B LED	POLES 1,2,3,4
9955-9004	1	EA.	EMERGENCY VEHICLE PRE-EMPTION SYSTEM	CC

Scale: 25 0 25 50 Feet

APPENDIX I:
Signal Warrant Analysis

Traffic Signal Warrant Analysis Workbook

8/27/2026

STUDY AND ANALYSIS INFORMATION

Municipality:	York Township	**Analysis Date:**	8/27/2026
County:	York County	**Conducted By:**	DRRL
PennDOT Engineering District:	8	**Agency/Company Name:**	TPD, Inc.

Analysis Information

Data Collection Date:	8/5/2026
Day of the Week:	Wednesday

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:	Camp Betty Washington Road (SR 2005)
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:	35	**MPH**

Minor Street Information

Minor Street Name and Route Number:	Chestnut Hill Road
Minor Street Approach #1 Direction:	N-Bound
Minor Street Approach #2 Direction:	N/A

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**	**No**
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 (N-Bound)	Minor Street Approach #2 (N/A)
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	19	38	57	24	
6:15 AM	6:29 AM	22	59	81	32	
6:30 AM	6:44 AM	15	80	95	42	
6:45 AM	6:59 AM	12	82	94	48	
7:00 AM	7:14 AM	22	84	106	51	
7:15 AM	7:29 AM	27	82	109	54	
7:30 AM	7:44 AM	35	131	166	59	
7:45 AM	7:59 AM	36	82	118	65	
8:00 AM	8:14 AM	39	64	103	52	
8:15 AM	8:29 AM	39	51	90	54	
8:30 AM	8:44 AM	35	67	102	47	
8:45 AM	8:59 AM	39	52	91	51	
9:00 AM	9:14 AM	4	4	8	12	
9:15 AM	9:29 AM	4	3	7	10	
9:30 AM	9:44 AM	4	4	8	12	
9:45 AM	9:59 AM	2	2	4	10	
10:00 AM	10:14 AM	4	3	7	10	
10:15 AM	10:29 AM	4	4	8	10	
10:30 AM	10:44 AM	4	3	7	10	
10:45 AM	10:59 AM	4	3	7	9	
11:00 AM	11:14 AM	5	4	9	11	
11:15 AM	11:29 AM	5	4	9	9	
11:30 AM	11:44 AM	5	4	9	11	
11:45 AM	11:59 AM	5	4	9	9	

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 (N-Bound)	Minor Street Approach #2 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM	6	5	11	10	
12:15 PM	12:29 PM	5	5	10	9	
12:30 PM	12:44 PM	6	5	11	10	
12:45 PM	12:59 PM	5	4	9	9	
1:00 PM	1:14 PM	5	4	9	9	
1:15 PM	1:29 PM	6	5	11	9	
1:30 PM	1:44 PM	5	4	9	9	
1:45 PM	1:59 PM	4	4	8	9	
2:00 PM	2:14 PM	6	5	11	10	
2:15 PM	2:29 PM	7	6	13	10	
2:30 PM	2:44 PM	6	5	11	10	
2:45 PM	2:59 PM	6	5	11	10	
3:00 PM	3:14 PM	75	77	152	49	
3:15 PM	3:29 PM	99	79	178	35	
3:30 PM	3:44 PM	78	82	160	64	
3:45 PM	3:59 PM	89	67	156	35	
4:00 PM	4:14 PM	98	95	193	53	
4:15 PM	4:29 PM	117	87	204	59	
4:30 PM	4:44 PM	116	97	213	57	
4:45 PM	4:59 PM	120	101	221	51	
5:00 PM	5:14 PM	121	91	212	75	
5:15 PM	5:29 PM	123	97	220	62	
5:30 PM	5:44 PM	104	66	170	56	
5:45 PM	5:59 PM	83	62	145	49	
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		

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 (N-Bound)	Minor Street Approach #2 (N/A)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
Approach Totals:		1680	1972	3652	1461	0

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

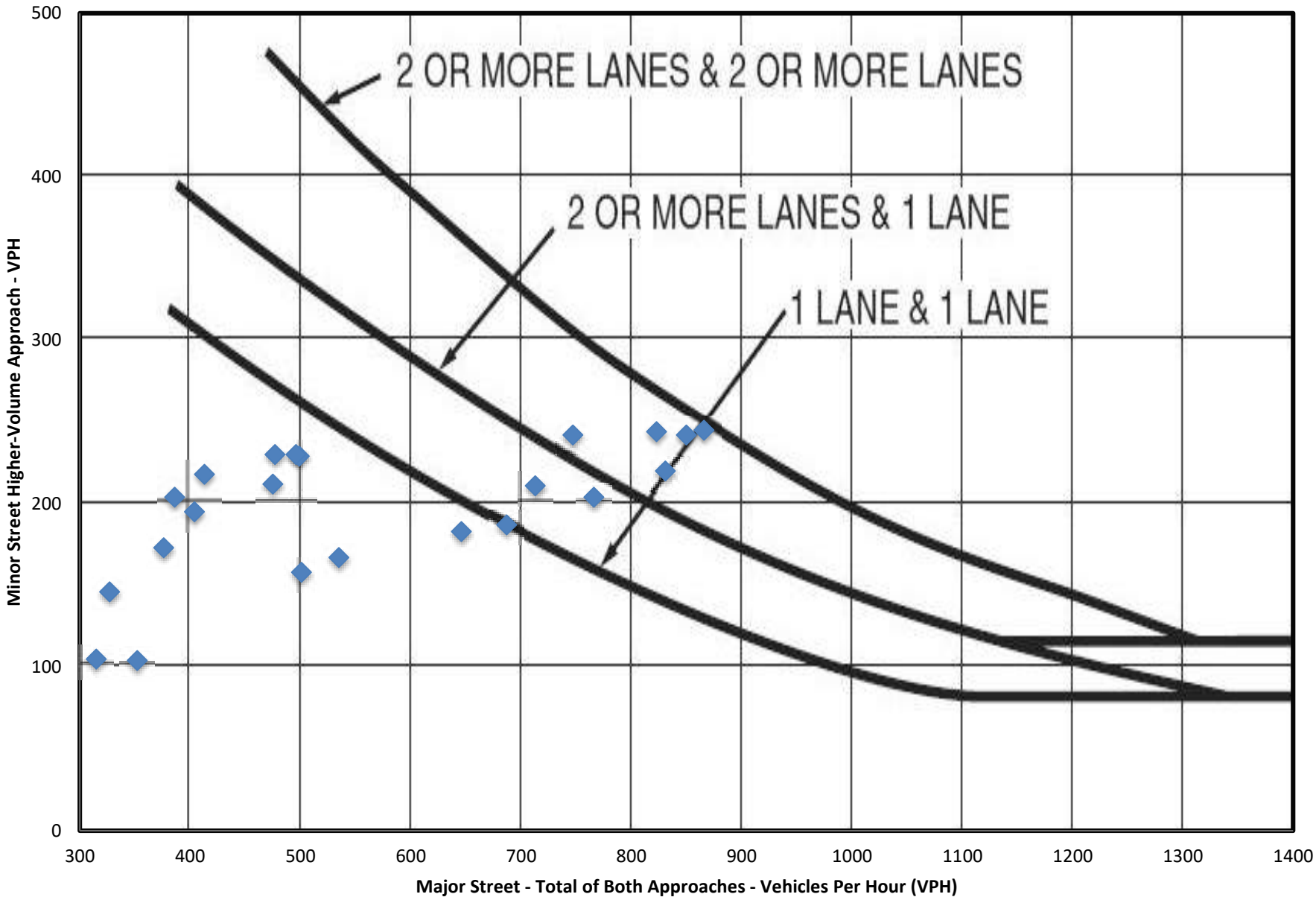
Total Number of Unique Hours Met On Figure 4C-1
2

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

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	57	24	
5:30 AM	138	56	
5:45 AM	233	98	
6:00 AM	327	146	
6:15 AM	376	173	
6:30 AM	404	195	
6:45 AM	475	212	
7:00 AM	499	229	
7:15 AM	496	230	
7:30 AM	477	230	
7:45 AM	413	218	
8:00 AM	386	204	
8:15 AM	291	164	
8:30 AM	208	120	
8:45 AM	114	85	
9:00 AM	27	44	
9:15 AM	26	42	
9:30 AM	27	42	
9:45 AM	26	40	
10:00 AM	29	39	
10:15 AM	31	40	
10:30 AM	32	39	
10:45 AM	34	40	
11:00 AM	36	40	
11:15 AM	38	39	
11:30 AM	39	39	
11:45 AM	41	38	

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	41	38	
12:15 PM	39	37	
12:30 PM	40	37	
12:45 PM	38	36	
1:00 PM	37	36	
1:15 PM	39	37	
1:30 PM	41	38	
1:45 PM	43	39	
2:00 PM	46	40	
2:15 PM	187	79	
2:30 PM	352	104	
2:45 PM	501	158	
3:00 PM	646	183	
3:15 PM	687	187	
3:30 PM	713	211	
3:45 PM	766	204	
4:00 PM	831	220	Met
4:15 PM	850	242	Met
4:30 PM	866	245	Met
4:45 PM	823	244	Met
5:00 PM	747	242	Met
5:15 PM	535	167	
5:30 PM	315	105	
5:45 PM	145	49	
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-1. Warrant 2, Four-Hour Vehicular Volume



	2026 Existing Volumes				Growth:	Hourly Background Trips				Background Trips				Base - 2035 (Existing + Background Growth + Background Trips)				Hourly Site Trips				Site Trips				Projected - 2031 (Base + Site Trips)			
	NB	SB	EB	WB	0.0301	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB	NB	SB	EB	WB
6:00 AM	14		17	36		4	0	1	1	1	0	0	0	15	0	18	37	37	0	5	5	9	0	1	1	24	0	19	38
6:15 AM	20		18	54						1	0	1	1	22	0	20	57					10	0	2	2	32	0	22	59
6:30 AM	31		14	77						1	0	0	0	33	0	14	79					9	0	1	1	42	0	15	80
6:45 AM	37		11	79						1	0	0	0	39	0	11	81					9	0	1	1	48	0	12	82
7:00 AM	32		18	79		8	0	2	2	2	0	1	1	35	0	20	82	65	0	9	8	16	0	2	2	51	0	22	84
7:15 AM	34		23	78						2	0	0	0	37	0	24	80					17	0	3	2	54	0	27	82
7:30 AM	40		31	124						2	0	1	1	43	0	33	129					16	0	2	2	59	0	35	131
7:45 AM	46		33	78						2	0	0	0	49	0	34	80					16	0	2	2	65	0	36	82
8:00 AM	35		34	58		11	0	2	2	3	0	1	1	39	0	36	61	50	0	12	11	13	0	3	3	52	0	39	64
8:15 AM	38		35	47						3	0	0	0	42	0	36	48					12	0	3	3	54	0	39	51
8:30 AM	30		30	61						3	0	1	1	34	0	32	64					13	0	3	3	47	0	35	67
8:45 AM	36		35	49						2	0	0	0	39	0	36	50					12	0	3	2	51	0	39	52
9:00 AM						10	0	3	3	3	0	1	1	3	0	1	1	34	0	11	10	9	0	3	3	12	0	4	4
9:15 AM										2	0	1	1	2	0	1	1					8	0	3	2	10	0	4	3
9:30 AM										3	0	1	1	3	0	1	1					9	0	3	3	12	0	4	4
9:45 AM										2	0	0	0	2	0	0	0					8	0	2	2	10	0	2	2
10:00 AM						10	0	4	4	3	0	1	1	3	0	1	1	29	0	12	9	7	0	3	2	10	0	4	3
10:15 AM										2	0	1	1	2	0	1	1					8	0	3	3	10	0	4	4
10:30 AM										3	0	1	1	3	0	1	1					7	0	3	2	10	0	4	3
10:45 AM										2	0	1	1	2	0	1	1					7	0	3	2	9	0	4	3
11:00 AM						10	0	4	4	3	0	1	1	3	0	1	1	30	0	16	12	8	0	4	3	11	0	5	4
11:15 AM										2	0	1	1	2	0	1	1					7	0	4	3	9	0	5	4
11:30 AM										3	0	1	1	3	0	1	1					8	0	4	3	11	0	5	4
11:45 AM										2	0	1	1	2	0	1	1					7	0	4	3	9	0	5	4
12:00 PM						10	0	6	5	3	0	2	1	3	0	2	1	28	0	16	14	7	0	4	4	10	0	6	5
12:15 PM										2	0	1	2	2	0	1	2					7	0	4	3	9	0	5	5
12:30 PM										3	0	2	1	3	0	2	1					7	0	4	4	10	0	6	5
12:45 PM										2	0	1	1	2	0	1	1					7	0	4	3	9	0	5	4
1:00 PM						8	0	5	5	2	0	1	1	2	0	1	1	28	0	15	12	7	0	4	3	9	0	5	4
1:15 PM										2	0	2	2	2	0	2	2					7	0	4	3	9	0	6	5
1:30 PM										2	0	1	1	2	0	1	1					7	0	4	3	9	0	5	4
1:45 PM										2	0	1	1	2	0	1	1					7	0	3	3	9	0	4	4
2:00 PM						8	0	5	5	2	0	1	1	2	0	1	1	32	0	20	16	8	0	5	4	10	0	6	5
2:15 PM										2	0	2	2	2	0	2	2					8	0	5	4	10	0	7	6
2:30 PM										2	0	1	1	2	0	1	1					8	0	5	4	10	0	6	5
2:45 PM										2	0	1	1	2	0	1	1					8	0	5	4	10	0	6	5
3:00 PM	38		66	69		8	0	5	5	2	0	1	1	41	0	69	72	31	0	25	20	8	0	6	5	49	0	75	77
3:15 PM	24		87	70						2	0	2	2	27	0	92	74					8	0	7	5	35	0	99	79
3:30 PM	52		69	74						2	0	1	1	56	0	72	77					8	0	6	5	64	0	78	82
3:45 PM	25		80	59						2	0	1	1	28	0	83	62					7	0	6	5	35	0	89	67
4:00 PM	41		86	84		8	0	5	5	2	0	1	1	44	0	90	88	34	0	32	27	9	0	8	7	53	0	98	95
4:15 PM	48		104	76						2	0	2	2	51	0	109	80					8	0	8	7	59	0	117	87
4:30 PM	45		104	86						2	0	1	1	48	0	108	90					9	0	8	7	57	0	116	97
4:45 PM	40		108	91						2	0	1	1	43	0	112	95					8	0	8	6	51	0	120	101
5:00 PM	60		108	81		6	0	5	5	2	0	1	1	64	0	112	84	44	0	36	29	11	0	9	7	75	0	121	91
5:15 PM	49		109	84						1	0	2	2	51	0	114	89					11	0	9	8	62	0	123	97
5:30 PM	42		91	56						2	0	1	1	45	0	95	59					11	0	9	7	56	0	104	66
5:45 PM	36		71	52						1	0	1	1	38	0	74	55					11	0	9	7	49	0	83	62

Proposed Development Daily Trip Calculations

Senior Adult Housing - Single-Family (LUC 251)

Silvermoon Commercial Development (LOT 1)	LU #	Daily Trips	Daily Trucks	Daily Cars	*% Enter*	Enter/Exit Trucks	Enter/Exit Cars
Senior Adult Housing - Single-Family	251	836	0	836	*50%*	0	418

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Senior Adult Housing - Single-Fam	14%	14%	14%	14%

LU #	Development	Car Trips			
		% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
251	Senior Adult Housing - Single-Family	59	59	59	59
		59	59	59	59

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use
Source: ITE Trip Generation Manual, 12th Edition

Land Use Code	251
Land Use	Senior Adult Housing - Single-Family
Setting	General Urban/Suburban
Time Period	Weekday
# Data Sites	11

	% of 24-Hour Vehicle Trips		
Time	Total	Entering	Exiting
12:00 - 1:00 AM	0.2%	0.2%	0.1%
1:00 - 2:00 AM	0.1%	0.1%	0.1%
2:00 - 3:00 AM	0.1%	0.1%	0.1%
3:00 - 4:00 AM	0.1%	0.1%	0.2%
4:00 - 5:00 AM	0.3%	0.1%	0.5%
5:00 - 6:00 AM	0.8%	0.3%	1.3%
6:00 - 7:00 AM	2.3%	1.1%	3.5%
7:00 - 8:00 AM	4.9%	2.7%	7.1%
8:00 - 9:00 AM	6.2%	4.1%	8.3%
9:00 - 10:00 AM	7.0%	5.2%	8.9%
10:00 - 11:00 AM	7.4%	6.2%	8.6%
11:00 - 12:00 PM	8.0%	7.6%	8.5%
12:00 - 1:00 PM	8.4%	8.4%	8.3%
1:00 - 2:00 PM	7.8%	7.9%	7.7%
2:00 - 3:00 PM	7.8%	8.3%	7.2%
3:00 - 4:00 PM	7.9%	9.1%	6.7%
4:00 - 5:00 PM	7.7%	9.3%	6.1%
5:00 - 6:00 PM	7.3%	8.8%	5.8%
6:00 - 7:00 PM	5.9%	6.9%	4.9%
7:00 - 8:00 PM	3.7%	4.8%	2.6%
8:00 - 9:00 PM	2.8%	3.9%	1.7%
9:00 - 10:00 PM	1.9%	2.6%	1.1%
10:00 - 11:00 PM	1.1%	1.5%	0.7%
11:00 - 12:00 AM	0.5%	0.7%	0.3%

Site Trips		
Total	Enter	Exit
836	418	418
1	1	0
1	1	0
0	0	0
1	0	1
2	0	2
6	1	5
18	4	14
41	11	30
53	17	36
59	22	37
62	26	36
67	32	35
71	36	35
65	33	32
65	35	30
66	38	28
65	39	26
61	37	24
49	29	20
31	20	11
23	16	7
16	11	5
9	6	3
4	3	1
	418	418

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Senior Adult Housing - Singl	14%	14%	14%	14%
12:00 - 1:00 AM	0	0	0	0
1:00 - 2:00 AM	0	0	0	0
2:00 - 3:00 AM	0	0	0	0
3:00 - 4:00 AM	0	0	0	0
4:00 - 5:00 AM	0	0	0	0
5:00 - 6:00 AM	0	0	1	1
6:00 - 7:00 AM	1	1	2	2
7:00 - 8:00 AM	2	2	4	4
8:00 - 9:00 AM	2	2	5	6
9:00 - 10:00 AM	3	3	5	5
10:00 - 11:00 AM	4	4	5	5
11:00 - 12:00 PM	4	4	5	5
12:00 - 1:00 PM	6	5	5	5
1:00 - 2:00 PM	5	5	4	4
2:00 - 3:00 PM	5	5	4	4
3:00 - 4:00 PM	5	5	4	4
4:00 - 5:00 PM	5	5	4	4
5:00 - 6:00 PM	5	5	3	3
6:00 - 7:00 PM	4	4	3	3
7:00 - 8:00 PM	3	3	1	2
8:00 - 9:00 PM	2	2	0	1
9:00 - 10:00 PM	2	2	1	1
10:00 - 11:00 PM	1	1	0	0
11:00 - 12:00 AM	0	0	0	0
	59	58	56	59

Hourly Background Trips

	NB	SB	EB	WB
12:00 AM	0		0	0
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	0		0	0
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	0		0	0
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	0		0	0
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	0		0	0
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	2		0	0
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	4		1	1
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	8		2	2
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	11		2	2
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	10		3	3
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	10		4	4
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	10		4	4
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	10		6	5
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	8		5	5
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	8		5	5
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	8		5	5
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	8		5	5
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	6		5	5
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	6		4	4
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	3		3	3
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	1		2	2
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	2		2	2
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	0		1	1
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	0		0	0
11:15 PM				
11:30 PM				
11:45 PM				

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
TOTAL SITE				
12:00 - 1:00 AM	0	0	0	0
1:00 - 2:00 AM	0	0	0	0
2:00 - 3:00 AM	0	0	0	0
3:00 - 4:00 AM	0	0	0	0
4:00 - 5:00 AM	0	0	0	0
5:00 - 6:00 AM	0	0	1	1
6:00 - 7:00 AM	1	1	2	2
7:00 - 8:00 AM	2	2	4	4
8:00 - 9:00 AM	2	2	5	6
9:00 - 10:00 AM	3	3	5	5
10:00 - 11:00 AM	4	4	5	5
11:00 - 12:00 PM	4	4	5	5
12:00 - 1:00 PM	6	5	5	5
1:00 - 2:00 PM	5	5	4	4
2:00 - 3:00 PM	5	5	4	4
3:00 - 4:00 PM	5	5	4	4
4:00 - 5:00 PM	5	5	4	4
5:00 - 6:00 PM	5	5	3	3
6:00 - 7:00 PM	4	4	3	3
7:00 - 8:00 PM	3	3	1	2
8:00 - 9:00 PM	2	2	0	1
9:00 - 10:00 PM	2	2	1	1
10:00 - 11:00 PM	1	1	0	0
11:00 - 12:00 AM	0	0	0	0
	59	58	56	59

Proposed Development Daily Trip Calculations

Silvermoon Commercial Development (LOT 1)	LU #	Daily Trips	Daily Trucks	Daily Cars	*% Enter*	Enter/Exit Trucks	Enter/Exit Cars
Single-Family Detached Housing	210	483	0	483	*50%*	0	242
Single-Family Attached Housing	215	788	0	788	*50%*	0	394
Multifamily Housing (Low-Rise)	220	1809	0	1809	*50%*	0	905

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Single-Family Detached Housing	21%	17%	21%	17%
Single-Family Attached Housing	21%	17%	21%	17%
Multifamily Housing (Low-Rise)	21%	17%	21%	17%

%

LU #	Development	Car Trips			
		% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
210	Single-Family Detached Housing	51	41	51	41
215	Single-Family Attached Housing	83	67	83	67
220	Multifamily Housing (Low-Rise)	190	154	190	154
		324	262	324	262

Single-Family Detached Housing (LUC 210)

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use
Source: ITE Trip Generation Manual, 12th Edition

Land Use Code	210
Land Use	Single-Family Detached Housing
Setting	General Urban/Suburban
Time Period	Weekday
# Data Sites	20

Time	% of 24-Hour Vehicle Trips		
	Total	Entering	Exiting
12:00 - 1:00 AM	0.5%	0.6%	0.4%
1:00 - 2:00 AM	0.2%	0.2%	0.2%
2:00 - 3:00 AM	0.2%	0.2%	0.2%
3:00 - 4:00 AM	0.3%	0.3%	0.3%
4:00 - 5:00 AM	0.9%	0.6%	1.1%
5:00 - 6:00 AM	1.6%	0.8%	2.4%
6:00 - 7:00 AM	3.9%	2.2%	5.7%
7:00 - 8:00 AM	6.8%	4.1%	9.4%
8:00 - 9:00 AM	6.2%	4.5%	7.9%
9:00 - 10:00 AM	5.1%	4.2%	6.0%
10:00 - 11:00 AM	5.1%	4.4%	5.8%
11:00 - 12:00 PM	5.2%	5.0%	5.3%
12:00 - 1:00 PM	5.6%	5.6%	5.6%
1:00 - 2:00 PM	5.7%	5.8%	5.6%
2:00 - 3:00 PM	6.7%	7.2%	6.1%
3:00 - 4:00 PM	7.5%	8.3%	6.8%
4:00 - 5:00 PM	8.8%	10.2%	7.3%
5:00 - 6:00 PM	7.9%	9.6%	6.3%
6:00 - 7:00 PM	6.9%	8.0%	5.8%
7:00 - 8:00 PM	5.1%	5.9%	4.3%
8:00 - 9:00 PM	4.2%	5.2%	3.1%
9:00 - 10:00 PM	3.0%	3.6%	2.4%
10:00 - 11:00 PM	1.7%	2.2%	1.2%
11:00 - 12:00 AM	1.0%	1.3%	0.7%

Site Trips		
Total	Enter	Exit
483	242	241
2	1	1
0	0	0
1	1	0
2	1	1
4	1	3
8	2	6
19	5	14
33	10	23
30	11	19
24	10	14
26	12	14
25	12	13
26	13	13
27	14	13
32	17	15
37	21	16
43	25	18
38	23	15
33	19	14
24	14	10
21	13	8
15	9	6
8	5	3
5	3	2
	242	241

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Single-Family Detached Hou	21%	17%	21%	17%
12:00 - 1:00 AM	0	0	0	0
1:00 - 2:00 AM	0	0	0	0
2:00 - 3:00 AM	0	0	0	0
3:00 - 4:00 AM	0	0	0	0
4:00 - 5:00 AM	0	0	1	1
5:00 - 6:00 AM	0	0	1	1
6:00 - 7:00 AM	1	1	3	2
7:00 - 8:00 AM	2	2	5	4
8:00 - 9:00 AM	2	3	4	3
9:00 - 10:00 AM	2	2	3	2
10:00 - 11:00 AM	4	2	3	2
11:00 - 12:00 PM	3	2	3	2
12:00 - 1:00 PM	3	2	3	2
1:00 - 2:00 PM	3	2	3	2
2:00 - 3:00 PM	4	3	3	3
3:00 - 4:00 PM	5	4	3	3
4:00 - 5:00 PM	5	4	4	3
5:00 - 6:00 PM	5	4	3	3
6:00 - 7:00 PM	4	3	3	2
7:00 - 8:00 PM	3	2	1	2
8:00 - 9:00 PM	3	2	1	1
9:00 - 10:00 PM	2	2	1	1
10:00 - 11:00 PM	1	1	1	1
11:00 - 12:00 AM	1	1	0	0
	53	42	49	40

Single-Family Attached Housing (LUC 215)

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use
Source: ITE Trip Generation Manual, 12th Edition

Land Use Code	215
Land Use	Single-Family Attached Housing
Setting	General Urban/Suburban
Time Period	Weekday
# Data Sites	7

Time	% of 24-Hour Vehicle Trips		
	Total	Entering	Exiting
12:00 - 1:00 AM	0.5%	0.7%	0.3%
1:00 - 2:00 AM	0.2%	0.4%	0.1%
2:00 - 3:00 AM	0.3%	0.2%	0.3%
3:00 - 4:00 AM	0.3%	0.3%	0.4%
4:00 - 5:00 AM	0.7%	0.4%	1.0%
5:00 - 6:00 AM	1.4%	0.1%	2.6%
6:00 - 7:00 AM	3.5%	1.1%	5.8%
7:00 - 8:00 AM	7.9%	2.7%	13.2%
8:00 - 9:00 AM	6.6%	3.8%	9.3%
9:00 - 10:00 AM	5.3%	3.7%	6.9%
10:00 - 11:00 AM	4.1%	4.0%	4.3%
11:00 - 12:00 PM	5.3%	4.8%	5.7%
12:00 - 1:00 PM	5.2%	5.4%	5.1%
1:00 - 2:00 PM	4.7%	4.5%	4.8%
2:00 - 3:00 PM	5.8%	5.5%	6.0%
3:00 - 4:00 PM	6.5%	8.2%	4.8%
4:00 - 5:00 PM	7.5%	9.8%	5.1%
5:00 - 6:00 PM	9.4%	12.1%	6.8%
6:00 - 7:00 PM	8.2%	9.8%	6.6%
7:00 - 8:00 PM	5.9%	7.3%	4.5%
8:00 - 9:00 PM	4.7%	5.9%	3.5%
9:00 - 10:00 PM	3.0%	4.8%	1.3%
10:00 - 11:00 PM	2.0%	3.0%	1.1%
11:00 - 12:00 AM	0.9%	1.5%	0.4%

Site Trips		
Total	Enter	Exit
788	394	394
4	3	1
1	1	0
2	1	1
3	1	2
5	1	4
11	1	10
27	4	23
62	10	52
52	15	37
42	15	27
33	16	17
41	19	22
41	21	20
37	18	19
46	22	24
51	32	19
59	39	20
75	48	27
64	38	26
47	29	18
37	23	14
24	19	5
16	12	4
8	6	2
	394	394

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Single-Family Attached Hou	21%	17%	21%	17%
12:00 - 1:00 AM	1	1	0	0
1:00 - 2:00 AM	0	0	0	0
2:00 - 3:00 AM	0	0	0	0
3:00 - 4:00 AM	0	0	0	1
4:00 - 5:00 AM	0	0	1	1
5:00 - 6:00 AM	0	0	2	2
6:00 - 7:00 AM	1	1	5	4
7:00 - 8:00 AM	2	2	11	9
8:00 - 9:00 AM	3	3	8	6
9:00 - 10:00 AM	3	3	6	5
10:00 - 11:00 AM	3	3	4	3
11:00 - 12:00 PM	4	3	5	4
12:00 - 1:00 PM	4	4	4	3
1:00 - 2:00 PM	4	3	4	3
2:00 - 3:00 PM	5	4	5	4
3:00 - 4:00 PM	7	5	4	3
4:00 - 5:00 PM	8	7	4	3
5:00 - 6:00 PM	10	8	6	5
6:00 - 7:00 PM	8	6	5	4
7:00 - 8:00 PM	6	5	4	3
8:00 - 9:00 PM	5	4	3	2
9:00 - 10:00 PM	4	3	1	1
10:00 - 11:00 PM	3	2	1	1
11:00 - 12:00 AM	1	1	0	0
	82	68	83	67

Multifamily Housing (Low-Rise) (LUC 220)

Hourly Distribution of Entering and Exiting Vehicle Trips by Land Use
Source: ITE Trip Generation Manual, 12th Edition

Land Use Code	220
Land Use	Multifamily Housing (Low-Rise)
Setting	General Urban/Suburban
Time Period	Weekday
# Data Sites	8

Time	% of 24-Hour Vehicle Trips		
	Total	Entering	Exiting
12:00 - 1:00 AM	0.6%	0.8%	0.3%
1:00 - 2:00 AM	0.4%	0.4%	0.3%
2:00 - 3:00 AM	0.4%	0.4%	0.3%
3:00 - 4:00 AM	0.4%	0.5%	0.4%
4:00 - 5:00 AM	0.8%	0.4%	1.2%
5:00 - 6:00 AM	1.6%	0.7%	2.5%
6:00 - 7:00 AM	4.2%	1.6%	6.7%
7:00 - 8:00 AM	6.6%	2.4%	10.7%
8:00 - 9:00 AM	6.0%	3.4%	8.6%
9:00 - 10:00 AM	4.1%	2.9%	5.3%
10:00 - 11:00 AM	3.9%	2.9%	5.0%
11:00 - 12:00 PM	4.6%	4.6%	4.7%
12:00 - 1:00 PM	5.0%	5.0%	4.9%
1:00 - 2:00 PM	4.6%	4.4%	4.8%
2:00 - 3:00 PM	5.5%	5.9%	5.0%
3:00 - 4:00 PM	6.2%	7.0%	5.3%
4:00 - 5:00 PM	7.9%	10.1%	5.7%
5:00 - 6:00 PM	9.5%	11.3%	7.7%
6:00 - 7:00 PM	8.2%	9.9%	6.6%
7:00 - 8:00 PM	5.9%	7.4%	4.4%
8:00 - 9:00 PM	5.1%	6.6%	3.7%
9:00 - 10:00 PM	3.9%	5.3%	2.6%
10:00 - 11:00 PM	3.0%	3.9%	2.1%
11:00 - 12:00 AM	1.7%	2.2%	1.2%

Site Trips		
Total	Enter	Exit
1809	905	904
10	7	3
7	4	3
6	3	3
8	4	4
15	4	11
28	6	22
75	15	60
119	22	97
109	31	78
75	27	48
71	26	45
83	41	42
89	45	44
83	40	43
98	53	45
111	63	48
143	92	51
172	102	70
149	90	59
108	67	41
94	60	34
72	48	24
54	35	19
30	20	10
	905	904

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
Multifamily Housing (Low-R	21%	17%	21%	17%
12:00 - 1:00 AM	1	1	1	1
1:00 - 2:00 AM	1	1	1	1
2:00 - 3:00 AM	1	1	1	1
3:00 - 4:00 AM	1	1	2	1
4:00 - 5:00 AM	1	1	2	2
5:00 - 6:00 AM	1	1	5	4
6:00 - 7:00 AM	3	3	13	10
7:00 - 8:00 AM	5	4	20	16
8:00 - 9:00 AM	7	5	16	13
9:00 - 10:00 AM	6	5	10	8
10:00 - 11:00 AM	5	4	9	8
11:00 - 12:00 PM	9	7	9	7
12:00 - 1:00 PM	9	8	9	7
1:00 - 2:00 PM	8	7	9	7
2:00 - 3:00 PM	11	9	9	8
3:00 - 4:00 PM	13	11	10	8
4:00 - 5:00 PM	19	16	11	9
5:00 - 6:00 PM	21	17	15	12
6:00 - 7:00 PM	19	15	12	10
7:00 - 8:00 PM	14	11	9	8
8:00 - 9:00 PM	13	10	7	6
9:00 - 10:00 PM	10	8	5	4
10:00 - 11:00 PM	7	6	4	3
11:00 - 12:00 AM	4	3	2	2
	189	155	191	156

Hourly Background Trips

	NB	SB	EB	WB
12:00 AM	2		2	2
12:15 AM				
12:30 AM				
12:45 AM				
1:00 AM	2		1	1
1:15 AM				
1:30 AM				
1:45 AM				
2:00 AM	2		1	1
2:15 AM				
2:30 AM				
2:45 AM				
3:00 AM	4		1	1
3:15 AM				
3:30 AM				
3:45 AM				
4:00 AM	8		1	1
4:15 AM				
4:30 AM				
4:45 AM				
5:00 AM	15		1	1
5:15 AM				
5:30 AM				
5:45 AM				
6:00 AM	37		5	5
6:15 AM				
6:30 AM				
6:45 AM				
7:00 AM	65		9	8
7:15 AM				
7:30 AM				
7:45 AM				
8:00 AM	50		12	11
8:15 AM				
8:30 AM				
8:45 AM				
9:00 AM	34		11	10
9:15 AM				
9:30 AM				
9:45 AM				
10:00 AM	29		12	9
10:15 AM				
10:30 AM				
10:45 AM				
11:00 AM	30		16	12
11:15 AM				
11:30 AM				
11:45 AM				
12:00 PM	28		16	14
12:15 PM				
12:30 PM				
12:45 PM				
1:00 PM	28		15	12
1:15 PM				
1:30 PM				
1:45 PM				
2:00 PM	32		20	16
2:15 PM				
2:30 PM				
2:45 PM				
3:00 PM	31		25	20
3:15 PM				
3:30 PM				
3:45 PM				
4:00 PM	34		32	27
4:15 PM				
4:30 PM				
4:45 PM				
5:00 PM	44		36	29
5:15 PM				
5:30 PM				
5:45 PM				
6:00 PM	36		31	24
6:15 PM				
6:30 PM				
6:45 PM				
7:00 PM	27		23	18
7:15 PM				
7:30 PM				
7:45 PM				
8:00 PM	20		21	16
8:15 PM				
8:30 PM				
8:45 PM				
9:00 PM	13		16	13
9:15 PM				
9:30 PM				
9:45 PM				
10:00 PM	11		11	9
10:15 PM				
10:30 PM				
10:45 PM				
11:00 PM	4		6	5
11:15 PM				
11:30 PM				
11:45 PM				

Development	Car Distribution			
	% EB R Enter	% WB L Enter	% NB L Exit	% NB R Exit
TOTAL SITE				
12:00 - 1:00 AM	2	2	1	1
1:00 - 2:00 AM	1	1	1	1
2:00 - 3:00 AM	1	1	1	1
3:00 - 4:00 AM	1	1	2	2
4:00 - 5:00 AM	1	1	4	4
5:00 - 6:00 AM	1	1	8	7
6:00 - 7:00 AM	5	5	21	16
7:00 - 8:00 AM	9	8	36	29
8:00 - 9:00 AM	12	11	28	22
9:00 - 10:00 AM	11	10	19	15
10:00 - 11:00 AM	12	9	16	13
11:00 - 12:00 PM	16	12	17	13
12:00 - 1:00 PM	16	14	16	12
1:00 - 2:00 PM	15	12	16	12
2:00 - 3:00 PM	20	16	17	15
3:00 - 4:00 PM	25	20	17	14
4:00 - 5:00 PM	32	27	19	15
5:00 - 6:00 PM	36	29	24	20
6:00 - 7:00 PM	31	24	20	16
7:00 - 8:00 PM	23	18	14	13
8:00 - 9:00 PM	21	16	11	9
9:00 - 10:00 PM	16	13	7	6
10:00 - 11:00 PM	11	9	6	5
11:00 - 12:00 AM	6	5	2	2
	324	265	323	263