

Transportation Impact Study for the Robinson Tract

Westtown Township, Chester County, PA







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Executive Summary

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

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

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

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

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

Committed Improvements

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

Site Accesses and On-Site Improvements

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

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

West Pleasant Grove Road and Proposed Access (Road K)

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

West Pleasant Grove Road and Proposed Access (Road M)

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

West Pleasant Grove Road and Collector Road

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

Collector Road

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

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

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

Off-Site Traffic Improvements

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

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

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

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

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

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

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

Existing Transportation Settings and Conditions

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

Roadway Characteristics

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

Table 1 - Existing Roadway Characteristics

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

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

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

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

• West Pleasant Grove Road and Proposed Collector Road
The existing characteristics of the study intersections, including field sketches, and signal permit plans are provided in **Appendix B**.

Crash Summary

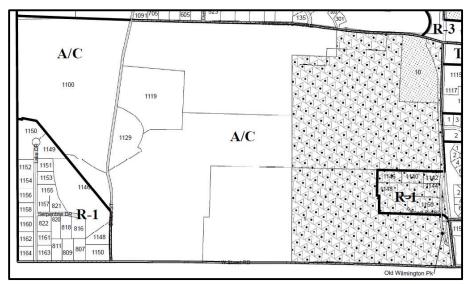
Reportable crash data was provided by the Pennsylvania Department of Transportation's Bureau of Highway Safety and Traffic Engineering for the five-year period from January 1, 2013 to December 31, 2017 throughout the study area. Reportable crashes are defined as crashes in which personal injuries occur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

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

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

Land Use Context

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



Source: Westtown Township Zoning Map

Area Transit Services

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

Pedestrian-Bicycle Facilities

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

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

Traffic Count Data

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

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

Existing Queue Observations

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

Site Characteristics

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

Trip Generation

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

Table 2. Vehicular Trip Generation

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

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

Trip Distribution and Assignment

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

Site Access Configuration and Traffic Control

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

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

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

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

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

Scenario	Warrant Evaluated	Warrant Met?
2025 with Collector Road	Four-Hour Vehicular Volume	YES
Diversions Only	Four-Flour venicular volume	(4 Hours Satisfied)
2025 with Collector Road	Form Horan Wolsierslan Wolsenso	YES
Diversions and Site Traffic	Four-Hour Vehicular Volume	(4 Hours Satisfied)

Table 3. Site Access Turn Lane Warrant Analysis Summary

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

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

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

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

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

West Pleasant Grove Road and Proposed Access (Road K)

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

West Pleasant Grove Road and Proposed Access (Road M)

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

West Pleasant Grove Road and Proposed Collector Road

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

Sight Distance

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

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

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

West Pleasant Grove Road and Proposed Access (Road K)

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

West Pleasant Grove Road and Proposed Access (Road M)

Trest l'ensuité Glove Roun unu l'oposent l'écess (Roun 1/1)							
				PennDOT R	PennDOT Requirements		Available
		Posted	Approximate	(fe	(feet)		Sight Distance
Movement	Direction	Speed (mph)	Grade	Desirable ¹	Acceptable ²	(feet) ⁽³⁾	(feet)
Enition	Looking Left	35	+6.4%	440′	N/A	440′	800'+
Exiting	Looking Right	35	-3.0%	350′	N/A	440′	440′
Left turn	Looking Ahead	35	+6.4%	300′	N/A	N/A	800'+
Entering	From the Rear	35	-3.0%	N/A	Meets to 45 mph=415'	N/A	415′

West Pleasant Grove Road and Proposed Collector Road

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

- (1) Based on the desirable sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and the posted speed limit, unless otherwise noted.
- (2) Based on the safe stopping sight distance requirements contained in the *Pennsylvania Code, Chapter 441, Access to and Occupancy of Highways by Driveways and Local Roads* and posted or travel speeds as noted.
- (3) Based on the clear sight triangle requirements per Westtown Township Code Chapter 149 Article IX Section 149 -915, and the posted speed limit.

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

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

Off-Site Intersection Turn Lane Warrants

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

The following turn lanes are warranted under existing conditions:

- Street Road (S.R. 0926) and New Street
 - o Eastbound Street Road (S.R. 0926) left-turn lane
 - o Westbound Street Road (S.R. 0926) left- and right-turn lanes
 - o Southbound New Street right-turn lane
 - Legal right-of-way does not currently exist to provide the above warranted lanes along Street Road (S.R. 0926) or New Street. Additional property from the Robinson Tract alone will not accommodate dedicated left-turn lanes or the southbound New Street right-turn lane. Although not necessary to mitigate traffic impact, as demonstrated later in this report, the applicant will provide a dedicated right-turn lane along westbound Street Road (S.R. 0926) along the Robinson Tract property frontage.
- New Street and West Pleasant Grove Road
 - o No turn lanes are warranted
- U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road
 - o Southbound U.S. Route 202 (Wilmington Pike) right-turn lane

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

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

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

Future Traffic Conditions

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

Regional Traffic Growth

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

Local Traffic Growth

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

- <u>The Malvern School:</u> 5,375 square-foot daycare/early learning center located on the northeast corner of the intersection of U.S. 202 (Wilmington Pike) and Pleasant Grove Road.
- Arborview (Fair Share Properties): 16,800 square feet of office space and 10,986 square-foot daycare center located on the west side of U.S. Route 202 (Wilmington Pike) between Skiles Boulevard and Pleasant Grove Road. As part of the development, a Collector road named Orvis Way between West Pleasant Grove Road and Stetson School will be provided, which is currently under construction.
- <u>Condominium Development:</u> 39 condominiums in two buildings remain to be occupied/constructed on the west side of Gilpin Drive just north of Skiles Boulevard.

Planned Roadway Improvements

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

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

Orvis Way Traffic Diversions

- Diversion A: 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way, per the Arborview study.
- Diversion B: 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way, per the Arborview study.
- Diversion C: 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was conservatively decreased from the approved Arborview study as the majority of traffic currently making this movement during the peak hours is generated by Stetson Middle School, and the school service area ends just to the west of New Street

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

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

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

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

<u>Collector Road Traffic Diversions</u>

- Diversion D: This diversion further increases Diversion A (above under Orvis Way discussion), by diverting an additional 5 percent of the weekday morning and 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.
- DiversionE: 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.
- Diversion F: 66 percent (two-thirds) of the northbound Bridlewood Boulevard rightturns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).
- Diversion G: 505 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to westbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).
- Diversion H: 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

PennDOT U.S. Route 202, Section 100

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

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

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

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

S.R. 0926 Bridge Replacement over Radley Run

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

Future Traffic Conditions

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

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

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

Capacity/Level-of-Service Results

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

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

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

- For signalized intersections, the Pennsylvania base saturation flow rate (Exhibit 10-9) and Pennsylvania traffic signal control calibration parameters (Exhibit 10-10) outlined in PennDOT's Publication 46, Traffic Engineering Manual, were used.
- For unsignalized intersections, the base critical headways at TWSC intersections (Exhibit 10-11) and base follow-up headways at TWSC intersections (Exhibit 10-12) outlined in PennDOT's *Publication 46, Traffic Engineering Manual*, were used.
- All traffic signal timings at signalized intersections were optimized in without-development conditions.
- If the evaluation of without-development to with-development indicates the overall intersection level of service has dropped, the applicant will be required to mitigate the level of service if the increase is greater than 10 seconds. If the overall intersection delay increase is less than or equal to 10 seconds, mitigation of the intersection will not be required.

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

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

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

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

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

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

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

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

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

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

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

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

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

Collector Road Access Analysis

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

Queuing Analysis

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

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

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

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

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

Conclusions and Recommendations

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

Committed Improvements

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

Site Accesses and On-Site Improvements

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

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

West Pleasant Grove Road and Proposed Access (Road K)

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

West Pleasant Grove Road and Proposed Access (Road M)

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

West Pleasant Grove Road and Collector Road

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

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

Collector Road

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

Off-Site Traffic Improvements

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

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

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

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

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

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

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

Table 8 - Level of Service Matricies Street Road (S.R. 0926) and New Street

Time Period Weekday Morning Peak Hour								Weekday Afternoon Peak Hour				
Des	sign Ye	ar			2030 Design Year					2030 Design Year		
Developn	nent Co	ondition	Existing	w/o Dev Base w/ Dev w/ Dev w/ Impvts (2)				Existing	w/o Dev Base	w/o Dev ⁽¹⁾ Optimized	w/ Dev	w/ Dev w/ Impvts ⁽²⁾
		Left	A	A	A	A		В	В	В	В	В
Street Road (S.R. 0926)	ЕВ	Thru Right	8.1	9.0	9.2	9.2		12.3	13.4	15.0	12.8	12.8
et Road		Left	A	A	A	A		A	A	A	A	A
Stree	WB	Thru				1.5						0.9
		Right	5.5	5.6	1.7	A 1.0		8.7	8.9	9.9	1.0	A 0.1
		Left	С	С	С	С		С	С	С	С	С
New Street	NB	Thru Right	34.4	34.7	34.8	34.8		32.5	32.7	29.8	32.4	32.4
New 5		Left	F	F	F	F		D	D	D	D	D
	SB	Thru										
		Right	106.9	130.7	82.2	82.2		48.9	55.0	43.4	44.3	44.3
	Overall		С	D	С	С		С	С	С	В	В
			30.8	36.4	22.8	22.7		21.6	23.7	21.6	17.7	17.6

⁽¹⁾ Future traffic signal timings have been optimized.

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

Table 8 - Level of Service Matricies

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

Ti	Time Period		Weekda	ay Morning Pea	k Hour		Weekda	y Afternoon Pea	ak Hour
D	Design Year				2030 Design Year				30 n Year
	velopm Conditio		Existing	w/o Dev	w/ Dev		Existing	w/o Dev	w/ Dev
		Left	-	-	A 0.2		-	-	A 6.1
(926)	ЕВ	Thru	(1)	(1)	A 1.8		(1)	(1)	A 7.0
(S.R. 0		Right	(1)	(1)	A 0.0		(1)	(1)	A 3.4
Street Road (S.R. 0926)		Left	B 10.5	B 10.6	A 3.3		B 10.7	B 10.8	B 16.6
Stre	WB Thru	Thru	(1)	(1)	A 3.8		(1)	(1)	A 8.6
		Right	-	-	A 3.2		-	-	A 7.4
po po		Left	C 18.9	C 19.9	D 42.7		C 20.1	C 21.3	D 46.2
Bridlewood Boulevard	NB	Thru	-	-	С		-	-	С
Bri		Right	B 13.4	B 13.7	33.4		B 13.7	B 14.0	27.0
toad		Left			C 35.0				C 28.1
Collector Road	SB	Thru	-	-	D		-	-	D
Coll		Right			52.1				49.9
	Overall		A	A	В		A	A	В
			1.0	1.1	12.1		0.9	0.9	19.0

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

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

Tim	Time Period		Weekda	y Morning Pea	k Hour	Weekda	y Afternoon Pe	ak Hour
Des	ign Year			2030 Design Year				30 n Year
Developm	ent Conditio	n	Existing	w/o Dev ⁽¹⁾	w/ Dev	Existing	w/o Dev ⁽¹⁾	w/ Dev
	Lef		F 187.3	F 195.4	F 187.2	F 121.6	F 194.2	F 167.0
(9	Left EB		F	F	F	F	F	F
Street Road (S.R. 0926)	Thro		196.8	206.9	187.3	142.9	211.2	162.5
st Road	Righ	=	E	F	F	E	F	E
Stree	Lef		68.3 E	85.0 F	85.0 F	69.5 E	94.6 F	79.6 F
	WB Thr		69.5	94.3	99.5	72.9	109.3	109.0
	Righ	t	E 61.0	D 51.8	D 51.8	E 59.5	D 48.8	D 47.8
	Lef		F	Е	Е	F	Е	Е
			84.7	67.8	66.8	82.5	63.7	60.9
	NB Thru		D 50.2	F 82.0	F 88.6	E 56.7	F 79.2 (v/c > 1.0)	F 79.2 (v/c > 1.0)
(e)	Righ		С	С	С	С	С	С
202 Pik	Kigi		23.2	20.9	21.4	25.2	20.8	20.8
U.S. Route 202 Vilmington Pik	Lef		F	Е	Е	F	Е	Е
S. Re			86.1	64.3	67.2	142.8	74.3	68.4
U.S. Route 202 (Wilmington Pike)	Thr		F 76.8 (v/c > 1.0)	F 111.6	F 98.3	F 438.2	F 445.0	F 379.4
	Thr		F	F	F	F	F	F
	Righ	ŧ	83.3	125.0	103.1	422.9	432.3	359.3
0	verall		F	F	F	F	F	F
			87.4	113.6	106.8	200.4	223.7	179.9

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

Table 8 - Level of Service Matricies
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road

Ti	me Per	iod		1	Weekday Morn	ing Peak Hou	r	Weekday Afternoon Peak Hour			
De	esign Y	ear				2030 Design Year			2030 Design Year		
	velopm onditio		Exis	sting	w/o Dev	w/ Dev	w/ Dev w/ Impvts ⁽²⁾	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts ⁽²⁾
	ЕВ	Right		С	С	С	С	С	С	В	В
rove Road		8	20	0.3	16.0	15.6	15.6	20.0	15.6	12.6	12.6
Pleasant Grove Road	WB	Right		С	D	D	D	С	С	С	С
	""	Kigitt	24	4.8	27.2	27.2	27.2	22.1	24.1	19.7	19.7
		Left		C 8.5	B 14.5	C 15.4	C 15.4	C 17.3	B 13.7	B 14.1	B 14.1
(a	NB	Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
U.S. Route 202 (Wilmington Pike)		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
U.S. Ro /ilming		Left		C 2.6	C 23.1	C 23.1	C 23.1	C 23.2	C 24.9	C 19.4	C 19.4
<u>`</u> €	SB	Thru	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
		Thru/ Right	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Overal	1		A	A	A	A	A	A	A	A
			ot free-flow	1.3	0.7	0.8	0.8	0.8	1.2	1.0	1.0

⁽¹⁾ Movement operates at free-flow conditions.

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

Table 8 - Level of Service Matricies
West Pleasant Grove Road and Church Full-Movement Access

Tiı	Time Period		Weekda	ny Morning	Peak Hour	Weekday Afternoon Peak Hour			
Design Year				2030 Design Year			2030 Design Yea		
	velopment ondition		Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev	
West Pleasant Grove Road	Thru EB Right		(1)	(1)	(1)	(1)	(1)	(1)	
Vest Pleasan	Left WB		A	A	A	A	A	A	
	Thru		8.1	8.1	8.2	8.1	8.1	8.2	
Church Full- Movement Access	Left		A	A	В	В	В	В	
Church Full- ovement Acc	NB		9.4 A	9.9 A	11.4 A	10.1 A	10.5 A	12.9 A	
Ch	Right		0.0	0.0	0.0	8.2	8.4	8.4	
			A	A	A	A	A	A	
	Overall		0.4	0.3	0.2	0.3	0.3	0.2	

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies
West Pleasant Grove Road and Orvis Way (By Others)

Tir	ne Period		Morning			Afternoon
		Peak				Hour
De	sign Year	2030			2030	
		Design	n Year		Design	n Year
	velopment ondition	w/o Dev	w/ Dev		w/o Dev	w/ Dev
ad	Left EB	A	В		A	В
it Grove Ro	Thru	8.9	10.3		9.0	10.9
West Pleasant Grove Road	Thru WB Right	(1)	(1)		(1)	(1)
Orvis Way (By Others)	Left	В	В		В	С
Orvi (By C	Right	10.0	14.0		10.6	17.6
	Overall	A	A		A	A
	Overall	2.2	3.9		2.0	7.3

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies West Pleasant Grove Road and Church Egress Only Access

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

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies
West Pleasant Grove Road and Collector Road

Tim	e Period	Weekday Morning Peak	Weekday Afternoon Peak
		Hour	Hour
Des	ign Year	2030	2030
		Design Year	Design Year
Developn	nent Condition	w/ Dev	w/ Dev
West Pleasant Grove Road	Thru/ EB Right	(1)	(1)
/est Pleasant	Left/ WB Thru	A	В
Y.		9.1	11.3
Collector Road	Left NB	A	В
Collect	Right	9.5	11.2
	verall	A	A
	veidii	5.4	7.5

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies West Pleasant Grove Road and Road M

Tim	ne Perio	d		Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Des	sign Yea	ar		2030 Design Year	2030 Design Year
Developn	Development Condition			w/ Dev	w/ Dev
West Pleasant Grove Road	ЕВ	Thru/ Right		(1)	(1)
Vest Pleasan	WB	Left/ Thru		A	A
Λ				8.3	7.5
d M	NID	Left		A	A
Road M	NB	Right		8.7	9.1
	Overall			A	A
(1) Mayama		tos at frao		0.6	0.6

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

West Pleasant Grove Road and Dunvegan Road / Road K

Tir	me Period	Week	day Morning Po	eak Hour	Weeko	lay Afternoon P	eak Hour	
De	esign Year			30 n Year		2030 Design Year		
Develop	ment Condition	Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev	
	Left	A	A	A	A	A	A	
Road	EB Thru	0.0	0.0		8.9	9.0		
t Grove	Right	-	-	0.0	-	-	8.8	
West Pleasant Grove Road	Left	-	-	A	-	-	A	
West I	WB Thru Right	(1)	(1)	8.2	(1)	(1)	8.3	
Road K	Left NB Thru	-	-	A 9.7	-	-	B 10.0	
	Right			7			10.0	
Dunvegan Road	Left SB Thru	В	В	В	В	В	В	
Dunve	Right	10.0	10.5	10.4	10.0	10.3	10.1	
	Overall	А	A	A	A	A	A	
	- 1 - 1 - 1	0.3	0.2	1.0	0.2	0.2	0.8	

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

New Street and West Pleasant Grove Road

Tiı	Time Period								
De	esign Year								
	velopment ondition								
leasant Road	Road Left								
West P	West Pleasan Grove Road Right								
	Thru NB								
Street	Right								
New Street	Left								
SB Thru									
Overall									

Weekda	ny Morning Pea	k Hour		
		30 n Year		
Existing	w/o Dev	w/ Dev		
В	В	В		
12.7	13.9	13.0		
(1)	(1)	(1)		
A	A	A		
8.7	8.9	8.9		
A	А	A		
5.4	5.7	4.9		

Weekda	y Afternoon Pe	ak Hour		
		30 n Year		
Existing	w/o Dev	w/ Dev		
В	В	В		
13.2	14.5	13.8		
(1)	(1)	(1)		
A	A	A		
8.5	8.6	8.7		
A	A	A		
5.7	6.1	5.2		

⁽¹⁾ Movement operates at free-flow conditions.

Table 8 - Level of Service Matricies

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

Time Period					Weekday Morr	ning Peak Hou	r			Weekday Afte	rnoon Peak Ho	our
De	esign Ye	ar				2030 Design Year					2030 Design Year	
Develop	Development Condition			Existing	w/o Dev ⁽¹⁾ w/ Dev ⁽¹⁾		w/ Dev w/ Impvts ⁽²⁾		Existing	w/o Dev ⁽¹⁾	w/ Dev ⁽¹⁾	w/ Dev w/ Impvts ⁽²⁾
		Left		D	Е	F	Е		D	D	F	D
noo		2011		43.5	68.9	158.4	78.5		38.2	55.0	87.4	53.9
Stetson School Drive	EB	Thru		С	D	D	D		С	D	С	D
tsor Dı				33.8	39.8	38.0			32.6	40.2	34.3	
Ste		Right		С	D	D	39.6		С	D	С	36.7
		8		32.3	37.8	36.2			30.6	37.6	32.1	
rg.		Left		D	D	D	D		D	D	D	D
eva				38.2	47.6	45.4	53.1		35.4	45.8	39.1	52.6
Skiles Boulevard	WB	Thru		D	D	D	E		С	D	С	D
es F							67.0					50.6
Skil		Right		36.6	44.0	41.4	D		33.4	40.8	34.9	E
							51.8					58.2
		Thru		F	F	F	F		В	С	С	С
(e)	NB	(2)		37.9 (v/c > 1.0)	50.3 (v/c > 1.0)	54.0 (v/c > 1.0)	52.2 (v/c > 1.0)		18.1	25.5	33.5	30.6
202 Pik		Right		A	A	A	A		A	A	A	A
oute		Right		6.0	7.0	7.8	7.6		4.5	5.8	8.3	7.9
U.S. Route 202 Wilmington Pike)		Thru		В	С	С	С		В	В	С	С
5	SB	(2)		19.1	25.1	30.0	29.2		12.7	17.2	21.7	20.5
	Right			A	A	A	A		A	A	В	В
		Aigin		7.6	9.0	10.0	9.9]	4.9	6.3	11.1	10.6
	Overall			С	D	D	D		В	С	С	С
				28.4	37.4	45.2	41.5		16.8	23.4	30.9	27.7

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

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

Table 9. 95th Percentile Queue Matrices

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

Tin	ne Period				1	Weekday Morn	ing Peak Hou	r		Weekday	Afternoon Pe	ak Hour		
Des	Design Year		rrent	Future			2030 Design Year		2030 Design Year					
Developn	nent Conditi		itorage (1) Storage (1)		Existing	w/o Dev Base	w/ Dev	w/ Dev w/ Impvts ⁽²⁾	Existing	w/o Dev Base	w/o Dev ⁽²⁾ Optimized	w/ Dev	w/ Dev w/ Impvts ⁽²⁾	
Street Road (S.R. 0926)	Le EB Th Rig	ru 2,20	200′	2,200′	230	253	258	258	320	353	370	333	333	
Street Road	Le WB Th Rig	u 4,70	700'	2.350′	93	100	30	25 25	140	153	160	25	25	
Street	Le NB Th Rig	ru -	-	-	140	150	153	153	125	135	125	138	138	
New Street	Le SB Th Rig	ru -	-	-	480	563	398	398	383	430	378	338	338	

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

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

Table 9. 95th Percentile Queue Matrices

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

Ti	me Perio	od			Weekd	lay Morning Pea	ık Hour	Weel	day Afternoon P	eak Hour
De	Design Year		Current Storage ⁽¹⁾	Future Storage ⁽¹⁾			030 n Year			030 gn Year
	Development Condition		b	Ü	Existing	w/o Dev	w/ Dev	Existing	w/o Dev	w/ Dev
		Left	-	150'	-	-	0	-	-	30
926)	ЕВ	Thru	2,400′	2,400'	-	-	25	-	-	120
Street Road (S.R. 0926)		Right	350'	350'	-	-	0	-	-	25
et Road		Left	120'	120'	25	25	25	25	25	25
Stre	WB	Thru	2,300′	2,300′			43			95
		Right	-	150'	-	-	25	-	-	25
pq q		Left			25	25	28	25	25	25
Bridlewood Boulevard	NB	Thru	-	-	-	-	40	-	-	45
Br		Right			25	25	40	25	25	45
oad		Left					43			25
Collector Road	SB	Thru	-	-	-	-	210	-	-	415
Coll		Right					210			415

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

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

Table 9. 95th Percentile Queue Matrices

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

Tir	ime Period				Week	day Morning Pea	k Hour]	Week	day Afternoon Pe	ak Hour
De	Design Year		Current	Future Storage ⁽²⁾		20 Desig				030 n Year	
Develop	Development Condition		Storage ⁽¹⁾		Existing	w/o Dev ⁽³⁾	w/ Dev ⁽³⁾		Existing	w/o Dev ⁽³⁾	w/ Dev ⁽³⁾
		Left	450'	450'	885	850	805		673	758	588
(97	EB	Left									
.R. 092		Thru	4700′	2,200′	1018	983	880		800	875	608
Soad (S		Right									
Street Road (S.R. 0926)		Left	200'	200'	235	253	253		320	350	323
	WB	Thru	680'	680'	258	288	300		358	408	430
		Right	215'	215'	73	78	78		93	85	85
		Left	305'	305'	25	25	38		58	48	93
	NB	Thru	2,800′	2,800′	960	1103	1140		1035	1080	1080
202 Pike)		Right	170'	170'	148	128	130		125	103	103
U.S. Route 202 (Wilmington Pike)		Left	375'	375'	98	88	103		213	155	158
U.S.	C.P.	Thru	4,400′	4,400′	1195	1335	1193		3165	3133	2588
	SB	Thru	4,400′	4,400'	1273	1470	1270		3193	3178	2588
		Right	aslized interes					<u> </u>			

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

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

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

Table 9. 95th Percentile Queue Matrices

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

Ti	me Peri	iod		,	Weekday Morn	ing Peak Hou	•	V	Veekday Aftern	oon Peak Hou	r
De			Current Storage (1)			2030 Design Year				2030 Design Year	
	velopm Conditio		Storage	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts ⁽²⁾	Existing	w/o Dev	w/ Dev	w/ Dev w/ Impvts ⁽²⁾
West Pleasant Grove Road	ЕВ	Right	-	25	25	25	25	25	25	25	25
West Pleasan	WB	Right	-	25	25	25	25	25	25	25	25
		Left	350'	25	25	25	25	25	25	25	25
<u> </u>	NB	Thru	3,100′	-	-	-	-	-	-	-	-
U.S. Route 202 (Wilmington Pike)		Thru/ Right	3,100′	-	-	-	-	-	-	-	-
U.S. Ro /ilming		Left	380'	25	25	25	25	33	43	33	33
<u> </u>	SB	Thru	1,200′	-	-	-	-	-	-	-	-
(1) D'ata		Thru/ Right	1,200′	-	-	-	-	-	-	-	-

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

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

Table 9. 95th Percentile Queue Matrices
West Pleasant Grove Road and Church Full-Movement Access

Time Period							
De	sign Year						
	velopment ondition						
oad	Thru						
it Grove Ro	Right						
West Pleasant Grove Road	Left WB						
W	Thru						
Church Full- ovement Access	Left NB						
Churc) Moveme	Right						

Weekda	y Morning	Peak Hour
		2030 ign Year
Existing	w/o Dev	w/ Dev
-	-	-
0	0	0
0	0	0
0	0	0

Weekday Afternoon Peak Hour							
		2030 ign Year					
Existing	w/o Dev	w/ Dev					
-	-	-					
0	0	0					
0	0	0					
0	0	0					

Table 9. 95th Percentile Queue Matrices
West Pleasant Grove Road and Orvis Way (By Others)

Time Period			Weekday Morning Peak Hour									Afternoon Hour
De	Design Year		2030 Design Year					30 n Year				
Development Condition			w/o Dev	w/ Dev	w/o Dev	w/ Dev						
West Pleasant Grove Road	Left EB Thru		25	25	25	0						
West Pleasan	Thru WB Right		,	•	-	-						
Orvis Way (By Others)	Left SB Right		25	25	25	70						

Table 9. 95th Percentile Queue Matrices
West Pleasant Grove Road and Church Egress Only Access

Tiı	ne Period		Weekday Morning Peak Hour				Weekda	y Afternoor	Peak Hour				
De	sign Year				2030 Design Year				ll l				2030 Ign Year
	Development Condition		Existing	w/o Dev	w/ Dev		Existing	w/o Dev	w/ Dev				
West Pleasant Grove Road	EB Thru		-	-	-		-	-	-				
West Pleasan			-	-	1		-	-	-				
Church Egress Only Access	NB	Left	0	0	0		0	0	0				

Table 9. 95th Percentile Queue Matrices
West Pleasant Grove Road and Collector Road

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

Table 9. 95th Percentile Queue Matrices West Pleasant Grove Road and Road M

Tim	e Period	Weekday Morning Peak Hour	Weekday Afternoon Peak Hour
Des	ign Year	2030 Design Year	2030 Design Year
Developn	nent Condition	w/ Dev	w/ Dev
t Grove Road	EB Right	-	-
West Pleasant Grove Road	Left/ WB Thru	0	0
Road M	Left NB Right	25	0

Table 9. 95th Percentile Queue Matrices
West Pleasant Grove Road and Dunvegan Road / Road K

Time Period					
De	esign Ye	ear			
	velopm onditio				
		Left			
Road	EB	Thru			
Vest Pleasant Grove Road		Right			
leasant	WB	Left			
West I		Thru			
		Right			
		Left			
Road K	NB	Thru			
]		Right			
toad		Left			
vegan Roa	SB	Thru			
Dun		Right			

Weekday Morning Peak Hour							
		30 n Year					
Existing	w/o Dev	w/ Dev					
0	0	0					
-	-						
-	-						
-	-	0					
-	-	25					
0	0	0					

Weekday Afternoon Peak Hour							
		30 n Year					
Existing	w/o Dev	w/ Dev					
0	0	0					
-	-						
-	-						
-	-	0					
-	-	25					
0	0	0					

Table 9. 95th Percentile Queue Matrices

New Street and West Pleasant Grove Road

Tiı	Time Period			Weekda	ny Morning Pea	ık Hour	
De	sign Y	ear	Current		2030 Design Year		
Development Condition		Storage (1)	Existing	w/o Dev	w/ Dev		
West Pleasant Grove Road	WB	Left Right	-	40	48	38	
New Street	NB	Thru Right	3,350′	-	-	-	
New 9	SB	Left Thru	-	0	25	25	

Weekday Afternoon Peak Hour							
		30 n Year					
Existing	w/o Dev	w/ Dev					
45	58	45					
-	-	-					
25	25	25					

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

Table 9. 95th Percentile Queue Matrices

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

Ti	ime Peri	od					Weekday Mo	orning Peak Ho	ur			Weekday Afte	ernoon Peak Ho	ur
D	Design Year Development Condition		Design Year Current Storage (1) Storage (2)				2030 Design Year				2030 Design Year			
Develop			Storage	Storage		Existing	w/o Dev ⁽³⁾	w/ Dev (3)	w/ Dev w/ Impvts ⁽⁴⁾		Existing	w/o Dev ⁽³⁾	w/ Dev ⁽³⁾	w/ Dev w/ Impvts ⁽⁴⁾
loon		Left	200'	200' (2 Lanes)		93	233	518	210		123	258	545	238
Stetson School Drive	EB	Thru	-			140	185	180	220		118	175	160	228
Stet		Right	200'	-		30	40	40	220		53	73	65	226
evard		Left	350'	350'		53	118	115	125		25	78	70	83
Skiles Boulevard	WB	Thru		-		198	250	243	225		95	135	123	60
Skile		Right	-	150'		196	230	243	88		93	133	123	98
(e)	NB	Thru (2)	4,400′	4,400′		818	1115	1135	1120		505	788	868	830
ute 202 ton Pik		Right	220'	220'		25	25	25	25		25	25	33	33
U.S. Route 202 (Wilmington Pike)	SB	Thru (2)	4,600′	4,600′		545	775	853	843		403	628	678	655
(1) Distan	(4:	Right	200'	200'		93	145	163	178		33	60	203	215

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

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

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

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



FIGURE 1Site Location Map

ROBINSON TRACT WESTTOWN TOWNSHIP, CHESTER COUNTY, PA



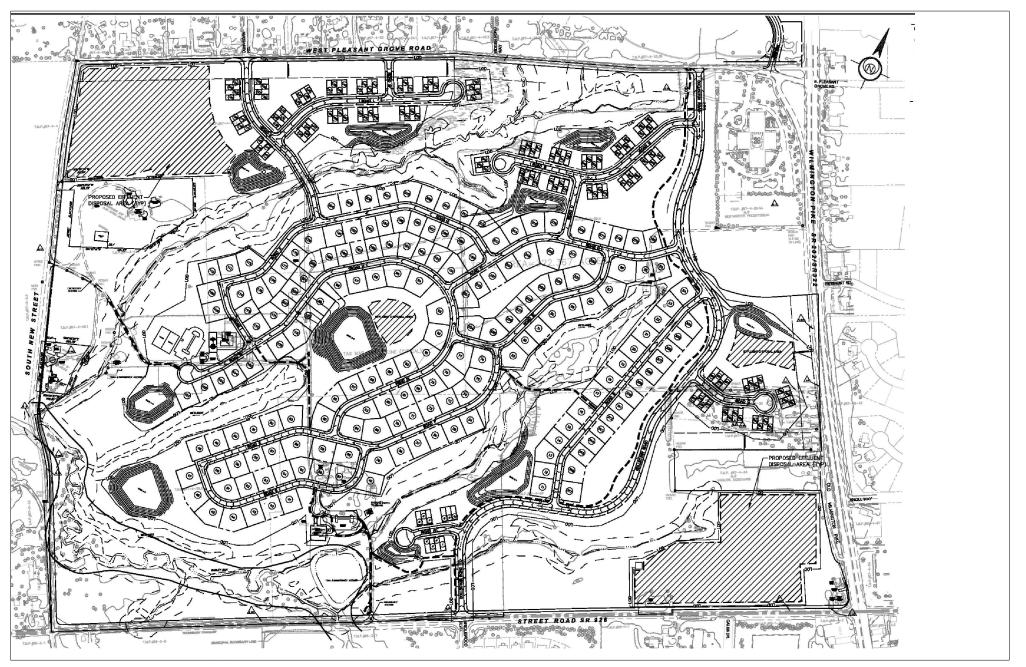
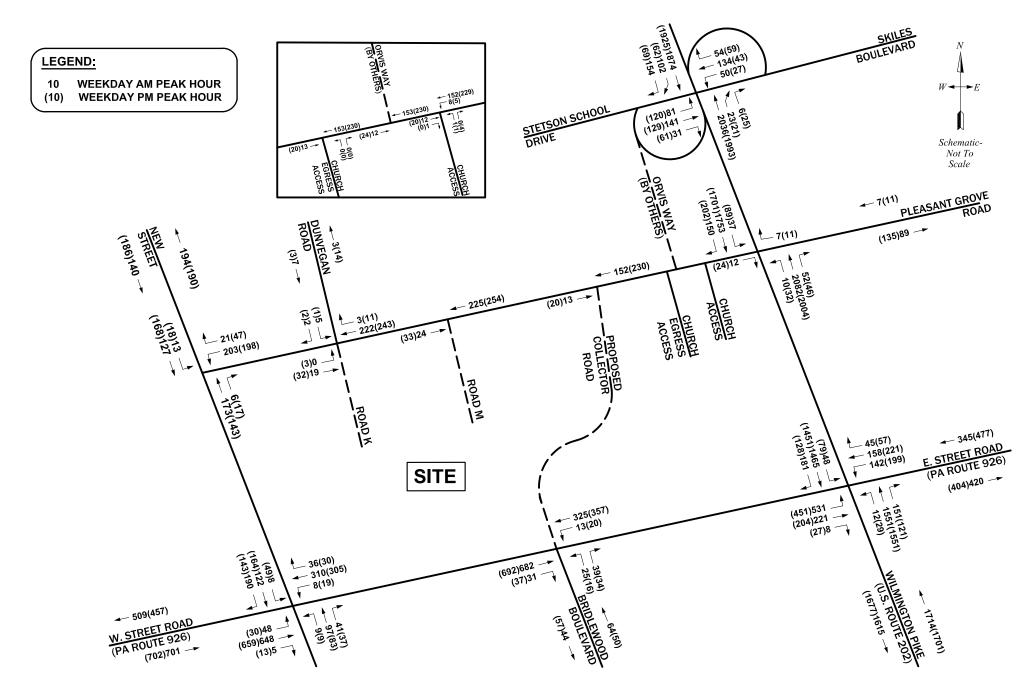


FIGURE 2 Site Plan

ROBINSON TRACT WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

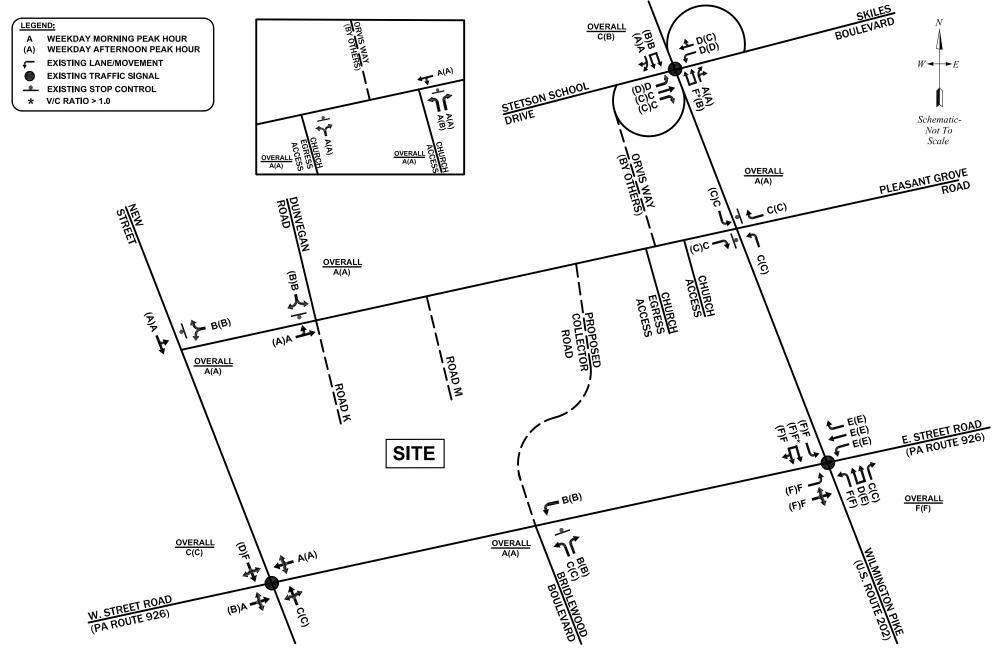






Existing Peak Hour Traffic Volumes







Existing Peak Hour Levels-of-Service



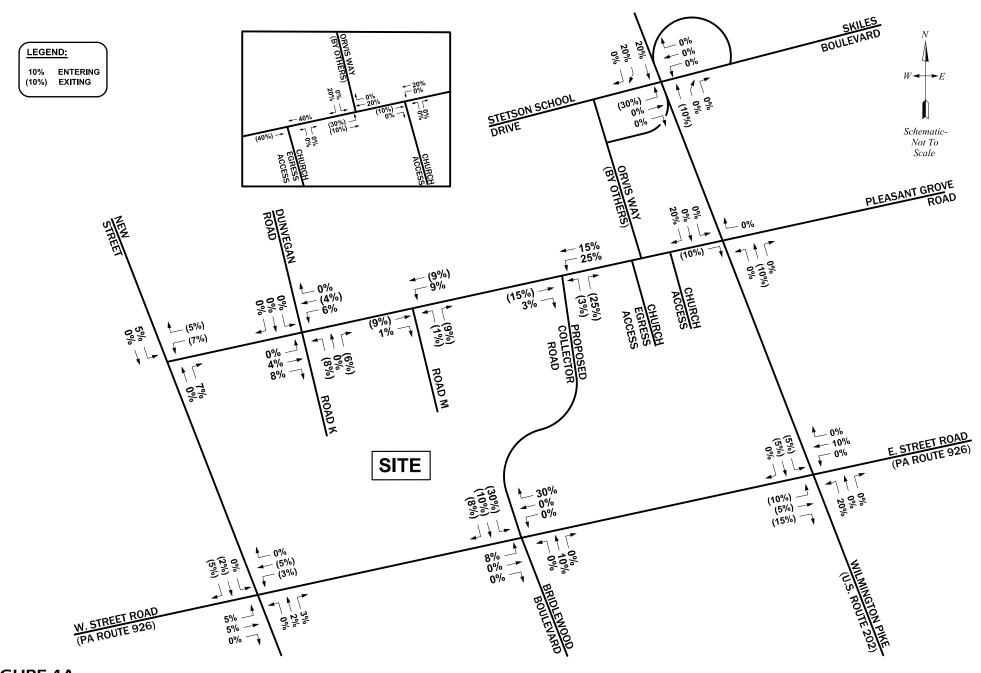


FIGURE 4ANew Site Trip Distributions



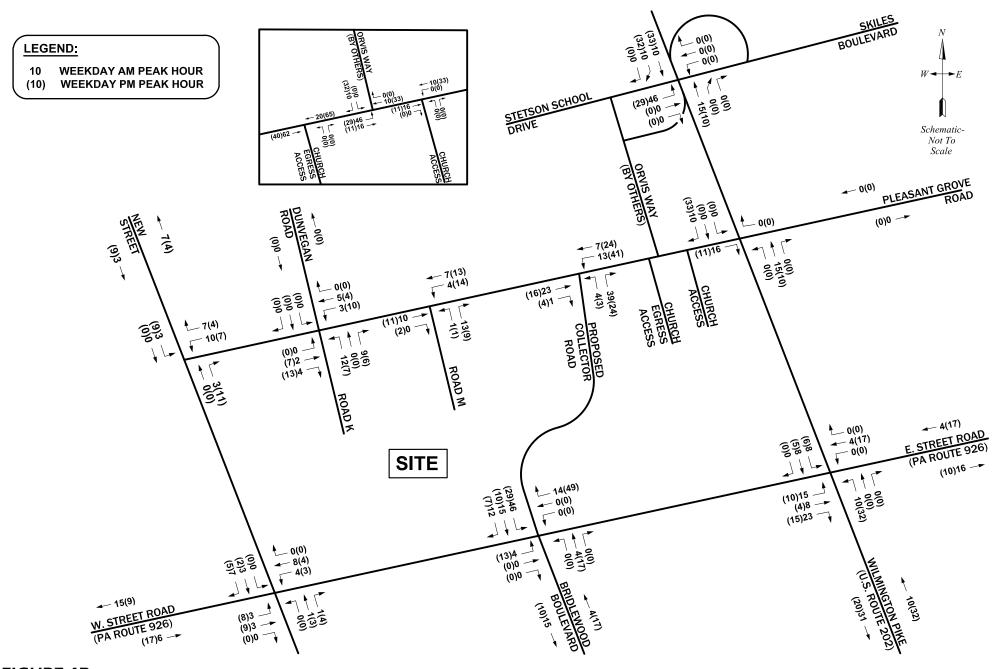


FIGURE 4B

New Site Trip Assignments



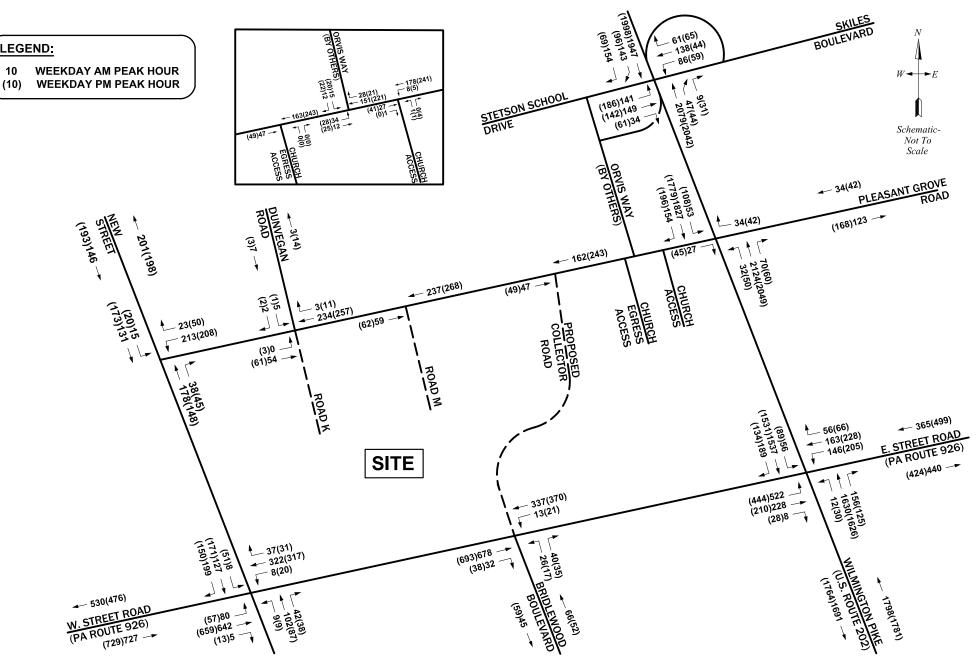


FIGURE 5A

2025 Build-Out Year without Development Peak Hour Traffic Volumes



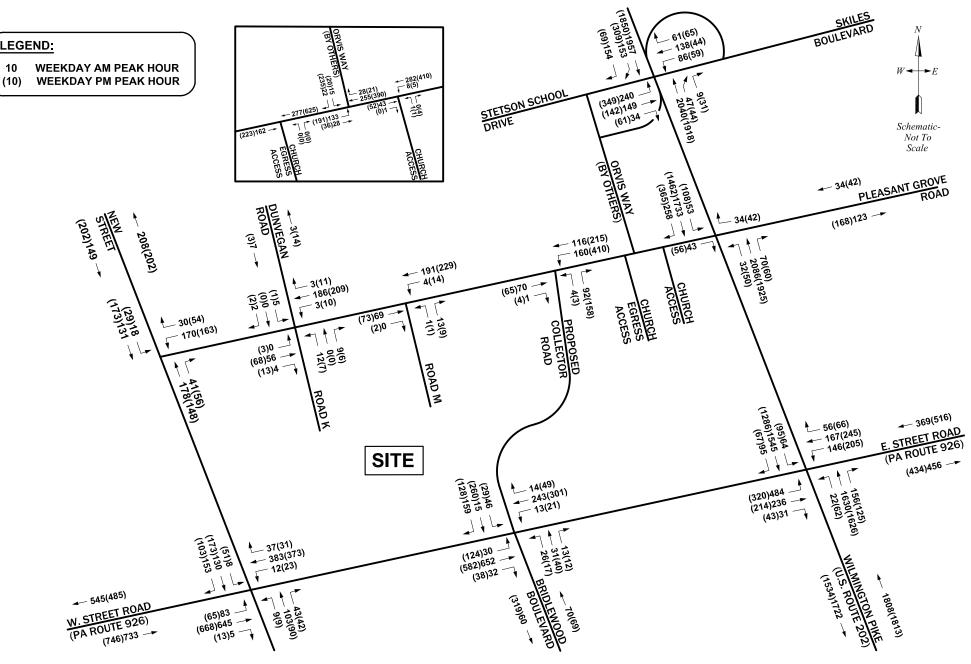


FIGURE 5B

2025 Build-Out Year with Development Peak Hour Traffic Volumes



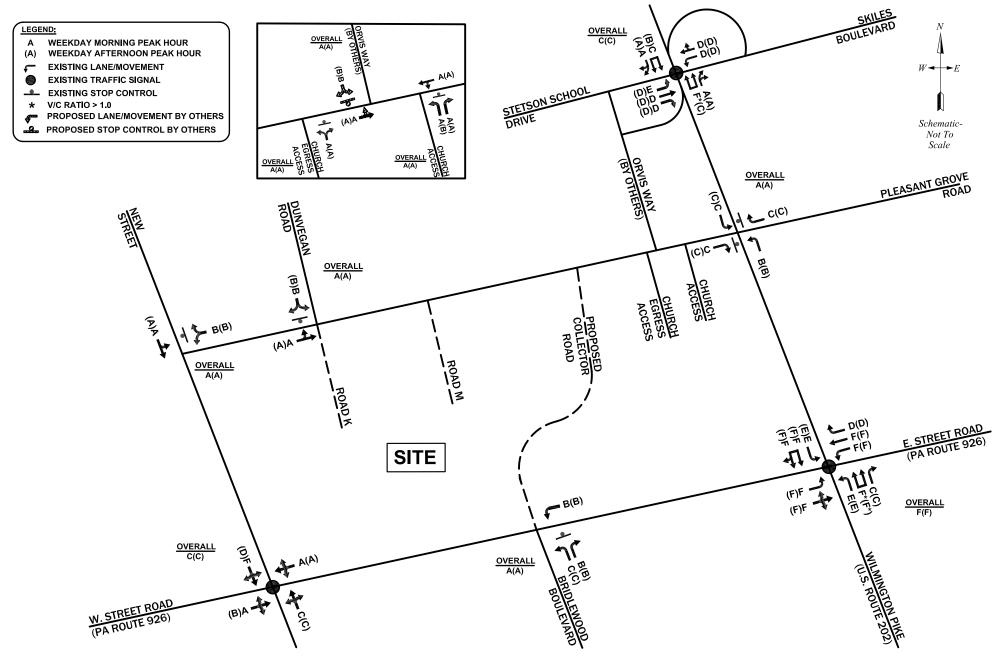


FIGURE 5C

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



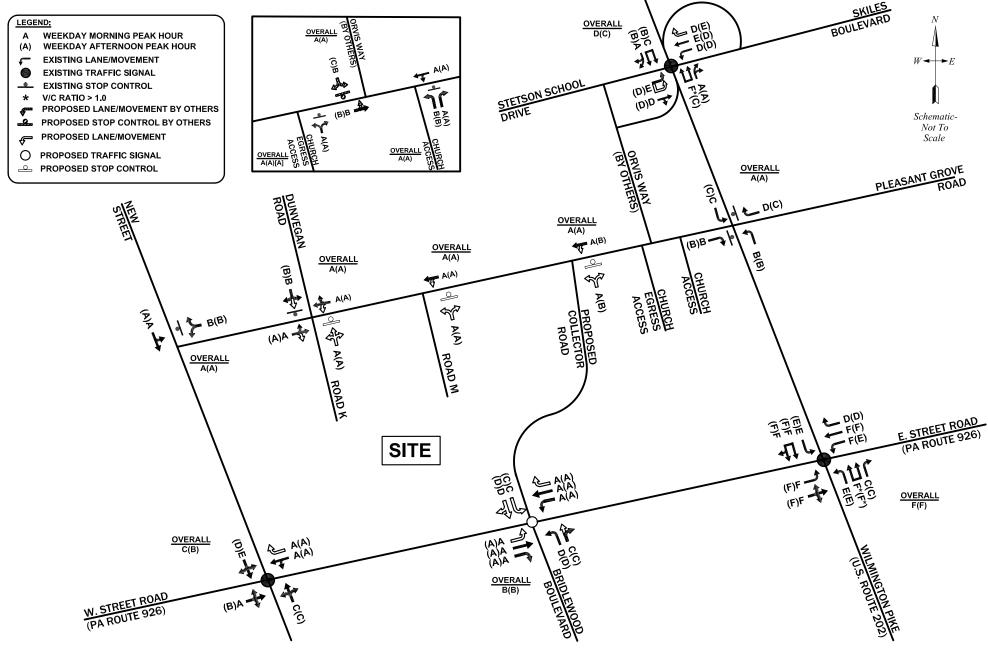
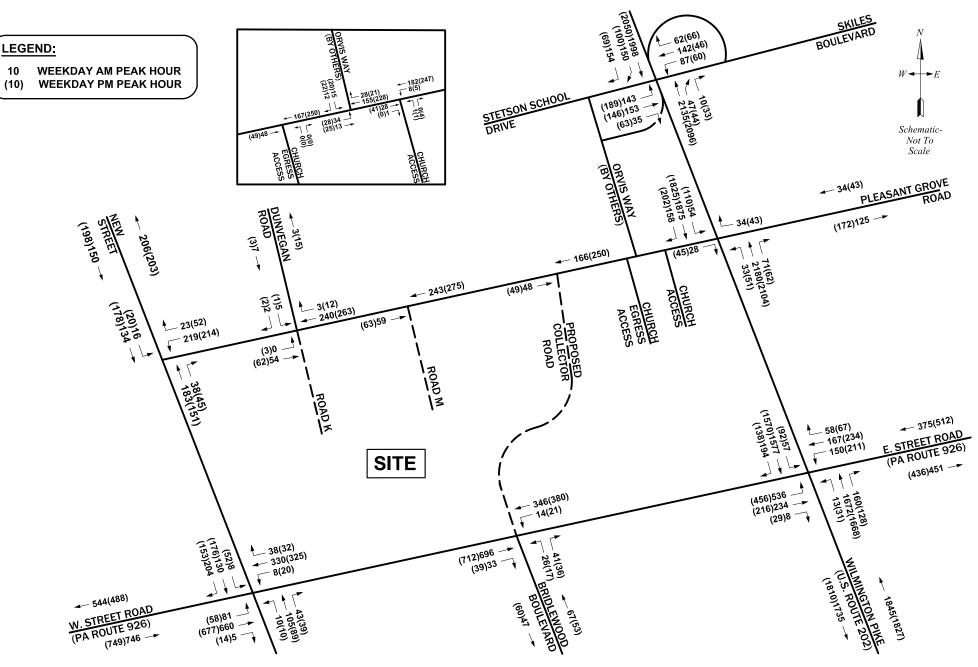


FIGURE 5D

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





59

FIGURE 6A

2030 Design Year without Development Peak Hour Traffic Volumes



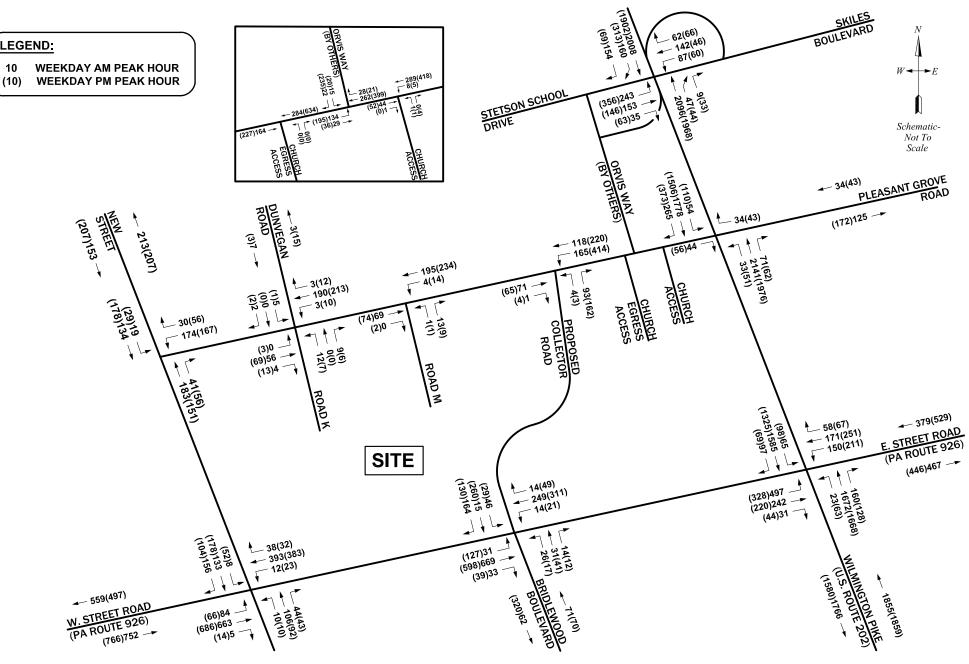


FIGURE 6B

2030 Design Year with Development Peak Hour Traffic Volumes

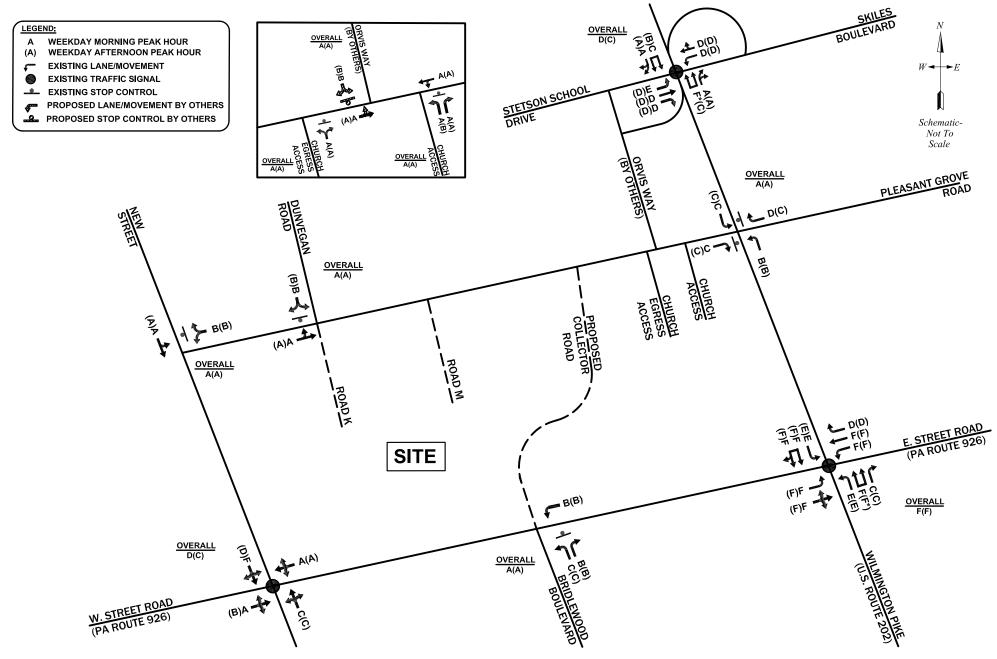


FIGURE 6C

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



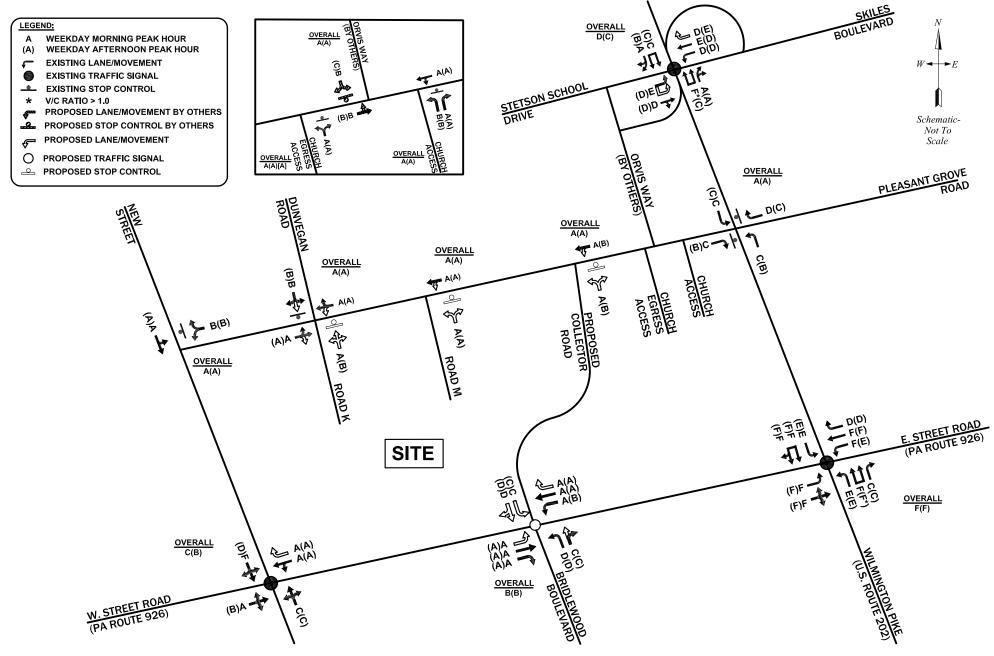


FIGURE 6D

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



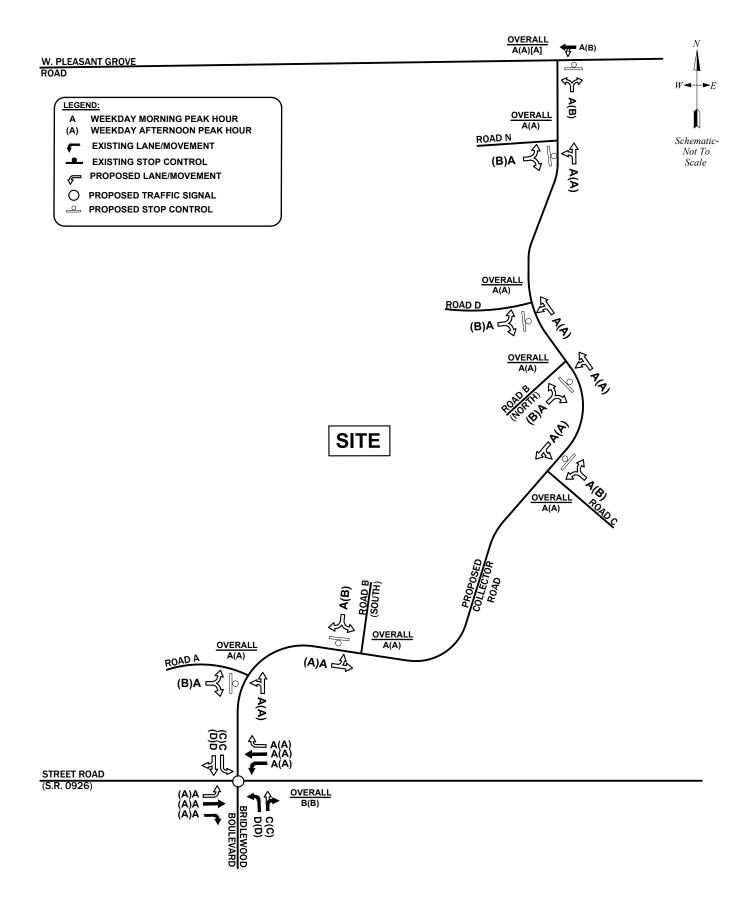


FIGURE 7

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

ROBINSON TRACT

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA
(2019/11/06) 1:\eng\816451 - Crebilly Farm\dwg\2019-11 Robinson Tract Revised TIS\Figure 7.dwg



Appendix A

Correspondence



May 15, 2020

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

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

Dear Mr. Russell:

McMahon Associates, Inc. is in receipt of the letter prepared by Albert Federico Consulting, LLC in their capacity as the Township traffic engineer, dated May 13, 2020, in regards to the Robinson Tract residential development conditional use application traffic review. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania.

The Transportation Impact Study (TIS) for the Robinson Tract, prepared by our office and dated most recently revised May 15, 2020 (original date of August 13, 2019), is part of the conditional use application as submitted by the applicant. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

To date the Applicant has not demonstrated compliance with the conditional use criteria in §170-2009.D(1)(h): In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. Most notably:

Traffic analyses which provide the basis for determining project impacts have not been updated to address the outstanding technical aspects associated with the:

Assumed traffic diversions

As documented in the TIS within the conditional use application, Response:

> based on a conference call conducted on May 14, 2020, PennDOT's consultant reviewer and the Township's Traffic Engineer indicated there are no further comments to address regarding the traffic

diversions in the applicant's studies.

Signal operations at PA 926 and New Street

As documented in the TIS within the conditional use application, the Response:

development has no traffic impact at this intersection, based on

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PennDOT overall intersection mitigation criteria. Based on a meeting February 11, 2020, PennDOT required the applicant to revise the signal timings at PA 926 and New Street to provide a minimum of 63 seconds of green time along PA 926. This revision is included in the revised TIS, and results in no changes to the mitigation requirements or recommendations. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements. The current concept plan is attached.

An implementation strategy for necessary improvements has not been provided

Response:

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

- The submitted Conditional Use plans do not:
 - Response: As documented on page 11 of the transportation impact study, dated revised May 15, 2020, the existing available sight distances at the site accesses meet or exceed the Township and PennDOT requirements.
 - Adequately address access to West Pleasant Grove Road

Response:

As documented in the transportation impact study, dated May 15, 2020, access is adequately addressed to West Pleasant Grove Road, as industry standard PennDOT traffic operations criteria are satisfied.

Include compliant horizontal alignments of internal roadways

Response:

Detailed horizontal and vertical profiles are not required during conditional use. Full engineering occurs during the land development process. The application satisfies the conditional use requirements including road profiles to determine preliminary compliance with Township natural feature, site analysis, conservation design process and density requirements. As documented in the conditional use application, the internal roadways are compliant with Township criteria.

While there has been limited recent coordination with the Applicant's Traffic Engineer and PennDOT these items and the other issues identified in the March 13, 2020 Traffic Review remain outstanding.

The following list of recommended transportation related improvements is also provided for the Planning Commission's consideration in the review of this Application.

Comment #1:

Connector Road, construct:

- a) Dimensionally compliant with Township standards for a Collector Road
- b) With a sufficient pavement structure, as determined by the Township Engineer, to accommodate heavy equipment and truck traffic.
- c) Reasonable traffic calming measures to maintain a consistent, appropriate travel speed.
- d) Facilities accommodating:
 - i) Non-vehicular travel
 - ii) Personal vehicles waiting for school busses.

Response:

- a. This information is not required for conditional use. However, the applicant is providing a Connector Road design that is consistent with the Township standards, with a 28-foot cartway width and a 60-foot right-of-way, as documented in the conditional use application.
- b. This information is not required for conditional use. However, the applicant has committed within the conditional use application to provide a pavement design in compliance with the Township's standards.
- c. This information is not required for conditional use. The applicant is providing the Connector Road, as envisioned and as requested by the Township, as documented in the conditional use application. The applicant's original conditional use plan included a roadway design appropriate for a residential street. Traffic calming is inconsistent with the Township's requested Connector Road purpose and design.
- d.i. This information is not required for conditional use. However, the applicant is providing facilities for non-vehicular traffic along the Connector Road, as documented in the conditional use application.
- d.ii. This information is not required for conditional use, and school bus stops are not required pursuant to Township code. However, the applicant is providing designated school bus areas within the development, as documented in the conditional use application on the alternate plan.

Comment #2:

West Pleasant Grove Road, modify:

a) Along the site frontage in a manner compliant with Township standards for a Collector Road b) At the proposed local road site access(es) to control turning movements in a manner that enhances safety and aesthetics, preferably with roundabout(s)

c) At the Collector Road site access to control turning movements and connectivity with Orvis Way in a manner that enhances safety and aesthetics, preferably with a roundabout

Response:

- a. This information is not required for conditional use. However, the applicant is providing right-of-way and roadway widening along the West Pleasant Grove Road property frontage consistent with the Township standards for a Collector Road, as documented in the attached exhibit.
- b. This information is not required for conditional use. The transportation impact study demonstrates that the site accesses satisfy industry standard PennDOT traffic operations criteria and safety with stop-control on the site access approach, as proposed by the applicant within the conditional use application. Aesthetics are not required by code.
- c. This information is not required for conditional use. The transportation impact study demonstrates that the Collector Road intersection satisfies industry standard PennDOT traffic operations criteria and safety with stop-control on Collector Road approach. Aesthetics are not required by code. However, the applicant offers to install a mini roundabout at the Collector Road/West Pleasant Grove Road intersection as documented on the attached exhibit, provided the Township acquires any necessary right-of-way to install.

Comment #3

- PA 926 (Street Road), modify as determined appropriate in coordination with PennDOT and Thornbury Township:
- a) At the Connector Road site access to install a traffic signal and turn lanes
- b) At New Street to:
 - i) Mitigate project impacts (as determined based n the review of revised analyses, submission pending) and to address PennDOT comments (currently by constructing eastbound and westbound left turn lanes)
 - ii) Provide appropriate non-vehicular connectivity
 - iii) Provide equipment for emergency pre-emption

Response:

- a. Page 2 of the executive summary of the transportation impact study dated revised May 15, 2020 within the conditional use application demonstrates the applicant will provide a traffic signal and turn lanes in accordance with PennDOT criteria at the PA 926/Connector Road intersection.
- b.i. This information is not required for conditional use. As documented in the conditional use application, the development has no traffic impact at this intersection, based on PennDOT overall intersection mitigation criteria. PennDOT is requiring the applicant to evaluate the ability to provide dedicated left-turn lanes along PA 926. These lanes are needed based on existing conditions, and require right-of-way not controlled by the applicant to implement. The applicant has submitted conceptual plans to PennDOT, Westtown Township, and Thornbury Township for review, and will

coordinate with the impacted property owners regarding the acquisition of right-of-way needed to complete the improvements.

b.ii. This information is not required for conditional use. In conjunction with the improvements PennDOT has requested the applicant to evaluate pedestrian facilities cross the southern leg of New Street and the eastern leg of PA 926, as documented in the attached concept plan. There will not be connectivity beyond the intersection since it crosses environmentally sensitive areas.

b.iii. This information is not required for conditional use. Emergency pre-emption exists at the intersection currently, and PennDOT requires it to be maintained.

Comment #4

US Route 202, modify as determined appropriate in coordination with PennDOT a) At West Pleasant Grove Road to provide a southbound right turn lane as determined appropriate in coordination with PennDOT

- b) At 926 to:
 - i) Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and address PennDOT comments
 - ii) Provide equipment for emergency pre-emption.

Response:

- a. The applicant has committed to provide this improvement on page 3 of the executive summary transportation impact study, dated revised May 15, 2020, within the conditional use application in coordination with PennDOT.
- b.i. The development does not have a traffic impact at the intersection of US 202/PA 926 with provision of the Connector Road, as documented within the conditional use application.

b.ii. Emergency pre-emption exists at the intersection currently, and PennDOT requires it to be maintained.

Comment #5:

Non-vehicular elements, construct facilities connecting to existing and/or planned nonvehicular facilities, including:

- i) Arborview
- ii) Orvis Way
- iii) Bridlewood Boulevard
- iv) Signalized intersection of US Route 202 and PA 926

Response:

i. As documented in the conditional use application, the applicant is providing non-vehicular facilities from the development to the edge of the right-of-way at the Arborview property boundary. Connection to the Arborview trail is an offsite improvement that is not required.

ii. A non-vehicular connection is not required for conditional use, as this is an offsite improvement.

iii. As required by PennDOT, non-vehicular facilities will be provided in conjunction with the PA 926 Connector Road/Bridlewood Boulevard signalized intersection within the right-of-way.

iv. As documented in the alternate plan dated February 13, 2020, the applicant is provided non-vehicular facilities to connect the development to US 202/PA 926.

Comment #6:

Westminster Presbyterian Church, as determined appropriate by the Township and in coordination with the Church:

a) Remove the existing westernmost driveway adjacent to the Connector Road

b) Provide for future access from the Westminster Presbyterian Church to the Collector Road at a mutually agreed upon location

Response:

a. The applicant will not remove the church driveway. The church can close the driveway at their discretion.

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

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

Sincerely,

Nicole R. Kline-Elsier, P.E., PTOE

Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township

Sirole R. Offine - Elsier

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



May 15, 2020

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

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

Dear Mr. Russell:

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

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Jason T. Adams, P.E., PTOE
Christopher K. Bauer, P.E., PTOE

FOUNDER Joseph W. McMahon, P.E.

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

Comment #1ai: As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a

Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.

Status: In consideration of the ongoing coordination the Applicant has yet to submit a revised

TIS. The submitted correspondence does not commit to this revision.

Response: West Pleasant Grove Road does not meet the Collector Road standards under the

Township's road specifications. The applicant has agreed to widen along the property frontage to meet the Township's Collector Road half-width requirement of 14 feet. Table 1 has been revised to note that the applicant will widen West Pleasant Grove Road along the property frontage to meet the Township's half width requirement for Collector.

the property frontage to meet the Township's half-width requirement for Collector

Roads.

Comment #1aii: The sections of the TIS discussing improvements should note that the internal Collector Road

provides access to the property.

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

Response: Complies. The Collector Road is not necessary for access to the site, but does provide

secondary access locations. Page 3 of the TIS has been revised accordingly.

Comment #1aiii: As previously noted, the Crash Summary only includes data for State "Reportable" collisions. In

order to provide a more complete assessment of transportation safety within the study area "Nonreportable" collisions should be included. Note that the Traffic Safety Office is unaware of an outstanding request for "more detailed information". The applicant should resubmit the request to the Traffic Safety Office and Township Traffic Engineer, including the specific details

being requested.

Status: Supplemental information has been provided to the applicant. Based on coordination with

the Applicant it is anticipated that this information will be considered in the revised TIS.

Response: The Westtown-East Goshen Township Regional Police Department provided additional

non-reportable crash data. This data was summarized and provided to the Township

Traffic Engineer.

Comment #1aiv: As previously noted, the scope of physical improvements required to provide acceptable sight

distance to public roads should be clearly indicated on the plans.

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

completed.

Response: As documented on page 11 of the transportation impact study, dated revised May 15,

2020, the existing available sight distances at the site accesses meet or exceed the

Township and PennDOT requirements.

Comment #1v: As previously noted, confirm that the sight distance measurements consider the widening

(approximately seven feet) of West Pleasant Grove Road required to meet Code. {§149-903.A(2)}

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

roadway.

Response: No further response required.

Comment #1vi: Provide calculations supporting the assumed diversions associated with Orvis Way and the

proposed Collector Road. Additionally, cross reference the Collector Road diversions within the

body of the study with the figures in Appendix K.

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

Response:

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

Comment #1vii:

The Travel Time Comparisons presented in Appendix K should be revised to address the following:

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

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

Response:

No further response is needed.

Comment #viii:

As previously noted, the anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of vehicular conflicts. It is noted that

- (1) The applicant has indicated a willingness to widen the roadway along the property frontage, but additional clarification regarding the specific scope of work is warranted.
- (2) West Pleasant Grove Road is designated as a Collector Road and the total Right-of-way shall be 60 feet and cartway width shall be 28 feet. {\$149-903.A(2)}

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

Response:

No further response needed.

Comment #ix:

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

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

Response:

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

Comment #*x*:

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

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

Response:

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

Comment #xi:

As previously noted, Cost Estimates for necessary improvements to accommodate future traffic should be provided. $\{\S149-804.A(10)\}$

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

Response:

No further response needed.

Comment #xii:

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

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

Response:

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

Comment #2a:

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

Status: Supplemental materials have been submitted and coordination is on-going. The Applicant has yet to submit a revised TIS.

Response:

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

Comment #2b:

The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans: i. US Route 202 at Pleasant Grove Road – Southbound Right Turn

Status: The submitted correspondences indicates that the Applicant will make this improvement and that plans will be provided there is "concurrence" regarding the scope of improvements. ii. PA Route 926 at New Street – Eastbound Left Turn

Status: The submitted correspondence offers an opinion that this improvement is unwarranted. Based on direction from PennDOT it is anticipated that the analysis will be modified in the revised TIS.

Response:

i. No further response is required.

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

Comment #2ci:

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

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

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

Response:

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

Comment #2cii:

In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:

- (1) Road M should be removed
- (2) Roads L and N should be extended to form a single road

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

Response:

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

Comment #2ciii:

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

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

Response:

No further response required.

Comment #2iv:

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

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

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

Response:

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

Comment #2v:

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

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

Response:

No further response needed.

Comment #2vi:

The following internal roadways should be reconfigured to remove geometric irregularities:

- (1) Road E and Road F (provide a curve)
- (2) Road F and Road G (provide a curve)
- (3) Road I and Road J (remove the jog within the intersection)

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

Response:

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

Comment #vii:

Additional facilities should be provided to address non-vehicular connectivity, including: (1) A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}

- (2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
- (3) Sidewalks along proposed roads, including accessible crossings. {§149-916}
- (4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}

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

Response: As documented in the conditional use application, the applicant is providing non-

vehicular facilities from the development to the edge of the right-of-way at the Arborview property boundary. Connection to the Arborview trail is an offsite

improvement that is not required. As required by PennDOT, non-vehicular facilities will be provided in conjunction with the PA 926 Connector Road/Bridlewood Boulevard signalized intersection within the right-of-way. As documented in the alternate plan, the applicant is provided non-vehicular facilities to connect the development to US 202/PA

926.

Comment #viii: Provisions should be made for future access from the Westminster Presbyterian Church to the

internal Collector Road.

Status: The Alternate Plan does indicate a location for potential access. To date there is no information indicating that this location has been reviewed with the Church. Based on initial coordination with the Church a location further south along the Collector Road may be preferred.

Response: As documented in the conditional use application plans, the applicant is providing an

easement for the church to connect an access along the Connector Road.

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

pick-up.

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

Response: School Bus Stops are not required pursuant to Township code. However, the applicant

is providing designated school bus areas within the development, as documented in the

conditional use application on the alternate plan.

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

Sincerely,

Nicole R. Kline-Elsier, P.E., PTOE

Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township

Nicole R. Offine - Elsier

Will Ethridge, Westtown Township

Andrew Semon, Toll Brothers

Michael Downs, P.E., Toll Brothers

Gregg Adelman, Esq., Kaplin Stewart





McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	rî,		7	<u></u>	7		43-			- ↔	
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	175	_,-,-	0	150	.,.	150	0	_,-	0	0	.,,	0
Storage Lanes	1		0	1		1	0		0	0		0
Taper Length (ft)	75			75			75			75		_
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.999				0.850		0.963			0.929	
Flt Protected	0.950	0.000		0.950		0.000		0.997			0.999	
Satd. Flow (prot)	1580	1630	0	1588	1562	1379	0	1586	0	0	1530	0
Flt Permitted	0.503	1000	Ŭ	0.332	1002	1010	Ŭ	0.910	Ŭ	Ŭ	0.991	ŭ
Satd. Flow (perm)	837	1630	0	555	1562	1379	0	1448	0	0	1518	0
Right Turn on Red	001	1000	Yes	000	1002	Yes		1110	No		1010	No
Satd. Flow (RTOR)		1	100			39			140			110
Link Speed (mph)		45			45	00		25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0.97	0.97	7%	3%	11%	1%	5%	13%	0.97	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%		004	3	12	703	33	10	103	73	U	107	101
Lane Group Flow (vph)	,	689	0	12	405	39	0	164	0	0	306	0
Number of Detectors	1	1	U	1	1	1	1	1	U	1	1	- U
Detector Template	Left			Left	•	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type		CI+Ex			CI+Ex						CI+Ex	
Detector 1 Channel	OIILX	OITEX		OIILX	OIILX	OIILX	OIILX	OIILX		OIILX	OIILX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	1 Cilli	2		1 Cilli	6	1 Cilli	1 Cilli	8		I CIIII	4	
Permitted Phases	2			6	U	6	8	U		4	7	
Detector Phase	2			6		U	8	8		4	4	
Switch Phase				U			U	U			7	
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%				76.7%						23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	-1.0		0.0	-1.0	0.0	2.0	-1.0		2.0	-1.0	
LUST TITLE AUJUST (S)	0.0	-1.0		0.0	-1.0	0.0		-1.0			-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29\@\text{motherbashSdenario} 2A\Tv

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Lane Group EBL NBT Total Lost Time (s) 6.0 5.0 6.0 5.0 6.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 Recall Mode C-Max C-Max C-Max C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 90 Actuated Cycle Length: 90 Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow Natural Cycle: 55

Splits and Phases: 1: New St & Rt 926

Control Type: Actuated-Coordinated



Lanes, Volumes, Timings
2030 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 28\60 kmid\810e0 k

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1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

1. New 3t & IXt 920	_					_				ıy ivioiiii	1	,
	•	→	•	•	_	_	1	T		-	¥	*
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		₽		ሻ	↑	7		4			4	
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	746	1281	9	479	1206	1040	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	985	1802	13	763	1696	1485	47	1240	487	17	756	859
Grp Volume(v), veh/h	87	0	689	12	405	39	164	0	0	306	0	0
Grp Sat Flow(s), veh/h/ln	985	0	1815	763	1696	1485	1773	0	0	1632	0	0
Q Serve(g_s), s	2.8	0.0	15.9	0.4	1.7	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	5.0	0.0	15.9	16.3	1.7	0.2	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	1.00		0.01	1.00		1.00	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
V/C Ratio(X)	0.12	0.00	0.53	0.03	0.34	0.04	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	746	0	1291	479	1206	1040	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.99	0.99	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	0.0	6.1	4.0	0.8	0.9	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	1.6	0.1	0.7	0.1	1.1	0.0	0.0	44.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/	ln 0.9	0.0	8.1	0.1	1.0	0.1	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	5.5	0.0	7.6	4.1	1.5	1.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	Α
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		7.4			1.5			34.8			82.2	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s	;	6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+		17.9		17.0		18.3		9.6				
Green Ext Time (p_c), s	,	7.4		0.0		3.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			21.9									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29@@withBPea\8denario 2A\Tv



McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8y Det \656enario 2A\Tv

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Lane Group EBL NBT Total Lost Time (s) 5.0 4.0 5.0 4.0 6.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 C-Max C-Max Recall Mode C-Max C-Max C-Max None None None None

Intersection Summary
Area Type: Other

Area Type: Othe Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

1. New 3t & IXt 320							700 WILL	DOT 11	conday	7 111011110	011 1 OU	
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	,	f)		,	†	7		4			4	
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	า	No			No			No			No	
Adj Sat Flow, veh/h/ln	1846	1818	1818	1794	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	4	0	7	3	1	1	1	0	0	0
Cap, veh/h	742	1181	23	408	1128	972	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	1000	1776	35	741	1696	1485	53	1184	518	197	930	507
Grp Volume(v), veh/h	68	0	721	24	395	33	149	0	0	345	0	0
Grp Sat Flow(s), veh/h/ln		0	1811	741	1696	1485	1755	0	0	1634	0	0
Q Serve(g_s), s	2.4	0.0	22.2	1.1	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(q c), s	2.9	0.0	22.2	23.3	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	1.00		0.02	1.00		1.00	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	742	0	1204	408	1128	972	469	0	0	442	0	0
V/C Ratio(X)	0.09	0.00	0.60	0.06	0.35	0.03	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c a), veh/h	742	0	1204	408	1128	972	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	0.97	0.97	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.0	9.3	3.8	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.2	0.3	0.8	0.1	0.4	0.0	0.0	7.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	12.2	0.2	0.5	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay												
LnGrp Delay(d),s/veh	6.1	0.0	11.5	4.1	0.8	0.1	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	Α	Α	В	Α	Α	Α	С	Α	Α	D	Α	Α
Approach Vol., veh/h		789			452			149			345	
Approach Delay, s/veh		11.1			0.9			32.4			44.3	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs	-	2	-	4	-	6	-	8	-	-	-	
Phs Duration (G+Y+Rc),	s	71.5		28.5		71.5		28.5				
Change Period (Y+Rc),		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+		24.2		22.1		25.3		9.0				
Green Ext Time (p_c), s		7.4		0.4		3.5		0.4				
Intersection Summary	_		_	0	_	0.0	_	0	_	_	_	_
HCM 6th Ctrl Delay			16.9									
HCM 6th LOS			16.9 B									
HOW BUILDS			В									

HCM 6th Signalized Intersection Summary
2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDeh\Section &economic 2A\Tv



West Pleasant Grove Road and Collector Road Mini Roundabout McMahon Associates, Inc.

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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

Intersection Summary

Area Type: Othe Control Type: Roundabout

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

Intersection								
Intersection Delay, s/vel	h 4.9							
Intersection LOS	Α							
Approach		EB	\	WB		NB		
Entry Lanes		1		1		1		
Conflicting Circle Lanes		1		1		1		
Adj Approach Flow, veh	/h	102	4	105		139		
Demand Flow Rate, veh	ı/h	102	4	115		142		
Vehicles Circulating, veh	h/h	241		6		101		
Vehicles Exiting, veh/h		180	2	237		242		
Ped Vol Crossing Leg, #	#/h	0		0		0		
Ped Cap Adj		1.000	1.0	000		1.000		
Approach Delay, s/veh		4.2		5.4		3.9		
Approach LOS		Α		Α		Α		
Lane	Left		Left		Left			
Designated Moves	TR		LT		LR			
Assumed Moves	TR		LT		LR			
RT Channelized								
Lane Util	1.000		1.000		1.000			
Follow-Up Headway, s	2.609		2.609		2.609			
Critical Headway, s	4.976		4.976		4.976			
Entry Flow, veh/h	102		415		142			
Cap Entry Lane, veh/h	1079		1371		1245			
Entry HV Adj Factor	1.000		0.976		0.979			
Flow Entry, veh/h	102		405		139			
Cap Entry, veh/h	1079		1338		1218			
V/C Ratio	0.095		0.303		0.114			
Control Delay, s/veh	4.2		5.4		3.9			
LOS	Α		Α		Α			
95th %tile Queue, veh	0		1		0			

McMahon Associates, Inc.

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

	-	•	•	•	7		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	î,			ર્ન	¥		
Traffic Volume (vph)	65	4	414	220	3	162	
Future Volume (vph)	65	4	414	220	3	162	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	12	12	
Grade (%)	3%			-3%	0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.993				0.867		
Flt Protected				0.968	0.999		
Satd. Flow (prot)	1700	0	0	1682	1528	0	
Flt Permitted				0.968	0.999		
Satd. Flow (perm)	1700	0	0	1682	1528	0	
Link Speed (mph)	35			35	35		
Link Distance (ft)	1811			228	439		
Travel Time (s)	35.3			4.4	8.6		
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%	
Adj. Flow (vph)	87	5	552	293	4	216	
Shared Lane Traffic (%))						
Lane Group Flow (vph)	92	0	0	845	220	0	
Sign Control	Yield			Yield	Yield		

Intersection Summary Area Type:

Other Control Type: Roundabout

McMahon Associates, Inc. 8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection						
Intersection Delay, s/vel	h 8.7					
Intersection LOS	Α					
Approach		EB	V	VB	NB	
Entry Lanes		1		1	1	
Conflicting Circle Lanes	;	1		1	1	
Adj Approach Flow, veh	n/h	92	8	45	220	
Demand Flow Rate, veh	n/h	92	8	59	224	
Vehicles Circulating, vel	h/h	563		4	87	
Vehicles Exiting, veh/h		300	3	107	568	
Ped Vol Crossing Leg, #	#/h	0		0	0	
Ped Cap Adj		1.000	1.0	000	1.000	
Approach Delay, s/veh		5.8	10	0.1	4.4	
Approach LOS		Α		В	Α	
Lane	Left		Left	Lef	t	
	TR		LT	LF	₹	
Designated Moves				LR LR		
Designated Moves Assumed Moves RT Channelized	TR		LT			
Designated Moves Assumed Moves	TR TR 1.000		LT		2	
Designated Moves Assumed Moves RT Channelized Lane Util	TR TR		LT LT	LF	R)	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s	TR TR 1.000		LT LT 1.000	LF 1.000	R D	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h	TR TR 1.000 2.609 4.976 92		LT LT 1.000 2.609 4.976 859	1.000 2.609 4.976 224	R D D D S	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h	TR TR 1.000 2.609 4.976		LT LT 1.000 2.609 4.976	1.000 2.609 4.976	R D D D S	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h Cap Entry Lane, veh/h	TR TR 1.000 2.609 4.976 92		LT LT 1.000 2.609 4.976 859 1374 0.984	1.000 2.609 4.976 224	R D D D D D D D D D D D D D D D D D D D	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h Cap Entry Lane, veh/h Entry HV Adj Factor Flow Entry, veh/h	TR TR 1.000 2.609 4.976 92 777 1.000 92		LT LT 1.000 2.609 4.976 859 1374 0.984 845	1.000 2.609 4.976 224 1263 0.982 220	R 0 0 3 4 3 2	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h Cap Entry Lane, veh/h Entry HV Adj Factor Flow Entry, veh/h Cap Entry, veh/h	TR TR 1.000 2.609 4.976 92 777 1.000 92 777		LT LT 1.000 2.609 4.976 859 1374 0.984 845	LF 1.000 2.608 4.976 224 1263 0.982 220 1240	R 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s	TR TR 1.000 2.609 4.976 92 777 1.000 92		LT LT 1.000 2.609 4.976 859 1374 0.984 845 1352 0.625	1.000 2.609 4.976 224 1263 0.982 220	R 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h Cap Entry Lane, veh/h Entry HV Adj Factor Flow Entry, veh/h Cap Entry, veh/h Cap Entry, veh/h Cap Entry, veh/h Cap Entry, veh/h O/C Ratio Control Delay, s/veh	TR TR 1.000 2.609 4.976 92 777 1.000 92 777		LT LT 1.000 2.609 4.976 859 1374 0.984 845	LF 1.000 2.608 4.976 224 1263 0.982 220 1240	R)))))))))))))))))))	
Designated Moves Assumed Moves RT Channelized Lane Util Follow-Up Headway, s Critical Headway, s Entry Flow, veh/h Cap Entry Lane, veh/h Entry HV Adj Factor Flow Entry, veh/h Cap Entry, veh/h Cap Entry, veh/h V/C Ratio	TR TR 1.000 2.609 4.976 92 777 1.000 92 777 0.118		LT LT 1.000 2.609 4.976 859 1374 0.984 845 1352 0.625	1.000 2.608 4.976 224 1266 0.982 220 1244 0.177	R	

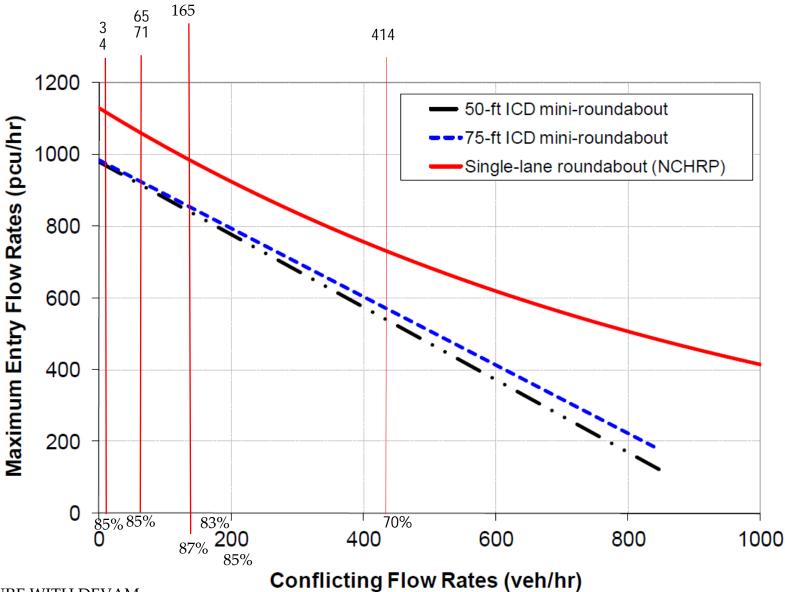
Table 1. Mini Roundabout Delay Calculation - 2030 Future with Development

		Weekday AM		Weekday PM				
	Northbound	Eastbound	Westbound	Northbound	Eastbound	Westbound		
Single Lane Roundabout Delay ⁽¹⁾	3.9	4.2	5.4	4.4	5.8	10.1		
Capacity Compared to Single Lane (2)	85%	87%	85%	85%	70%	85%		
Mini Roundabout Approach Delay	4.5	4.7	6.2	5.1	7.5	11.6		
Approach Volume	97	72	283	165	69	634		
Mini Roundabout Overall Delay & LOS	5	.6	A		В			

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

⁽²⁾ See Figure 1.

FIGURE A



2030 FUTURE WITH DEVAM: NB = 97 entering, 71 conflicting

EB = 72 entering, 165 conflicting

WB = 283 entering, 4 conflicting

2030 FUTURE WITH DEVPM:

NB = 165 entering, 65 conflicting

EB = 69 entering, 414 conflicting

WB = 634 entering, 3 conflicting



Traffic Engineering and Mobility Solutions

133 Rutgers Avenue Swarthmore, PA 19081

May 13, 2020 via email only

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

Re: Conditional Use - Traffic Review
Robinson Tract (aka Crebilly Farms) Development
Westtown Township, Chester County

Mr. Hatton:

As requested, the following has been prepared in anticipation of the Planning Commission's May 20, 2020 meeting.

To date the Applicant has not demonstrated compliance with the condition use criteria in §170-2009.D(1)(h): In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. Most notably:

- Traffic analyses which provide the basis for determining project impacts have not been updated to address the outstanding technical aspects associated with the:
 - Assumed traffic diversions
 - Signal operations at PA 926 and New Street
- An implementation strategy for necessary improvements has not been provided
- The submitted Conditional Use plans do not:
 - Illustrate the scope of improvements required to provide compliant sight distance at several accesses
 - Adequately address access to West Pleasant Grove Road
 - o Include compliant horizontal alignments of internal roadways

While there has been limited recent coordination with the Applicant's Traffic Engineer and PennDOT these items and the other issues identified in the March 13, 2020 Traffic Review remain outstanding.

The following list of recommended transportation related improvements is also provided for the Planning Commission's consideration in the review of this Application.

- 1) Connector Road, construct:
 - a) Dimensionally compliant with Township standards for a Collector Road
 - b) With a sufficient pavement structure, as determined by the Township Engineer, to accommodate heavy equipment and truck traffic
 - c) Reasonable traffic calming measures to maintain a consistent, appropriate travel speed



- d) Facilities accommodating:
 - i) Non-vehicular travel
 - ii) Personal vehicles waiting for school buses
- 2) West Pleasant Grove Road, modify:
 - a) Along the site frontage in a manner compliant with Township standards for a Collector Road
 - b) At the proposed local road site access(es) to control turning movements in a manner that enhances safety and aesthetics, preferably with a roundabout(s)
 - c) At the Connector Road site access to control turning movements and connectivity with Orvis Way in a manner that enhances safety and aesthetics, preferably with a roundabout
- 3) PA 926 (Street Road), modify as determined appropriate in coordination with PennDOT and Thornbury Township:
 - a) At the Connector Road site access to install a traffic signal and turn lanes
 - b) At New Street to:
 - Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and to address PennDOT comments (currently by constructing eastbound and westbound left turn lanes)
 - ii) Provide appropriate non-vehicular connectivity
 - iii) Provide equipment for emergency pre-emption
- 4) US Route 202, modify as determined appropriate in coordination with PennDOT:
 - a) At West Pleasant Grove Road to provide a southbound right turn lane as determined appropriate in coordination with PennDOT
 - b) At PA 926 to:
 - i) Mitigate project impacts (as determined based on the review of revised analyses, submission pending) and address PennDOT comments
 - ii) Provide equipment for emergency pre-emption
- 5) Non-vehicular elements, construct facilities connecting to existing and/or planned non-vehicular facilities, including:
 - i) Arborview
 - ii) Orvis Way
 - iii) Briddlewood Boulevard
 - iv) Signalized intersection of US Route 202 and PA 926
- 6) Westminster Presbyterian Church, as determined appropriate by the Township and in coordination with the Church:
 - a) Remove the existing westernmost driveway adjacent to the Connector Road
 - b) Provide for future access from the Westminster Presbyterian Church to the Collector Road at a mutually agreed upon location

As discussed at previous meetings and noted above, several of these items are within the purview of PennDOT and/or require coordination with Thornbury Township. Therefore, it is recommended that the Township remain engaged in the on-going discussions to ensure that if approved the scope of improvements associated with the Application is consistent with the Township's objectives to the maximum extent feasible.



Please do not hesitate to contact me at 610.608.4336 or albert@federico-consulting.com should you have any questions or require additional information.

Sincerely,

Albert Federico, P.E., PTOE



Traffic Engineering and Mobility Solutions

133 Rutgers Avenue Swarthmore, PA 19081

March 13, 2020 via email only

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

Re: Conditional Use - Traffic Review

Robinson Tract (aka Crebilly Farms) Development

Westtown Township, Chester County

Mr. Hatton:

Subsequent to the previous Traffic Review (January 29, 2020) there has been additional coordination with the Applicant, including:

- Correspondence to Mr. Russell Hatton (prepared by McMahon Associates, dated February 4, 2020) providing responses to the January 29 Traffic Engineering Review
- Meeting with PennDOT and Thornbury Township on February 11, 2020, and the distribution of Draft Meeting Minutes (prepared by McMahon Associates, distributed February 25, 2020)
- Correspondence (prepared by McMahon Associates, dated February 21, 2020 and supplemental emails) providing additional information regarding the traffic diversions assumed for the traffic analyses

Please note that this review should be considered preliminary and subject to change based on the submission of revised materials to address the comments presented herein.

In recognition of these activities the following update to the January 29 review is offered for the Township's consideration:

- 1. In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. {§170-906.D(2)}
 - a. To allow for consideration of the impact of the proposed development the Transportation Impact Study (TIS) should be revised to address the following:
 - i. As previously noted, Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.

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



ii. The sections of the TIS discussing improvements should note that the internal Collector Road provides access to the property.

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

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

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

iv. As previously noted, the scope of physical improvements required to provide acceptable sight distance to public roads should be clearly indicated on the plans.

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

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

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

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

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

- vii. The Travel Time Comparisons presented in Appendix K should be revised to address the following:
 - (1) Verify the assumed route lengths. The Diversion Routes generally appear to be shorter than the Base conditions.
 - (2) Ensure that the impacts of the regular queuing along US Route 202 North during the morning peak, extending from the interchange into the study area, is included.
 - (3) The evaluation of diversions should include an alternative that considers operations following the completion of the PennDOT improvements planned for US Route 202 and PA Route 926.



(4) The traffic calming anticipated to be installed along Bridlewood Boulevard should be considered.

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

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

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

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

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

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

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

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

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



xii. As previously noted, an Implementation Strategy for necessary improvements to accommodate future traffic should be provided. $\{\S149-804.A(11)\}$

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

- 2. The burden of proof shall be upon the applicant to prove to the satisfaction of the Board of Supervisors, by credible evidence, that the use will not result in or substantially add to a significant traffic hazard or significant traffic congestion. The peak traffic generated by the development shall be accommodated in a safe and efficient manner. Such analysis shall consider any improvements to streets that the applicant is committed to complete or fund. {§170-2009.D(1)(h)}
 - a. The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 continues to be based in large part on assumed diversions. As noted above, additional supporting information and analyses should be provided.

Status: Supplemental materials have been submitted and coordination is on-going. The Applicant has yet to submit a revised TIS.

- b. The Applicant has indicated that turn lanes will be provided to accommodate post development volumes at the following intersections, but these improvements are not reflected on the plans:
 - i. US Route 202 at Pleasant Grove Road Southbound Right Turn

Status: The submitted correspondences indicates that the Applicant will make this improvement and that plans will be provided there is "concurrence" regarding the scope of improvements.

ii. PA Route 926 at New Street - Eastbound Left Turn

Status: The submitted correspondence offers an opinion that this improvement is unwarranted. Based on direction from PennDOT it is anticipated that the analysis will be modified in the revised TIS.

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

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



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

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

iii. The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.

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

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

Status: The driveway is reflected on the plan but is difficult to discern due to drafting. It appears the proposed site access to West Pleasant Grove Road (via the Collector Road) will impact the Church Driveway. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road at a mutually agreed upon location.

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

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

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

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



- vii. Additional facilities should be provided to address non-vehicular connectivity, including:
 - (1) A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}
 - (2) Connections to existing and planned facilities along Dunvegan Road and within the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
 - (3) Sidewalks along proposed roads, including accessible crossings. $\{\xi149-916\}$
 - (4) Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}

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

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

Status: The Alternate Plan does indicate a location for potential access. To date there is no information indicating that this location has been reviewed with the Church. Based on initial coordination with the Church a location further south along the Collector Road may be preferred.

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

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

Please do not hesitate to contact me at 610.608.4336 or <u>albert@federico-consulting.com</u> should you have any questions or require additional information.

Sincerely

Albert Federico, P.E., PTOE



Date: 10/11/2019

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

Revisions

To: Toll PA XVIII, L.P.

250 Gibraltar Road Horsham, PA 19044

From: PennDOT Engineering District 6-0

7000 Geerdes Boulevard King of Prussia, PA 19406

Dear Applicant,

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

The Department's review comments are attached.

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

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

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



Response Comments Date: 10/11/2019

Application Number: 196830, Cycle No.1

Form Letter Notes

- (1) * Upon resubmission, the applicant's engineer must prepare a letter that describes how each comment has been addressed and where each can be found in the plan set.
 - * Additional comments may follow upon review of the resubmitted application. If you have any questions pertaining to the technical aspects of this review, please contact the Department's representative, Drew E. Sirianni, PE, PTOE of Pennoni at 215.254.7893 or DSirianni@Pennoni.com.
 - * For guidance on Highway Occupancy Permit applications refer to PA Code Title 67, Chapter 441, Chapter 459 and PennDOT Publication 282. This will help expedite the review.

General

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

Application

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

- ePermitting application. Please contact Mary Ellen Culhane, District 6 Permits Supervisor, at (610) 205-6825 to have the application modified.
- (3) Please note that consistent with current Department Policy, applicants for Highway Occupancy Permits must apply for an EPS Business Partner ID (BPID). The EPS BPID is to be used in the establishment of a billing account for the invoicing of inspection costs. After an EPS BPID is obtained and activated by the applicant's system administrator, a user ID will then need to be created in order to ensure that the EPS BPID is integrated into EPS and searchable through the "looking glass" feature. Once this has been established, please provide the following information in the applicant contact information tab under "Applicant Team":
 - BPID
 - Contact information (name/title/phone/email) for a general contact person (person that typically deals with the Highway Occupancy Permit application process)
 - Contact information (name/title/phone/email) for a billing contact person (person that typically deals with the Highway Occupancy Permit invoicing process)

For information on obtaining an EPS BPID, you may visit:

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

Free online tutorials are also available detailing BPID registration at:

http://www.dot14.state.pa.us/epsTraining/BPID%20 Registration%20 for%20 Municipalities%20 and %20 Planning%20 Commissions.html

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

Transportation Impact Study/Transportation Impact Assessment

(1) MITIGATION

- a. The intersection of Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is projected to have an increase in delay due to diverted traffic in conjunction with the new connector road required for this development. Provide mitigation.
- b. Concept plans of full mitigation must be prepared with sufficient detail to describe their feasibility. The plans must also show right-of-way lines. The plan scale should be 50-scale unless otherwise agreed to at the scoping meeting. Ensure that the travel lane and shoulder widths are in accordance with PennDOT's Resurfacing, Restoration and Rehabilitation (3-R) Design Criteria

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

(2) INTERSECTION CONTROL EVALUATION (ICE) POLICY

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

(3) TURN LANE WARRANTS

- a. Based on the submitted turn lane warrant analysis, left turn lanes are needed on all 4 approaches at the intersection of Street Road (SR 0926) and New Street. Revise the TIS to provide this improvement and include a conceptual plan to show how it will be constructed.
- b. Based on the turn lane warrant analysis, a right turn deceleration lane is needed on the southbound approach of Wilmington Pike (SR 0202) at W Pleasant Grove Rd. Please update the "Committed Improvements" section of the TIS to identify that the lane will be constructed by the applicant.
- c. The report should include a traffic signal warrant analysis and turn lane warrant analysis section along with summary of results.
- d. Please include the input page of the traffic signal warrant analysis in the appendices.
- (4) Side-by-side eastbound and westbound left turn lanes must be provided on W Pleasant Grove Road between Collector Road and Orvis Road.
- (5) A dedicated right-turn lane along westbound Street Road (SR 0926) along the Robinson Tract property frontage is proposed but not shown on the Synchro files. Please verify and revise.

(6) TRAFFIC SIGNAL WARRANTS

a. The report indicates that a signal is warranted at the site driveway access with Street Road, however all Traffic Signal Warrant analyses in Appendix G (all Alternatives) do not indicate whether volumes utilized are for the 2030 Design Year or 2025 Build-Out Year. Please clarify. b. If signalization is the chosen alternative for the intersection of Street Road (SR 0926) and Bridlewood Boulevard/ Site Access, it is likely that signalization won't meet warrants for several years while the site is built out. As such, traffic volumes must be monitored during development to determine when a traffic signal is warranted. An intersection monitoring condition statement will

be required.

(7) MUNICIPAL COORDINATION

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

(8) TRIP DIVERSIONS

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

(9) MULTI-MODAL

- a. In the Executive Summary and study recommendations, indicate that all improvements will be constructed to accommodate non-motorized access/circulation and be ADA-compliant unless otherwise approved by the Department. Describe how these connections connect to existing non-motorized facilities (e.g., Township Trails Plan). If pedestrian accommodations are not proposed, engineering justification must be provided in accordance with PennDOT Publications 236, 46, and 149. Walking school children and school bus stops shall also be noted.
- b. The study must describe how the proposed development was designed to accommodate pedestrians, bicycles and transit operations.
- (10) Provide an updated site plan and/or conceptual improvement plan that reflects all the latest findings of the study and developer commitments.
- (11) Provide photographs at all study intersections, including the proposed access driveways. Photos must be in color, 4"X6" in size, and two views of each approach must be provided (approximately 200 feet from the intersection and approximately 50 feet from the intersection showing the opposite approach).

(12) CRASH DATA AND ANALYSIS

- a. Contact the municipality to obtain non-reportable crash data for the study area intersections. Include this crash data in the analysis if it is available.
- b. The traffic crash data analyses for several of the study area intersections/corridors indicate that crash trends exist, particularly at signalized intersections within the study area. Discuss how traffic generated from the development may impact these locations, and if any improvements would be beneficial in mitigating these trends.

(13) QUEUE ANALYSIS

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

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

- b. The available storage for southbound right turns at Wilmington Pike (SR 0202) and Skiles Boulevard/Stetson School Drive is 200 feet. The future queue with development of southbound traffic is 700 feet. This will block the right turn movements. Please revise the analysis and recommendations to address this queue.
- c. The available storage for southbound left turns at Street Road (SR 0926) and Bridlewood Boulevard/Collector Road is 150 feet. The future queue with development of southbound through/right traffic is 360 feet. This will block the left turn movements. Please revise the analysis and recommendations to address this queue.

Sight Distance- Driveways/Local Roads

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

Signal Section (Publication 46, 148 And 149)

- (1) a. The Peak Hour warrant would not apply for this location.
 - b. Provide signal plans for review.
 - c. Provide a TE-160 form and resolution.
 - d. Provide a Traffic Signal Design Report.
 - e. Interconnect proposed signal at Street/Bridlewood and Street/New signal, and provide communications back to the District Office.
 - f. The intersection of SR 0202 and SR 0926 is scheduled to be adaptive under an active state project. The 165-second cycle being proposed is not realistic, even for an adaptive system. This intersection has capacity concerns.
 - g. Refer to the TIS comments regarding the left turn warrants at the intersection of Street Road (SR 0926) and New Street.

Drainage

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

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



Traffic Engineering and Mobility Solutions

133 Rutgers Avenue Swarthmore, PA 19081

October 15, 2019 via email only

Richard Pomerantz, Chair Westtown Township Planning Commission 1039 Wilmington Pike West Chester, PA 19382

Re: Conditional Use - Traffic Review

Robinson Tract (aka Crebilly Farms) Development

Westtown Township, Chester County

Mr. Pomerantz:

As requested, a technical review of the following materials has been completed relative to the Westtown Township Zoning Ordinance as well as reasonable and customary standards of Traffic Engineering practice:

- Transportation Impact Study for the Robinson Tract (prepared by McMahon Associates, dated August 13, 2019)
- Conditional Use Subdivision Plan for the Robinson Tract, sheets 10 and 12 of 71 (prepared by ESE Consultants, dated August 9, 2019)

Please note that this review should be considered preliminary and subject to change based on the submission of revised materials to address the comments presented herein.

The site is located on the Crebilly Farm property along the west side of US Route 202, between West Pleasant Grove Road and PA Route 926 (Street Road). The applicant proposes to develop 317 new dwelling units. Vehicular access to the Crebilly Farms property is proposed via connections to PA Route 926 and West Pleasant Grove Road. Onsite vehicular circulation is proposed via a central Collector Road and supporting local roads, including several cul-de-sacs. Limited non-vehicular facilities are also proposed.

The following comments are offered for the Township's consideration:

- 1. In consideration of conditional use approval, the Township may require the applicant to submit a development impact study which considers the impact of the proposed flexible development on traffic volume and safety. {§170-906.D(2)}
 - a. In order to allow for consideration of the impact of the proposed development the Transportation Impact Study (TIS) should be revised to address the following:
 - i. Table 1 identifies West Pleasant Grove Road as a "Local" roadway. Table 1 should be updated to identify West Pleasant Grove Road as a Township Collector Roadway. {Westtown Township Comprehensive Plan Update, page 9-7}.



- ii. The TIS identifies the internal Collector Road as an off-site improvement (page 23). The section of the Collector Road proposed as part of the development traverses the property from West Pleasant Grove Road to PA Route 926 providing access to the property. As such it should be identified as an on-site improvement.
- iii. The TIS does not identify any existing pedestrian facilities within the study area (page 6). The following should be noted:
 - (1) Facilities within the adjacent Arborview neighborhood
 - (2) Facilities within the adjacent Bridlewood neighborhood
 - (3) Recently completed facilities along Orvis Way
- iv. The traffic data used as the foundation for the capacity analysis was collected a number of different years, from 2015 to 2019. Traffic calming measures were installed along Jacqueline Drive in 2017 to address cut-through traffic. As West Pleasant Grove Road is the next east-west roadway south of Jacqueline Drive new counts are warranted.
- v. The Crash Summary (page 5) only includes data for State "Reportable" collisions¹. In order to provide a more complete assessment of transportation safety within the study area "Non-reportable" collisions should be included.
- vi. The proposed sight distance looking left from the proposed internal Collector Road along PA Route 926 is reported as 466 feet (Table 3). The Table should be updated to include the Township requirements (635 feet per the posted speed limit) and the scope of physical improvements required to provide acceptable sight distance reflected on the plans. {§149-915.K(5)}
- vii. The proposed sight distance looking left from the proposed internal Collector Road along West Pleasant Grove Road is reported as 440 feet (Table 3), the minimum required by Township Code. Confirm that this measurement considered the widening (approximately seven feet) of West Pleasant Grove Road required to meet Code. {§149-903.A(2)}
- viii. The study (<u>Arborview Transportation Impact Assessment</u>, prepared by Traffic Planning and Design, dated January 2015) referenced as the basis for the majority of assumed diversions (page 14) is not the most current version of the study. Further, this study relied on data dating as far back as 2012. These volumes are considered substantially outdated. New traffic counts should be completed, and the analysis updated.
- ix. There is insufficient information provided to evaluate validity of the "supplemental diversion" of US Route 202 traffic to the Collector Road (page 15). Additional analysis and modeling based on current traffic count data is warranted to support the supplemental diversions.

¹ "Reportable" collisions involve significant property damage, injuries and/or fatalities, and are required to be reported to the State. Collisions not meeting these criteria are not included in PennDOT records.



- x. The anticipated increase in larger vehicles traveling along West Pleasant Grove Road and turning to/from New Street increases the possibility of potential vehicular conflicts. The impact of these increased volumes on the roadway structure of West Pleasant Grove Road, as well as the turning paths at the intersection with New Street should be evaluated.
- xi. PennDOT classifies PA Route 926 as a "Critical Corridor". The "optimized" traffic signal timings assumed for the future conditions analyses (page 16) reduces delays by shifting a significant portion of green time from PA Route 926 to serve New Street. This will have an appreciable impact on regional mobility, degrading the peak hour level of service for the PA Route 926 approaches. Provide written confirmation from PennDOT that if the project is approved the assumed "optimized" timings can be implemented.
- xii. The Cross Section Assumptions exhibit in Appendix I is based on a traditional widening. Alternative alignments that minimize the number of properties from which right-of-way would be needed should be considered. Additionally, the Applicant is not precluded from coordinating with property owners to determine if the right-of-way could be reasonably obtained.
- xiii. Provide Cost Estimates for necessary improvements to accommodate future traffic. {§149-804.A(10)}
- xiv. Provide an Implementation Strategy for necessary improvements to accommodate future traffic. {§149-804.A(11)}
- 2. The burden of proof shall be upon the applicant to prove to the satisfaction of the Board of Supervisors, by credible evidence, that the use will not result in or substantially add to a significant traffic hazard or significant traffic congestion. The peak traffic generated by the development shall be accommodated in a safe and efficient manner. Such analysis shall consider any improvements to streets that the applicant is committed to complete or fund. {§170-2009.D(1)(h)}
 - a. The conclusion that the project does not adversely impact the intersection of US Route 202 and PA Route 926 appears to be based in large part on assumed diversions of traffic to Orvis Way and the proposed internal Collector Road. As noted above additional information and analyses should be provided to support the assumed diversions.
 - b. As presented the project will impact the following intersections increasing the length of required turn lanes:
 - i. US Route 202 at Pleasant Grove Road Southbound Right Turn (+100 feet post-development over existing)
 - ii. PA Route 926 at New Street Eastbound Left Turn (+50 feet post-development over existing)



- c. Additional grading and/or traffic management measures appear warranted to enhance safety at the three accesses proposed to have insufficient sight distance or the exact minimum distance (with no margin for error):
 - i. Collector Road at PA Route 926 (grading)
 - ii. Road M at West Pleasant Grove Road (grading and/or roundabout)
 - iii. Collector Road at West Pleasant Grove Road (grading and/or roundabout)
- d. In order to minimize external conflict points, promote internal connectivity, reduce the number of cul-de-sacs and enhance overall safety along West Pleasant Grove Road:
 - i. Road M should be removed
 - ii. Roads L and N should be extended to form a single road
- e. The design of the internal Collector Road should incorporate suitable traffic calming measures to maintain a 35 mile per hour average travel speed.
- f. The submitted plans should be revised to ensure they accurately reflect existing driveways in the immediate vicinity of the site, including the exit-only driveway from the Westminster Presbyterian Church and new residential driveways along the north side of West Pleasant Grove Road, west of Hidden Pond Way.
- g. The plans should identify the anticipated limits of required right-of-way and/or easements to accommodate the physical improvements associated with the PennDOT project at US Route 202 and PA Route 926.
- h. The following internal intersections should be reconfigured to remove geometric irregularities:
 - i. Road E and Road F
 - ii. Road F and Road G
 - iii. Road I and Road J
- i. Additional facilities should be provided to address non-vehicular connectivity, including:
 - i. A perimeter trail around the portion of the site west of the internal Collector Road. {Westtown Township Comprehensive Plan Update, page 9-15}
 - ii. Connections to existing and planned facilities within along Dunvegan Road and the Arborview neighborhood. {Westtown Township Comprehensive Plan Update, page 9-15}
 - iii. Sidewalks along proposed roads, including accessible crossings. $\{8149-916\}$
 - iv. Connectivity to pedestrian attractors, including Stetson Middle School, Westminster Presbyterian Church, and the existing retail uses at US Route 202 and PA Route 926. {§149-916}
- j. Provisions should be made for future access from the Westminster Presbyterian Church to the internal Collector Road.



k. Provisions should be made for School Bus Stops, including short-term parking for drop-off and pick-up.

Please do not hesitate to contact me at 610.608.4336 or albert@federico-consulting.com should you have any questions or require additional information.

Sincerely

Albert Federico, P.E., PTOE



McMAHON ASSOCIATES, INC.

840 Springdale Drive Exton, PA 19341

p 610-594-9995 | f 610-594-9565

PRINCIPALS

Joseph W. McMahon, P.E. Joseph J. DeSantis, P.E., PTOE John S. DePalma William T. Steffens Casey A. Moore, P.E.

Gary R. McNaughton, P.E., PTOE

ASSOCIATES

John J. Mitchell, P.E. Christopher J. Williams, P.E. R. Trent Ebersole, P.E. Matthew M. Kozsuch, P.E. Maureen Chlebek, P.E., PTOE Dean A. Carr, P.E.

January 20, 2017

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

RE: Crebilly Farm Residential Development

Traffic Log No.: C16-010XP

Westtown Township, Chester County, PA

McMahon Project No. 816451.11

Dear Mr. Hanney:

McMahon Associates, Inc. is in receipt of the Department's comment letter, dated December 6, 2016, in regards to the Transportation Impact Study Scoping Meeting Application for the Crebilly Farm Residential Development. The development is proposed to be located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. On behalf of the applicant, below is a summary of the comments in italics, with our responses following each comment.

Preliminary Comments

Comment #1: The following scoping application elements appear to be acceptable:

a. Trip Generation: Residential Condominium/Townhouse (230), Single Family Detached Housing (210)

b. Study Type: Transportation Impact Study (TIS)

c. Study Area Type: Urban

d. Growth rate factor 1.71%/year

e. Pass-by Trups: None

Response: No response needed.

Comment #2: As a regional roadway network improvement, the Department has interest in the provision of a

connector road through the subject parcel to be constructed as part of this development. The road should provide a direct connection between SR 0926 (Street Road) and West Pleasant Grove



Road. The Department strongly encourages the Development and the Township to work toward this goal.

Response: The applicant will continue to coordinate with the Township and PennDOT regarding a

connector road through the site between Street Road (S.R. 0926) and West Pleasant

Grove Road.

Comment #3: The site access road to SR 0926 (Street Road) should be aligned with Bridlewood Boulevard for

improved intersection spacing along SR 0926, and to eliminate unnecessary left turn movements for traffic traveling to/from Bridlewood Boulevard and the site. Also, there is excessive queuing on the eastbound approach of SR 0926 to SR 0202, therefore the distance between the site access and SR 020 should be increased. Locating the site access to align with Bridlewood Boulevard

increased the distance from SR 020.

Response: The applicant is willing to relocated signalized access along Street Road (S.R. 0926)

opposite Bridlewood Boulevard, pending further coordination with Westtown

Township, Thornbury Township, and PennDOT. The applicant cannot align opposite the location of the proposed Arborview access along West Pleasant Grove Road since they

do not own the property.

Comment #4: The Traffic Impact Study must analyze both the "With PennDOT Improvements" and the

"Without PennDOT Improvements" scenarios.

Response: Will comply.

Comment #5: Since the trips between the site and the Borough of West Chester will likely utilize the intersection

of New Street and West Pleasant Grove Road, the TIS Study Area should be revised to include

this intersection.

Response: Will comply.

Comment #6: The TIS must include a Crash Analysis for the study area.

Response: Will comply.

Comment #7: Please be aware that the installation of drainage facilities within the Legal Right-of-Way may

necessitate additional permitting requirements, including, but not limited to, a separate Highway

Occupancy Permit from the Municipality for the future maintenance of the new drainage

facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in PennDOT Strike-Off Letter 470-10-03. PennDOT is legally bound by Section 421 of the State Highway Law (36 P.S. § 670-421 to enforce this maintenance responsibility for stormwater facilities relating to HOP projects. Please be guided

accordingly.

Response: No response needed.

Comment #8: Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the

code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter,

withdraw, or amend them as it deems necessary in the future.

Response: No response needed.

nicole Robeine

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

Sincerely,

Nicole R. Kline, P.E., PTOE Senior Project Manager

NRK

cc: Robert Pingar, P.E., Westtown Township Chris Patriarca, AICP, Westtown Township Andrew Semon, Toll Brothers Michael Downs, P.E., Toll Brothers

Gregg Adelman, Esq., Kaplin Stewart



December 6, 2016

CHESTER COUNTY, WESTTOWN TOWNSHIP
SR 0202 (WILMINGTON PIKE) SEG. 0051 OFF. 0000 TO SEG. 0061 OFF. 0000
SR 0926 (STREET ROAD) SEG. 0390 OFF. 0000 TO SEG. 0400 OFF. 0679
HIGHWAY OCCUPANCY PERMIT APPLICATION NO. PRE1354
CREBILLY FARM – MIXED RESIDENTIAL LAND USE
TRAFFIC LOG NO.: C16-010XP
PRELIMINARY REVIEW

Nicole Kline, PE, PTOE McMahon Associates, Inc. 840 Springdale Drive Exton, PA 19341

Dear Ms. Kline:

The Department has reviewed the preliminary scoping application submission for compliance with applicable Department Regulations. This preliminary review has identified deficiencies that must be addressed in order for your application submission to be processed as efficiently as possible.

The Department understands that the provided traffic impact analysis is preliminary in nature. As such, the Department reserves the right to make future additional comments based on a formal submission with a complete Transportation Impact Study.

Our comments on your preliminary submission are as follows:

PRELIMINARY COMMENTS

- 1. The following scoping application elements appear to be acceptable:
 - a. Trip Generation: Residential Condominium/Townhouse (230), Single Family Detached Housing (210)
 - b. Study Type: Transportation Impact Study (TIS)
 - c. Study Area Type: Urban
 - d. Growth rate factor: 1.71%/year
 - e. Pass-by Trips: None
- 2. As a regional roadway network improvement, the Department has interest in the provision of a connector road through the subject parcel to be constructed as part of this development. The road should provide a direct connection between SR 0926 (Street Road) and West Pleasant Grove Road. The Department strongly encourages the Developer and the Township to work toward this goal.

- 3. The site access road to SR 0926 (Street Road) should be aligned with Bridlewood Boulevard for improved intersection spacing along SR 0926, and to eliminate unnecessary left turn movements for traffic travelling to/from Bridlewood Boulevard and the site. Also, there is excessive queueing on the eastbound approach of SR 0926 to SR 0202, therefore the distance between the site access and SR 0202 should be increased. Locating the site access to align with Bridlewood Boulevard increases the distance from SR 0202.
- 4. The Traffic Impact Study must analyze both the "With PennDOT Improvements" and the "Without PennDOT Improvements" scenarios at the intersection of SR 0202 and SR 0926.
- 5. Since trips between the site and the Borough of West Chester will likely utilize the intersection of New Street and West Pleasant Grove Road, the TIS Study Area should be revised to include this intersection.
- 6. The TIS must include a Crash Analysis for the study area.
- 7. Please be aware that the installation of drainage facilities within the Legal Right-of-Way may necessitate additional permitting requirements, including, but not limited to, a separate Highway Occupancy Permit from the Municipality for the future maintenance of the new drainage facilities. Specific information relating to five potential drainage scenarios, as well each scenario's submission requirements, is presented in PennDOT Strike-Off Letter 470-10-03. PennDOT is legally bound by Section 421 of the State Highway Law (36 P.S. § 670-421) to enforce this maintenance responsibility for stormwater facilities relating to HOP projects. Please be guided accordingly.
- 8. Please be advised that pursuant to and in accordance with Title 67, Chapter 441.8(h)(2)(iv) of the code, the Safe Stopping Sight Distance is the absolute minimum acceptable sight distance for any driveway. It is the designer's responsibility to ensure that this minimum requirement is satisfied. Furthermore, it should also be understood that any comments made (or guidance given) in this correspondence are preliminary in nature and the Department reserves the right to change, alter, withdraw, or amend them as it deems necessary in the future.
- 9. Please be aware that the Department's policy is that TISs are to be submitted via the ePermitting System. The PennDOT project number, C16-010XP, for this preliminary review must be referenced in the ePermitting System when the application is submitted.

The Department has performed this preliminary review based only on the limited information provided. We reserve the right to make future, additional, detailed comments based on the formal submission and application for a Highway Occupancy Permit. If you have any questions pertaining to the technical aspects of this review, please contact Drew E. Sirianni, PE, PTOE of Pennoni at (215) 254-7893 or DSirianni@pennoni.com.

Respectfully,

Francis J. Hanney

District Traffic Services Manager

Engineering District 6-0

cc: Matthew Miele, PE

Ashwin Patel, PE

Traffic Services File

Westtown Township Thornbury Township

Chester County Planning Commission



MCMAHON ASSOCIATES, INC. 840 Springdale Drive Exton, PA 19341

p 610-594-9995 | f 610-594-9565

PRINCIPALS

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ASSOCIATES

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November 7, 2016

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

RE: Transportation Impact Study Scoping Meeting Application Crebilly Farm Residential Development

> Westtown Township, Chester County, PA McMahon Project No. 816451.11

Dear Mr. Hanney:

McMahon Associates, Inc. (McMahon) is pleased to submit the following Transportation Impact Study (TIS) Scoping Meeting Application, per the *Policies and Procedures for Transportation Impact Studies Related to Highway Occupancy Permits*, Revised October 21, 2013 (Strike-off Letter 494-13-13) for the proposed development, located on the Crebilly Farm property along the west side of U.S. Route 202 (Wilmington Pike), between West Pleasant Grove Road and Street Road (S.R. 0926), in Westtown Township, Chester County, Pennsylvania. Three potential alternatives are proposed for the development, as follows:

- Alternative A (Plan A Proposed Development): The plan includes 317 new dwelling units and 2 existing dwelling units. Access is provided via two full-movement accesses along West Pleasant Grove Road, a right-in/right-out access along U.S. Route 202 (Wilmington Pike), and a full-movement access along Street Road (S.R. 0926). This development alternative does not provide a public connector road.
- Alternative B (Plan B Proposed Density Bonus Development): The plan includes 395 new dwelling units and 2 existing dwelling units. Access is identical to Alternative A. This development alternative does not provide a public connector road.
- Alternative C (Plan B Proposed Density Bonus Development with Connector Road): The plan includes 395 new dwelling units and 2 existing dwelling units. Access is identical to Alternatives A and B, with the addition of a third full-movement access along West Pleasant Grove Road, which will serve as a connector road provided for public use between U.S. Route 202 (Wilmington Pike), Street Road (S.R. 0926), and West Pleasant Grove Road.



Based on the anticipated trip generation, the site requires a Transportation Impact Study. A Transportation Impact Study has been prepared and submitted to Westtown Township, generally in accordance with the scope outlined in this application.

<u>The applicant would like to request a meeting with the Department to discuss this project.</u> During the Department's review of this scoping application, the applicant respectfully requests available dates and times for a meeting. A preliminary list of meeting attendees is included with this scoping submission, including Westtown Township.

If you have any questions or need additional information, please feel free to contact me.

Sincerely,

Nicole R. Kline, P.E., PTOE Senior Project Manager

nicole Roxeine

NRK Attachment

cc: John Otten, PennDOT Robert Pingar, P.E., Westtown Township Chris Patriarca, AICP, Westtown Township Andrew Semon, Toll Brothers Michael Downs, P.E., Toll Brothers

 $I: \verb|\eng| 816451 - Crebilly Farm| Correspondence \verb|\Out| PennDOT| 2016-11-7 PennDOT Scoping Application Letter. docx and the pennes of the$

Crebilly Farm Residential Development Scoping Meeting Attendees

Name	Company	Phone	Email
APPLICANT:			
Nicole Kline, P.E., PTOE	McMahon Associates, Inc.	610-594-9995	nkline@mcmahonassociates.com
Michael Downs, P.E.	Toll Brothers	610-358-3611	asemon@tollbrothersinc.com
Andrew Semon Toll Brothers		215-293-5448	mdowns@tollbrothersinc.com
PRELIMINIARY MUNIC	CIPAL INVITEES:		
Robert Pingar, P.E.	Westtown Township	610-692-1930	rpingar@westtown.org
Chris Patriarca, AICP	Westtown Township	610-692-1930	cpatriarca@westtown.org

The municipality can include additional attendees, as desired.

TRANSPORTATION IMPACT STUDY (TIS) SCOPING MEETING APPLICATION

Scoping Meeting Date: <u>TBD</u>

Applicant: <u>Toll Brothers, Inc.</u>

Applicant's Consultant: <u>McMahon Associates, Inc.</u>

Applicant's Primary Contact: <u>Nicole Kline, P.E., PTOE</u>

(Attach a list of meeting attendees along with phone numbers and email addresses)

(1) LOCATION OF PROPOSED DEVELOPMENT: (Attach location map if available)

PennDOT Engineering Dist.: 6-0 County: Chester County

Municipality: Westtown Township

State Route(s) (SR): U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)

Segment(s)/Offset(s): S.R. 0202: 0051/0000 to 0061/0000

S.R. 0926: 0390/0000 to 0400/0679

(2) DESCRIPTION OF PROPOSED DEVELOPMENT: (Attach site plan if available)

There are currently three proposed alternatives for the development. Conceptual site plans for all alternatives, prepared by ESE Consultants and last revised October 7, 2016, are provided with this scoping submission.

Proposed site access: Access is provided via two full-movement accesses along West Pleasant Grove Road, a right-in/right-out access along U.S. Route 202 (Wilmington Pike), and a full-movement access along Street Road (S.R. 0926) for all three alternatives. Alternative C includes a third full-movement access along West Pleasant Grove Road, which will serve as a connector road provided for public use between U.S. Route 202 (Wilmington Pike), Street Road (S.R. 0926), and West Pleasant Grove Road.

Proposed land uses:

- *Alternative A (Plan A Proposed Development):* 319 residential units (2 existing and 200 new single-family homes and 117 new carriage homes).
- Alternatives B and C (Plan B Proposed Density Bonus Development): 397 residential units (2 existing and 152 new single-family homes and 243 new carriage homes).

Community linkages (access to neighboring properties, cross easements, pedestrian and transit accommodations):

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

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

(3) DEVELOPMENT SCHEDULE AND STAGING:

Anticipated Opening Date: 2018

Full Build-Out Date: 2023

Describe Proposed Development Schedule/Staging: No staging is proposed with the development.

(4) TRIP GENERATION

(Use the most recent edition of "Institute of Transportation Engineers (ITE) Trip Generation," unless the Department approves another source. Non-ITE methods must be fully justified based on surveys of multiple sites of the same land use type and size.)

Trip generation for the proposed development will be based on:

X ITE Trip Generation Manual.
(List proposed development land uses and associated ITE Land Use Codes)

Other independent surveys.
(Attach justification for non-ITE methods)

List land development and trip generation information, as appropriate. If necessary, attach additional sheets to indicate additional land uses or development phases.

Table 1 provides the total trips anticipated to be generated by the development. Details regarding the trip generation for each of the alternatives are provided in **Attachment 1**.

Table 1. Trip Generation - Crebilly Residential Development

			Weekday Morning Peak Hour			Weekday Afternoon Peak Hour			
Land Use	Size	Daily	In	Out	Total	In	Out	Total	
Alternative A (1)	319 units	2,742	48	162	210	171	95	266	
Alternatives B & C (2)	397 units	2,955	48	175	223	182	98	280	

- Consisting of 2 existing and 200 new single-family dwelling units and 117 new carriage homes.
 Consisting of 2 existing and 152 new single-family dwelling units and 243 new carriage homes.

((2) Consisting of 2 existing and 152 new single-family dwelling units and 243 new carriage homes.
5)	ESTIMATED DAILY TRIP GENERATION/DRIVEWAY CLASSIFICATION:
	(a) Estimated Daily Trip Generation of Proposed Development – Assuming One Access Point and Ful Build out/Occupancy of Entire Tract: 2,742 trips/day for Alternative A or 2,955 trips/day for Alternatives B and C.
	(b) Driveway Classification Based on Trip Generation and One Access Point:
	Medium Volume: X
	High Volume:
6)	TRANSPORTATION IMPACT STUDY REQUIRED?
	No
	X Yes, based on: 3,000 or more vehicle trips/day generated
	X During any one-hour time period, 100 or more new (added) vehicle trips generated entering or 100 or more new (added) vehicle trips generated exiting development
	Other considerations as described below:
7)	TRAFFIC IMPACT ASSESSMENT REQUIRED? X No Yes
	TIS is required, the following sections of this checklist will be discussed at the TIS Scoping Meeting. The licant may provide preliminary information.)
8)	TIS STUDY AREA: (Describe; attach map and/or diagram)
	Roadway and Study Intersections

- U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) (signalized)
- U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road (unsignalized)
- Street Road (S.R. 0926) and Bridlewood Boulevard (unsignalized)
- Street Road (S.R. 0926) and New Street (signalized)

A location map is provided, see Figure 1.

Land use context (Refer to Smart Transportation Handbook)

Land Use Context – Suburban Corridor Transportation Context:

- Wilmington Pike (S.R. 0202) Regional Arterial
- Street Road (S.R. 0926) Community Arterial
- New Street Neighborhood Collector
- West Pleasant Grove Road Local Road
- Bridlewood Boulevard Local Road

Known Congestion Areas

The U.S. Route 202 (Wilmington Pike) corridor within the vicinity of the site is a known congestion area. It is our understanding that PennDOT currently has a design project providing improvements to the U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926) intersection.

Known Safety Concerns

Not known at this time.

Known Environmental Constraints

Not known at this time.

Pedestrian/Bike Review (Community Centers, Parks, Schools, etc.)

Stetson Middle School and Sarah W. Starkweather Elementary School are located along Wilmington Pike (S.R. 0202), approximately 0.5 miles north of the site.

Transit Review (Current routes/stops)

The nearest SEPTA bus stop (SEPTA Bus Route 139) is located at the intersection of Schuylkill Road (S.R. 0724) and Park Road/Cypress Avenue, approximately 0.75 miles south of the site. This bus route continues along New Street (S.R. 1043) and services Limerick, Royersford, Spring City, Phoenixville, and King of Prussia.

(10) TIS ANALYSIS PERIODS AND TIMES:

(List periods and times. Normal analysis periods are existing conditions, 5 years in the future without development, and 5 years in the future with development. Normal analysis times for each period are the AM peak hour, the PM peak hour, and the peak hour of site-generated traffic).

Study Analysis Periods:

- Existing Conditions
- 2023 Future Build-Out Year Conditions (both without and with the proposed development)
- 2028 Future Design Year Conditions (both without and with the proposed development)

Study Time Periods:

- Weekday morning peak period (7:00 AM to 9:00 AM)
- Weekday afternoon peak period (4:00 PM to 6:00 PM)

(11) TRAFFIC ADJUSTMENT FACTORS:

(a) Seasonal Adjustment: (Identify counts requiring adjustment and methodology)

The traffic counts were completed on September 8, 2016 while school was in session, and therefore, the use of any seasonal adjustment factors is not required.

(b) Annual Base Traffic Growth: 1.71 %/yr.

Source: <u>Bureau of Planning and Research for similar roadways in Chester</u>

County

If there are other developments within the study area that must be included as part of the background traffic growth and which have a significant effect on future traffic volumes, then it may be proposed to use a lower annual base traffic growth rate.

- (c) Pass-By Trips: (Attach justification where required)
- (d) Captured Trips for Multi-Use Sites: (List % and manner of application. Attach justification where required.)
- (e) Modal Split Reductions

No reduction proposed.

(f) Other Reductions

No other reductions proposed.

(12) OTHER PROJECTS WITHIN STUDY AREA TO BE ADDED TO BASE TRAFFIC:

(Identify proposed developments with issues permits that need to be included.)

Please provide information regarding any proposed developments that will have an effect on traffic operations within the study area and should be included in the Transportation Impact Study.

• *Police Station Redevelopment*: 30,000 square feet of office space located on the northeast corner of the intersection of U.S. 202 (Wilmington Pike) and Pleasant Grove Road.

- *Arborview*: 16,800 square feet of office space and an 8,665 square-foot daycare center located on the west side of U.S. Route 202 (Wilmington Pike) between Skiles Boulevard and Pleasant Grove Road.
- *Condominium Development*: 39 condominiums in two buildings remain to be occupied/constructed on the west side of Gilpin Drive just north of Skiles Boulevard.

(13) TRIP DISTRIBUTION AND ASSIGNMENT:

(Describe; explain/justify; attach diagram and related information.)

Trip distributions and assignments have been prepared based on existing traffic patterns and the location of the site accesses upon completion of the data collection efforts. Site distribution and assignment figures are provided in **Attachment 2**.

(14) APPROVAL OF DATA COLLECTION ELEMENTS AND METHODOLOGIES:

<u>Location</u>	<u>Period</u>	<u>Type</u>
U.S. Route 202 and Street Road (S.R. 0926)	Weekday 7-9 AM and 4-6 PM	MTM
U.S. Route 202 and West Pleasant Grove Road		
Street Road (S.R. 0926) and New Street		
Street Road (S.R. 0926) and Bridlewood Boulevard		

Traffic counts were conducted on September 8, 2016, while school was in session and are provided in **Attachment 3**. Existing peak hour traffic volume figures are also provided in **Attachment 3**.

(15) CAPACITY/LOS ANALYSIS:

<u>Location</u>	<u>Period</u>	<u>Type</u>
U.S. Route 202 and Street Road (S.R. 0926)	Weekday 7-9 AM and 4-6 PM	HCM 2010
U.S. Route 202 and West Pleasant Grove Road		utilizing
Street Road (S.R. 0926) and New Street		Synchro 8
Street Road (S.R. 0926) and Bridlewood Boulevard		
All proposed site accesses		

(16) ROADWAY IMPROVEMENTS/MODIFICATIONS BY OTHERS TO BE INCLUDED:

(Projects programmed for construction of other developments with issued permits.)

It is our understanding that a PennDOT project to improve the intersection of U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926). Based on the current State Transportation Improvement Program (TIP) and the Conceptual Intersection Layout prepared by Urban Engineers and dated June 5, 2014, the project will include improvements that will help reduce traffic congestion and increase safety at the intersection through lane reconfigurations, striping, upgrades to the traffic signal, signal timing, and bicycle and pedestrian improvements. It is our understanding that the following roadway improvements are to be included:

- Southbound 130-foot right-turn deceleration lane on U.S. Route 202.
- Additional eastbound left-turn lane on PA Route 926, creating a double left-turn lane configuration with 380 feet of storage for each lane.

- Pedestrian and bicycle intersection improvements, including high-visibility crosswalks, ADA ramps, and sidewalk extension from the intersection east to Dalmally Drive.
- Traffic signal equipment upgrades, including pedestrian push buttons, countdown signal heads, and lighting.

Based on the TIP, the current project schedule indicates an estimated let date of July 2018; however, in light of the favorable state transportation funding situation, and the high priority for this project within Chester County, we understand this project may be accelerated to be completed more quickly.

(17) OTHER NEEDED ANALYSES:

(a) Sight Distance Analysis:

(Required for all site access driveways; identify other locations)

Will be completed for all site accesses.

(b) Signal Warrant Analysis:

(Identify locations)

Will be completed for the proposed traffic signal at Street Road (S.R. 0926) and Site Access.

(c) Required Signal Phasing/Timing Modifications:

(Determine for all signalized intersections; specify methodology)

Any recommendations regarding proposed traffic signal phasing/timing modifications will be completed based on the results of the traffic analyses completed in Synchro, and based on the calculation of conflict factors, in accordance with PennDOT warrants and guidelines.

(d) Traffic Signal Corridor/Network Analysis:

(Identify locations/methodology)

Traffic signal coordination will be included within the traffic analyses in Synchro, as needed.

(e) Analysis of the Need for Turning Lanes:

(Identify locations/methodology)

The need for auxiliary turning lanes will be evaluated based on PennDOT guidelines, as contained in PennDOT's *Publication 46, Chapter 11*, for the proposed site accesses.

(f) Turning Lane Lengths:

(Identify methodology to be used)

Turning lane lengths will be evaluated based on PennDOT guidelines, as contained in PennDOT's *Publication 46, Chapter 11*, including the 95th percentile queues from the Synchro analyses.

(g) Left Turn Signal Phasing Analysis:

(Identify locations/methodology)

Will be completed at the proposed Street Road (S.R. 0926) Site Access.

(h)	Queuing Analysis: (Identify locations/methodology)	
	Will be completed at all study intersections and propos	sed site accesses utilizing Synchro 8.
		0 3
(i)	Gap Studies: (Identify locations/methodology)	
	(Identify locations/methodology)	
	Not proposed at this time.	
(j)	Crash Analysis:	
	(Identify locations)	
	Crash data will be reviewed, upon request.	
(k)	Weaving Analysis:	
	(Identify locations)	
	N/A	
(1)	Other Required Studies:	
(1)	(Specify locations/methodology)	
	None proposed at this time.	
٠,	DDITIONAL COMMENTS OR RECOMMENDATIONED TIS:	ONS RELATIVE TO THE SCOPE OF
		_ Date:
Signature	e of Applicant's Engineer	
		_ Date:
Signature	e of District Traffic PennDOT Representative	
Signature	e of District Permit PennDOT Representative (if present)	_ Date:
Jigilatare	o District Chair Chair of Representative (a present)	
		Date:
Signature	e of Municipal Traffic Representative	



FIGURE 1 Site Location Map

CREBILLY FARM RESIDENTIAL DEVELOPMENT MEMAHO WESTTOWN TOWNSHIP, CHESTER COUNTY, PA



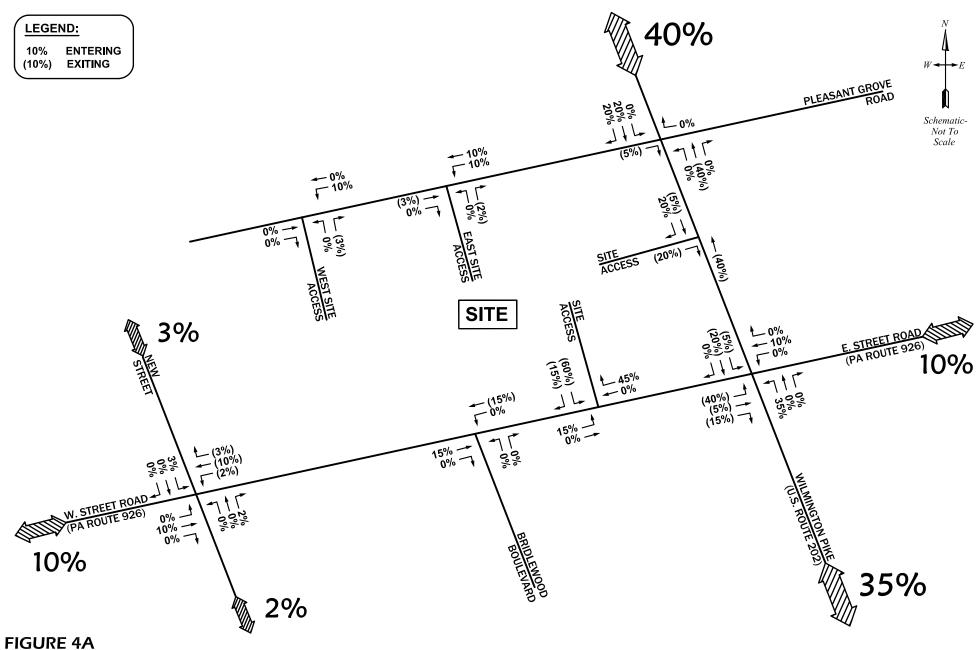
Project Information Crebily Farm Residential Project Name: Development - Alternative A McMahon Project No: 816451 Date: 10/3/2016 City/Municipality: Westtown Township Pennsylvania State: Client Name: Toll Brothers, Inc. Analyst's Name: BGG ITE Edition: ITE-TGM 9th Edition

		Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour			
Land Use	Size	Total	In	Out	Total	In	Out	Total	
230 - Residential Condominium / Townhouse	117 dwelling units	737	10	49	59	46	22	68	
210 - Single Family Detached Housing	202 dwelling units	2,005	38	113	151	125	73	198	
Total Trips		2,742	48	162	210	171	95	266	

Project Information Crebily Farm Residential Project Name: Development - Alternatives B and C McMahon Project No: 816451 Date: 10/10/2016 City/Municipality: Westtown Township State: Pennsylvania Client Name: Toll Brothers, Inc. Analyst's Name: BGG ITE Edition: ITE-TGM 9th Edition

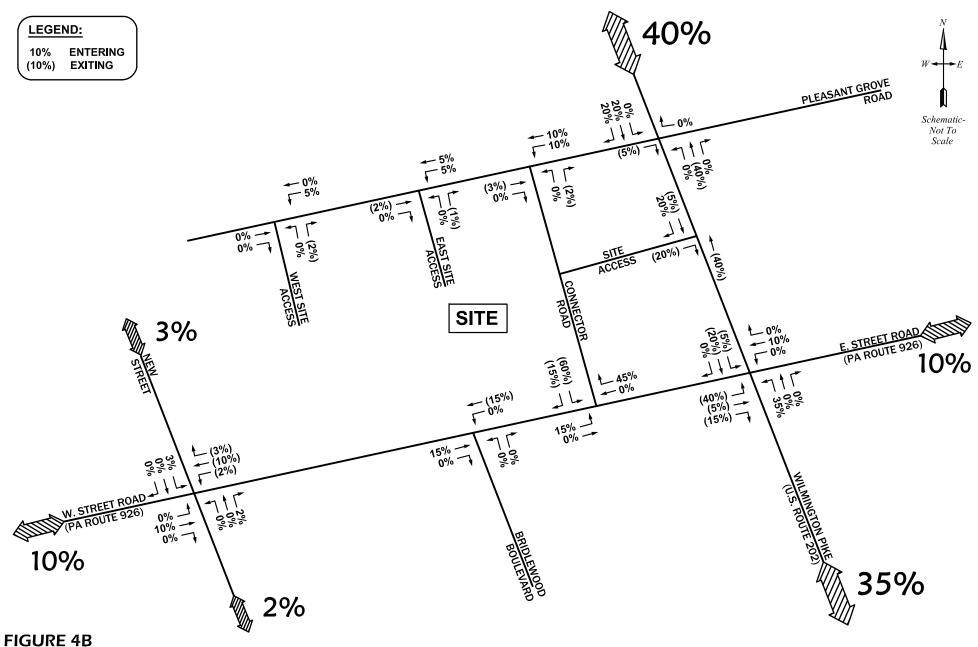
		Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Land Use	Size	Total	In	Out	Total	In	Out	Total
230 - Residential Condominium / Townhouse	243 dwelling units	1,393	18	87	105	84	41	125
210 - Single Family Detached Housing	154 dwelling units	1,562	30	88	118	98	57	155
Total Trips		2,955	48	175	223	182	98	280





Site Trip Distribution
Alternatives A and B

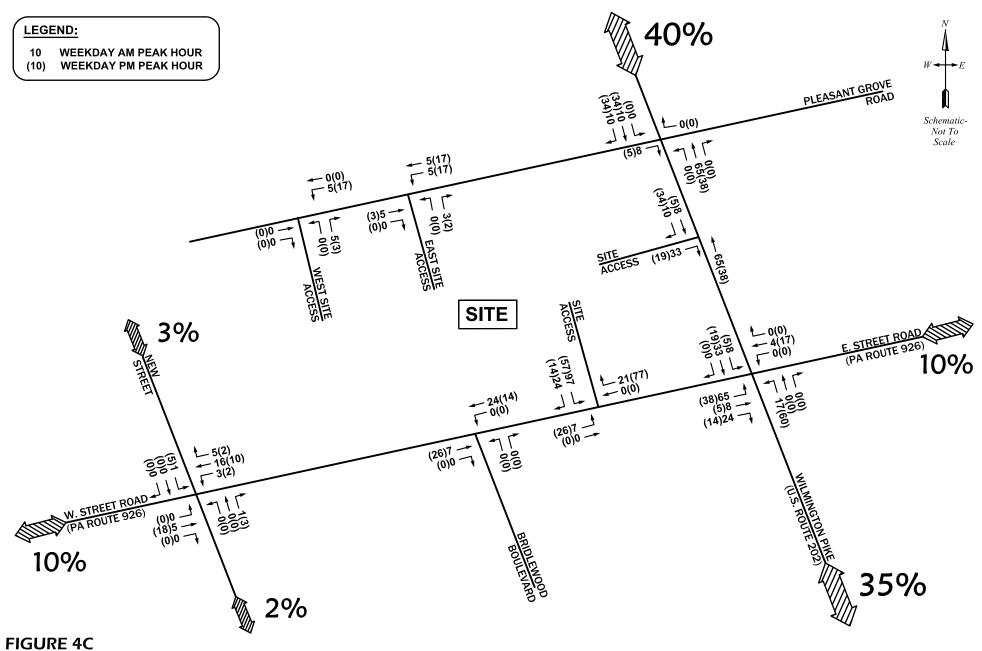
CREBILLY FARM RESIDENTIAL DEVELOPMENT



Site Trip Distribution Alternative C

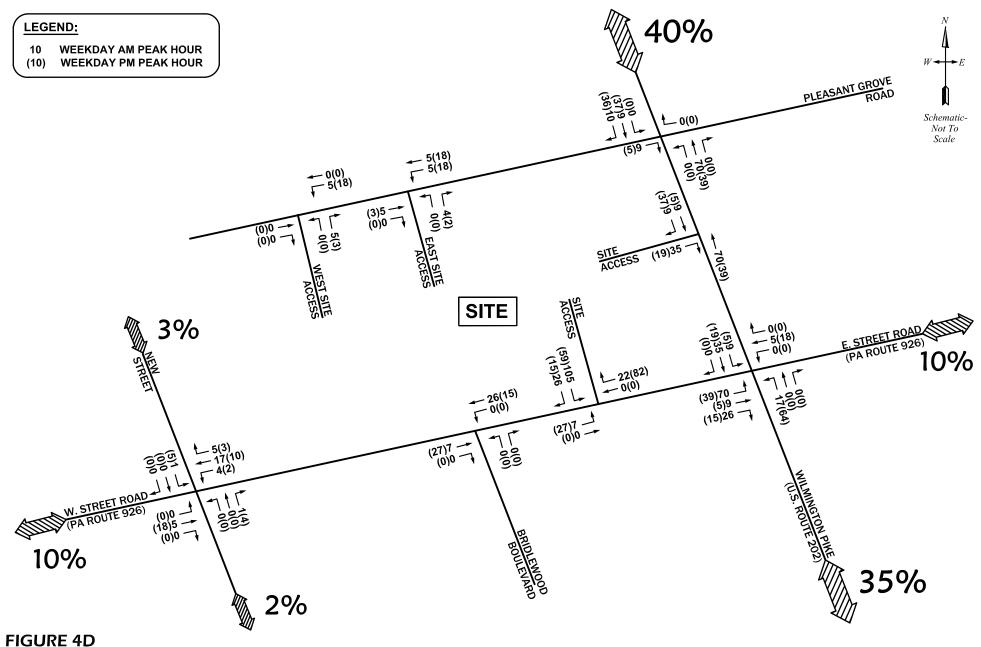
CREBILLY FARM RESIDENTIAL DEVELOPMENT





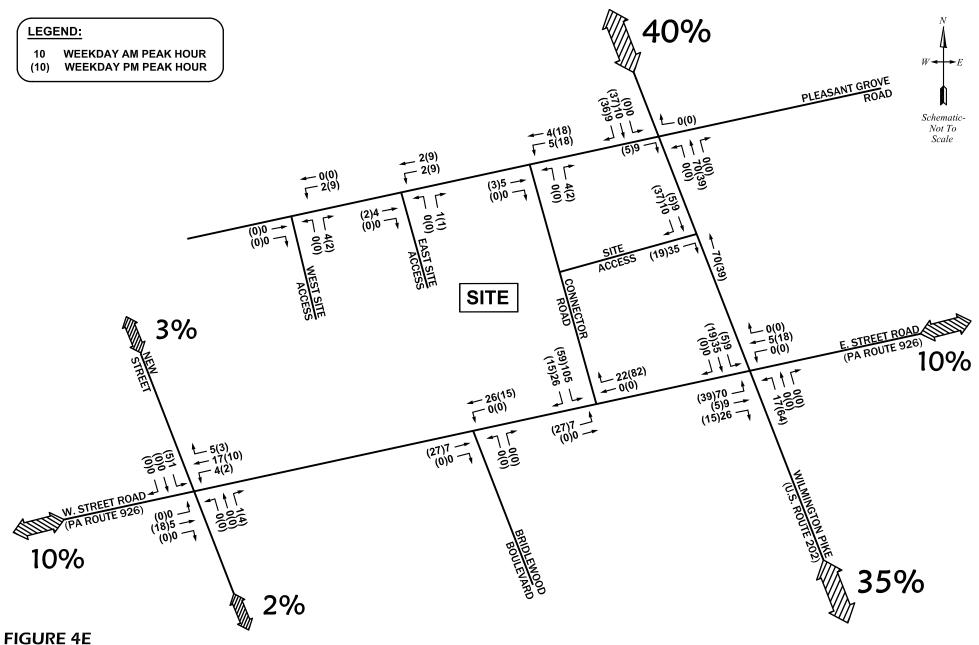
Site Trip Assignment Alternative A

REBILLY FARM RESIDENTIAL DEVELOPMENT



Site Trip Assignment Alternative B

REBILLY FARM RESIDENTIAL DEVELOPMENT



Site Trip Assignment Alternative C

CREBILLY FARM RESIDENTIAL DEVELOPMENT



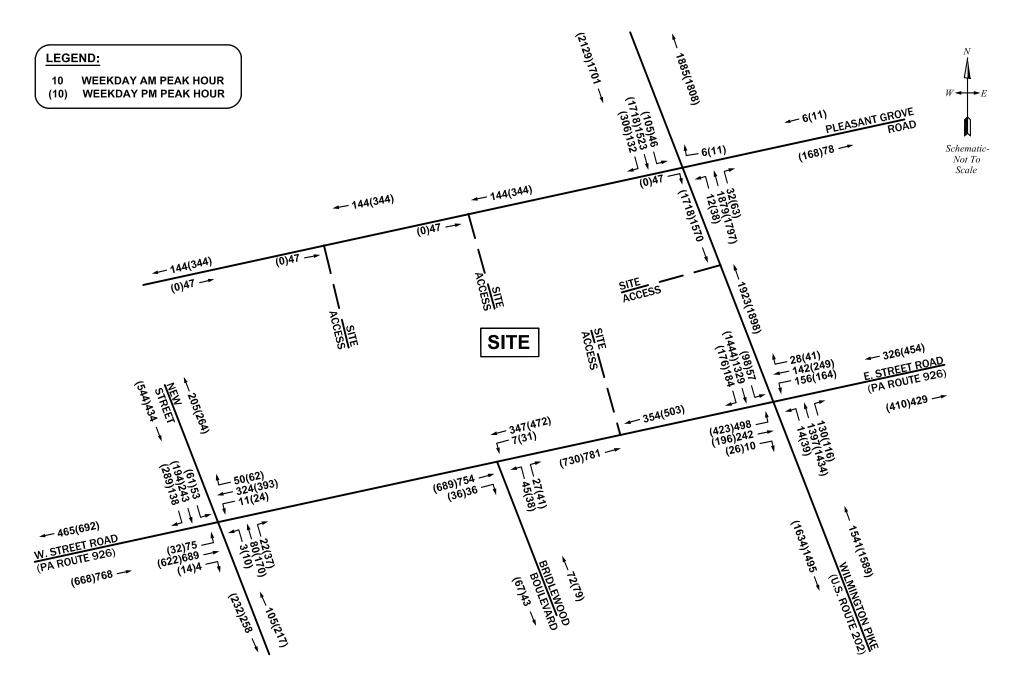


FIGURE 3A 2016 Existing Peak Hour Traffic Volumes

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: New Street & Street Road (Route 926) Counter/Board #: HR

File Name: westtown01w Site Code : 81645101

Start Date : 9/8/2016

Page No : 1

					Groups	Printed	<u>l- Pass</u>	enger V	<u>ehicles</u>	s - Heav	y Vehic	cles					
		New S	Street		St	reet Rd	(Rt 92	6)		New S	Street		St	reet Rd	l (Rt 92	6)	
		South	ound			Westb	ound			North	ound			Eastb	ound		
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	14	44	0	12	3	79	2	3	6	7	1	9	9	206	0	0	395
07:15	10	50	0	20	4	85	3	4	3	21	0	5	26	173	0	0	404
07:30	6	46	0	29	2	82	2	14	2	27	0	4	16	167	0	6	403
07:45	15	61	0	28	4	86	1_	19	0	23	0	7	25	173	0	1_	443
Total	45	201	0	89	13	332	8	40	11	78	1	25	76	719	0	7	1645
08:00	4	66	0	41	0	82	0	11	0	22	0	5	22	172	1	1	427
08:15	14	63	0	37	7	83	0	8	1	17	0	3	16	154	0	0	403
08:30	20	53	0	32	0	73	2	9	2	18	0	7	12	190	0	1	419
08:45	10	40	0	41	1_	66	0	12	0	18	0	9	11_	155	0	0	363
Total	48	222	0	151	8	304	2	40	3	75	0	24	61	671	1	2	1612
16:00	21	39	0	67	2	107	0	19	5	23	0	3	6	130	0	2	424
16:15	22	46	0	77	2	117	1	14	5	32	0	3	7	120	0	4	450
16:30	14	37	0	86	1	102	1	19	2	23	0	5	5	149	0	1	445
16:45	16	57	0	72	1	104	1	18	2	32	0	4	5	139	0	1	452
Total	73	179	0	302	6	430	3	70	14	110	0	15	23	538	0	8	1771
17:00	15	52	0	75	2	96	2	16	4	62	1	8	6	138	1	3	481
17:15	20	52	0	64	4	86	2	13	2	43	0	10	7	160	0	3	466
17:30	17	34	0	80	5	124	2	11	3	28	0	11	8	160	0	3	486
17:45	9	56	Ö	70	13	87	1	15	1	37	Ö	7	11	164	Ö	4	475
Total	61	194	0	289	24	393	7	55	10	170	1	36	32	622	1	13	1908
Grand Total	227	796	0	831	51	1459	20	205	38	433	2	100	192	2550	2	30	6936
Apprch %	12.2	42.9	0	44.8	2.9	84.1	1.2	11.8	6.6	75.6	0.3	17.5	6.9	91.9	0.1	1.1	
Total %	3.3	11.5	0	12	0.7	21	0.3	3	0.5	6.2	0	1.4	2.8	36.8	0	0.4	
Passenger Vehicles	221	792	0	814	46	1398	20	201	34	425	2	96	189	2473	2	30	6743
% Passenger Vehicles	97.4	99.5	0	98	90.2	95.8	100	98	89.5	98.2	100	96	98.4	97	100	100	97.2
Heavy Vehicles	6	4	0	17	5	61	0	4	4	8	0	4	3	77	0	0	193
% Heavy Vehicles	2.6	0.5	0	2	9.8	4.2	0	2	10.5	1.8	0	4	1.6	3	0	0	2.8

Zero Pedestrians were observed during this study.

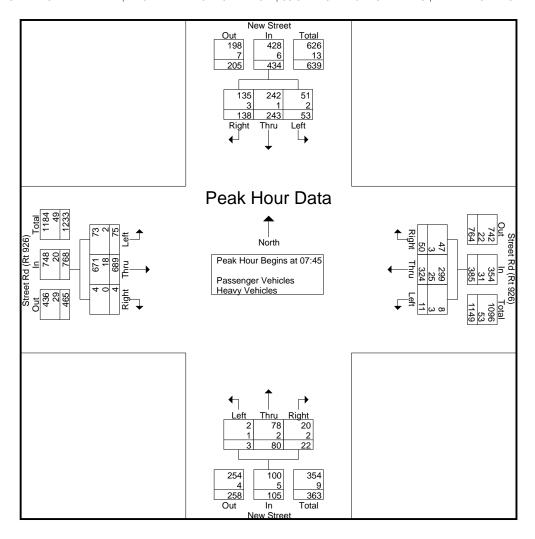
425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: New Street & Street Road (Route 926) Counter/Board #: HR File Name: westtown01w

Site Code : 81645101 Start Date : 9/8/2016

		Ne	ew Sti	reet			Stree	t Rd (Rt 926	5)		N	ew Sti	eet			Stree	t Rd (Rt 926	5)	
		So	uthbo	und			W	estbo	und			No	rthbo	und			Ea	astbo	ınd		
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Int. Total
Peak Hour A	nalysi	s Fron	n 07:00	0 to 11	:45 - Pe	eak 1 c	of 1														
Peak Hour fe	or Enti	re Inte	rsection	n Beg	ins at 0	7:45															
07:45	15	61	0	28	104	4	86	1	19	110	0	23	0	7	30	25	173	0	1	199	443
08:00	4	66	0	41	111	0	82	0	11	93	0	22	0	5	27	22	172	1	1	196	427
08:15	14	63	0	37	114	7	83	0	8	98	1	17	0	3	21	16	154	0	0	170	403
08:30	20	53	0	32	105	0	73	2	9	84	2	18	0	7	27	12	190	0	1	203	419
Total Volume	53	243	0	138	434	11	324	3	47	385	3	80	0	22	105	75	689	1	3	768	1692
% App. Total	12.2	56	0	31.8		2.9	84.2	0.8	12.2		2.9	76.2	0	21_		9.8	89.7	0.1	0.4		
PHF	.663	.920	.000	.841	.952	.393	.942	.375	.618	.875	.375	.870	.000	.786	.875	.750	.907	.250	.750	.946	.955
Passenger Vehicles																					
% Passenger Vehicles	96.2	99.6	0	97.8	98.6	72.7	92.3	100	93.6	91.9	66.7	97.5	0	90.9	95.2	97.3	97.4	100	100	97.4	96.3
Heavy Vehicles																					
% Heavy Vehicles	3.8	0.4	0	2.2	1.4	27.3	7.7	0	6.4	8.1	33.3	2.5	0	9.1	4.8	2.7	2.6	0	0	2.6	3.7



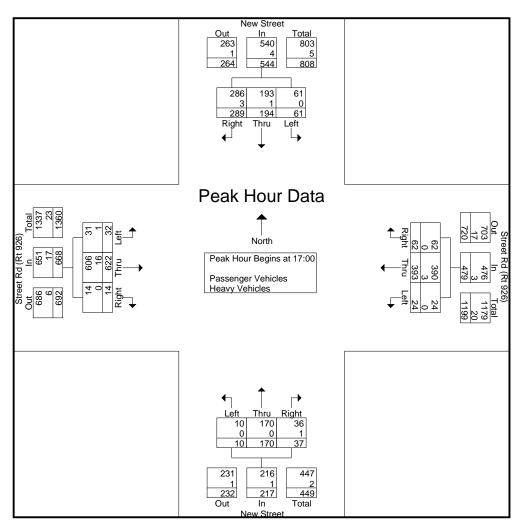
425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: New Street & Street Road (Route 926) Counter/Board #: HR File Name: westtown01w

Site Code : 81645101 Start Date : 9/8/2016

			w Str					•	Rt 926	5)			ew Sti					•	Rt 926	5)	
		So	uthbo	und			W	<u>estbo</u>	und			No	rthbo	und			E	astbo	und		
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour A	nalysi	s From	n 12:00	0 to 17	:45 - Pe	ak 1 c	of 1														
Peak Hour fo	or Enti	re Inte	rsectio	n Beg	ins at 1	7:00															
17:00	15	52	0	75	142	2	96	2	16	116	4	62	1	8	75	6	138	1	3	148	481
17:15	20	52	0	64	136	4	86	2	13	105	2	43	0	10	55	7	160	0	3	170	466
17:30	17	34	0	80	131	5	124	2	11	142	3	28	0	11	42	8	160	0	3	171	486
17:45	9	56	0	70	135	13	87	1	15	116	1	37	0	7	45	11	164	0	4	179	475
Total Volume	61	194	0	289	544	24	393	7	55	479	10	170	1	36	217	32	622	1	13	668	1908
% App. Total	11.2	35.7	0	53.1		5	82	1.5	11.5		4.6	78.3	0.5	16.6		4.8	93.1	0.1	1.9		
PHF	.763	.866	.000	.903	.958	.462	.792	.875	.859	.843	.625	.685	.250	.818	.723	.727	.948	.250	.813	.933	.981
Passenger Vehicles																					
% Passenger Vehicles	100	99.5	0	99.0	99.3	100	99.2	100	100	99.4	100	100	100	97.2	99.5	96.9	97.4	100	100	97.5	98.7
Heavy Vehicles																					
% Heavy Vehicles	0	0.5	0	1.0	0.7	0	8.0	0	0	0.6	0	0	0	2.8	0.5	3.1	2.6	0	0	2.5	1.3



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Groups Printed- Heavy Vehicles

Municipality: Westtown Township

Location: New Street & Street Road (Route 926)

Counter/Board #: HR

17:45

Grand Total

Apprch %

Total %

Total

File Name: westtown01w

Site Code : 81645101 Start Date : 9/8/2016

Page No : 1

5

16

77

96.2

39.9

3

3.8

1.6

0

0

0

0

0

8

25

193

		New Street				St	reet Ro	Rt 92	6)	_	New S	Street		St	reet Ro	l (Rt 92	6)	
			South	bound			Westb	ound			North	oound			Eastb	ound		
Start	Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
	07:00	1	0	0	0	1	6	0	0	0	0	0	0	0	3	0	0	11
	07:15	0	0	0	0	1	5	0	1	1	0	0	1	0	2	0	0	11
	07:30	2	0	0	1	0	6	0	0	0	1	0	0	0	10	0	0	20
	07:45	0	0	0	0	0	5	0	2	0	1_	0	0	0	4	0	0	12
	Total	3	0	0	1	2	22	0	3	1	2	0	1	0	19	0	0	54
	08:00	0	0	0	1	0	9	0	0	0	0	0	0	0	10	0	0	20
	08:15	0	0	0	1	3	4	0	1	0	0	0	0	2	1	0	0	12
	08:30	2	1	0	1	0	7	0	0	1	1	0	2	0	3	0	0	18
	08:45	0	0	0	3	0	4_	0	0	0	1_	0	0	0	6	0	0	14
	Total	2	1	0	6	3	24	0	1	1	2	0	2	2	20	0	0	64
	16:00	1	1	0	1	0	4	0	0	1	2	0	0	0	7	0	0	17
	16:15	0	0	0	2	0	4	0	0	1	1	0	0	0	7	0	0	15
	16:30	0	1	0	3	0	1	0	0	0	1	0	0	0	4	0	0	10
	16:45	0	0	0	1	0	3	0	0	0	0	0	0	0	4	0	0	8
•	Total	1	2	0	7	0	12	0	0	2	4	0	0	0	22	0	0	50
	17:00	0	0	0	2	0	2	0	0	0	0	0	1	0	5	0	0	10
	17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4
	17:30	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3

1

17

63

8.8

0

0

0

0

0

5

7.1

2.6

61

87.1

31.6

0

0

0

0

0

5.7

2.1

0

4

25

2.1

0

8

50

4.1

0

0

0

4

25

2.1

0

14.8

2.1

0

6

22.2

3.1

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: New Street & Street Road (Route 926) Counter/Board #: HR File Name: westtown01w

Site Code : 81645101 Start Date : 9/8/2016

Page No : 1

Groups Printed- Passenger Vehicles

								ed- Pas	senger								,
		New S	Street		St	reet Ro	I (Rt 92	6)		New S	Street		St	reet Ro	l (Rt 92	6)	
		South	oound			Westb	ound			North	oound			Eastb	ound		
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	13	44	0	12	2	73	2	3	6	7	1	9	9	203	0	0	384
07:15	10	50	0	20	3	80	3	3	2	21	0	4	26	171	0	0	393
07:30	4	46	0	28	2	76	2	14	2	26	0	4	16	157	0	6	383
07:45	15	61	0	28	4	81	1	17	0	22	0	7	25	169	0	1_	431
Total	42	201	0	88	11	310	8	37	10	76	1	24	76	700	0	7	1591
08:00	4	66	0	40	0	73	0	11	0	22	0	5	22	162	1	1	407
08:15	14	63	0	36	4	79	0	7	1	17	0	3	14	153	0	0	391
08:30	18	52	0	31	0	66	2	9	1	17	0	5	12	187	0	1	401
08:45	10	40	0	38	1_	62	0	12	0	17	0	9	11	149	0	0	349
Total	46	221	0	145	5	280	2	39	2	73	0	22	59	651	1	2	1548
16:00	20	38	0	66	2	103	0	19	4	21	0	3	6	123	0	2	407
16:15	22	46	0	75	2	113	1	14	4	31	0	3	7	113	0	4	435
16:30	14	36	0	83	1	101	1	19	2	22	0	5	5	145	Ö	1	435
16:45	16	57	Ö	71	1	101	1	18	2	32	Ö	4	5	135	Ö	1	444
Total	72	177	0	295	6	418	3	70	12	106	0	15	23	516	0	8	1721
17:00	15	52	0	73	2	94	2	16	4	62	1	7	6	133	1	3	471
17:15	20	52	0	64	4	86	2	13	2	43	0	10	7	156	0	3	462
17:30	17	33	0	80	5	124	2	11	3	28	0	11	8	158	0	3	483
17:45	9	56	0	69	13	86	1_	15	1_	37	0	7	10	159	0	4	467
Total	61	193	0	286	24	390	7	55	10	170	1	35	31	606	1	13	1883
Grand Total	221	792	0	814	46	1398	20	201	34	425	2	96	189	2473	2	30	6743
Apprch %	12.1	43.3	0	44.6	2.8	84	1.2	12.1	6.1	76.3	0.4	17.2	7	91.8	0.1	1.1	
Total %	3.3	11.7	0	12.1	0.7	20.7	0.3	3	0.5	6.3	0	1.4	2.8	36.7	0	0.4	

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township Location: Street Road (Route 926) &

Bridlewood Boulevard Counter/Board #: RR

File Name: westtown02w Site Code: 00000000

Start Date : 9/8/2016

Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Grou	ps Printed-	<u>Passenger Vehic</u>	<u>les - Heavy Vel</u>	nicles		
	Street Rd (Rt	926)	Bridlewoo	od Blvd	Street Rd	(Rt 926)	
	Westboun		Northb		Eastb		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	5	82	5	10	192	4	298
07:15	2	94	6	11	191	12	316
07:30	5	92	6	6	165	7	281
07:45	4	94	11	5	189	10	313
Total	16	362	28	32	737	33	1208
08:00	0	90	9	6	184	2	291
08:15	3	86	13	3	178	7	290
08:30	0	77	12	13	203	17	322
08:45	0	75	10	8	183	11	287
Total	3	328	44	30	748	37	1190
·				•		·	
16:00	3	128	4	3	140	14	292
16:15	2	112	4	4	143	3	268
16:30	5	129	5	5	163	8	315
16:45	6	110	6	7	142	6	277
Total	16	479	19	19	588	31	1152
·							
17:00	5	115	10	9	158	11	308
17:15	6	110	14	11	186	7	334
17:30	8	134	7	12	164	9	334
17:45	12	113	7	9	181	9	331_
Total	31	472	38	41	689	36	1307
0 17 11	20	4044	400	400	0700	407	1057
Grand Total	66	1641	129	122	2762	137	4857
Apprch %	3.9	96.1	51.4	48.6	95.3	4.7	
Total %	1.4	33.8	2.7	2.5	56.9	2.8	4000
Passenger Vehicles	66	1558	129	122	2649	136	4660
% Passenger Vehicles	100	94.9	100	100	95.9	99.3	95.9
Heavy Vehicles	0	83	0	0	113	1	197
% Heavy Vehicles	0	5.1	0	0	4.1	0.7	4.1

Zero Pedestrians were observed during this study.

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

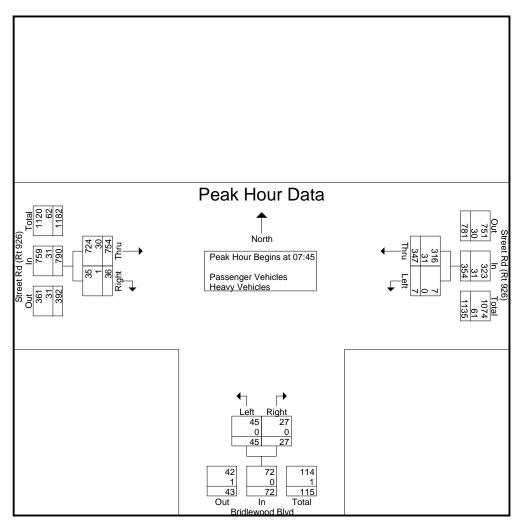
Municipality: Westtown Township Location: Street Road (Route 926) &

Bridlewood Boulevard Counter/Board #: RR

File Name: westtown02w

Site Code : 00000000 Start Date : 9/8/2016

	Str	eet Rd (Rt	926)	В	ridlewood E	Blvd	Str	eet Rd (Rt	926)	
		Westboun	d		Northboun	d		Eastbound	d	
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 07:00 to	11:45 - Pe	ak 1 of 1		_			_		
Peak Hour for Entire Ir	ntersection E	egins at 07	7:45							
07:45	4	94	98	11	5	16	189	10	199	313
08:00	0	90	90	9	6	15	184	2	186	291
08:15	3	86	89	13	3	16	178	7	185	290
08:30	0	77	77	12	13	25	203	17	220	322
Total Volume	7	347	354	45	27	72	754	36	790	1216
% App. Total	2	98		62.5	37.5		95.4	4.6		
PHF	.438	.923	.903	.865	.519	.720	.929	.529	.898	.944
Passenger Vehicles	7	316	323	45	27	72	724	35	759	1154
% Passenger Vehicles	100	91.1	91.2	100	100	100	96.0	97.2	96.1	94.9
Heavy Vehicles	0	31	31	0	0	0	30	1	31	62
% Heavy Vehicles	0	8.9	8.8	0	0	0	4.0	2.8	3.9	5.1



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

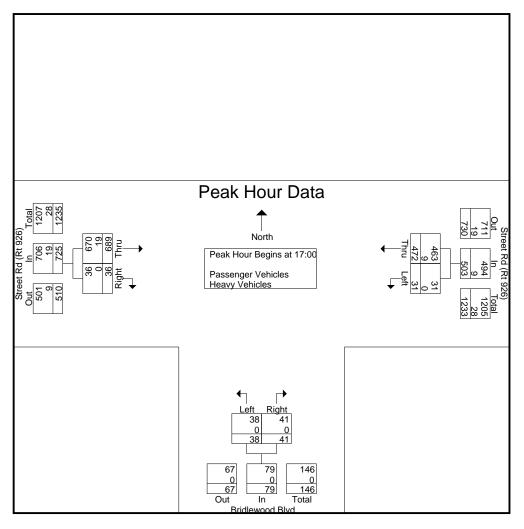
Municipality: Westtown Township Location: Street Road (Route 926) &

Bridlewood Boulevard Counter/Board #: RR

File Name: westtown02w Site Code: 00000000

Start Date : 9/8/2016

		eet Rd (Rt 9 Westbound	,	В	ridlewood B Northbound	-	Str	eet Rd (Rt 9 Eastbound	,	
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 12:00 to	17:45 - Pea	ak 1 of 1		_			_		
Peak Hour for Entire In	tersection B	egins at 17:	:00							
17:00	5	115	120	10	9	19	158	11	169	308
17:15	6	110	116	14	11	25	186	7	193	334
17:30	8	134	142	7	12	19	164	9	173	334
17:45	12	113	125	7	9	16	181	9	190	331
Total Volume	31	472	503	38	41	79	689	36	725	1307
Mapp. Total	6.2	93.8		48.1	51.9		95	5		
PHF	.646	.881	.886	.679	.854	.790	.926	.818	.939	.978
Passenger Vehicles	31	463	494	38	41	79	670	36	706	1279
% Passenger Vehicles	100	98.1	98.2	100	100	100	97.2	100	97.4	97.9
Heavy Vehicles	0	9	9	0	0	0	19	0	19	28
% Heavy Vehicles	0	1.9	1.8	0	0	0	2.8	0	2.6	2.1



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township Location: Street Road (Route 926) &

Bridlewood Boulevard

Counter/Board #: RR

File Name: westtown02w

Site Code : 00000000 Start Date : 9/8/2016

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Groups Printed- Heavy Vehicles

	Street Rd (Rt		Bridlewoo		Street Rd		
	Westbour	nd	Northbo	ound	Eastb	ound	
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	6	0	0	6	0	12
07:15	0	9	0	0	6	0	15
07:30	0	6	0	0	12	0	18
07:45	0	6	0	0	6	0	12
Total	0	27	0	0	30	0	57
,						,	
08:00	0	10	0	0	14	0	24
08:15	0	7	0	0	3	0	10
08:30	0	8	0	0	7	1	16
08:45	0	6	0	0	10	0	16_
Total	0	31	0	0	34	1	66
1		. 1		- 1		- 1	
16:00	0	4	0	0	11	0	15
16:15	0	5	0	0	9	0	14
16:30	0	4	0	0	6	0	10
16:45	0	3	0	0	4	0	7
Total	0	16	0	0	30	0	46
4= 00	•				•	ا م	•
17:00	0	3	0	0	6	0	9
17:15	0	1	0	0	6	0	/
17:30	0	2	0	0	2	0	4
17:45	0	3	0	0	5	0	8
Total	0	9	0	0	19	0	28
0 17 11	•	00	•	0	110	4 1	407
Grand Total	0	83	0	0	113	1	197
Apprch %	0	100	0	0	99.1	0.9	
Total %	0	42.1	0	0	57.4	0.5	

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township Location: Street Road (Route 926) &

Bridlewood Boulevard Counter/Board #: RR File Name: westtown02w

Site Code : 00000000 Start Date : 9/8/2016

Page No : 1

Groups Printed- Passenger Vehicles

	Street Rd (Rt	926)	Bridlewood E		Street Rd (Rt	926)	
	Westboun		Northboun	ıd	Eastbound		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	5	76	5	10	186	4	286
07:15	2	85	6	11	185	12	301
07:30	5	86	6	6	153	7	263
07:45	4	88	11	5	183	10	301
Total	16	335	28	32	707	33	1151
08:00	0	80	9	6	170	2	267
08:15	3	79	13	3	175	7	280
08:30	0	69	12	13	196	16	306
08:45	0	69	10	8	173	11	271
Total	3	297	44	30	714	36	1124
16:00	3	124	4	3	129	14	277
16:15	2	107	4	4	134	3	254
16:30	5	125	5	5	157	8	305
16:45	6	107	6	7	138	6	270
Total	16	463	19	19	558	31	1106
17:00	5	112	10	9	152	11	299
17:15	6	109	14	11	180	7	327
17:30	8	132	7	12	162	9	330
17:45	12	110	7	9	176	9	323
Total	31	463	38	41	670	36	1279
Grand Total	66	1558	129	122	2649	136	4660
Apprch %	4.1	95.9	51.4	48.6	95.1	4.9	
Total %	1.4	33.4	2.8	2.6	56.8	2.9	

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 202 & Street Road (Route 926) Counter/Board #: HP+KB

File Name: westtown03w Site Code: 81645103

Start Date : 9/8/2016

Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

					Groups				ehicles	s - Heav	/y Vehic	cles					
		Route	e 202		St	reet Rd	(Rt 92	6)		Route	e 202		St	reet Rd	(Rt 92	6)	
		South	oound			Westb	ound			North	ound			Eastb	ound		
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	25	278	2	41	32	26	1	1	2	261	5	33	131	68	0	4	910
07:15	10	321	5	45	49	37	0	11	1	319	6	32	114	54	0	2	1006
07:30	9	283	6	37	28	37	0	6	5	309	2	21	128	63	0	1	935
07:45	13	267	5	43	47	42	2	7	6	264	5	26	125	57	0	3	912
Total	57	1149	18	166	156	142	3	25	14	1153	18	112	498	242	0	10	3763
				1				- 1				1			_		
08:00	14	306	1	25	24	40	1	9	4	274	4	27	92	56	0	0	877
08:15	13	267	5	30	41	43	0	6	6	230	5	30	131	57	0	2	866
08:30	10	279	1	34	40	31	0	8	3	238	1	30	118	55	0	3	851
08:45	13	275	4	48	42	17	1	9	3	247	4	28	111	50	0	5	857
Total	50	1127	11	137	147	131	2	32	16	989	14	115	452	218	0	10	3451
40.00	00	040	45	04	00	50	0	ا م	40	055	4	00	405	40	0	0	4040
16:00	28	312	15	31	29	58	0	9	16	355	1	26	105	49	0	6	1040
16:15	13	343	7	40	44	62	3	11	5	384	9	22	87	41	0	4	1075
16:30	22	287	13	30	43	67	5	3	12	338	10	14	130	62	0	8	1044
16:45	35	358	11	29	48	62	6	4	6	357	14	20	101	44	0	8	1103
Total	98	1300	46	130	164	249	14	27	39	1434	34	82	423	196	0	26	4262
17:00	21	303	10	25	38	57	1	5	7	312	13	17	77	35	0	7	928
17:15	33	318	13	35	37	47	1	6	7	335	10	18	113	69	0	4	1046
17:30	22	336	9	37	41	63	3	0	9	356	7	18	102	33	0	7	1043
17:45	12	319	13	33	62	73	1	2	11	364	7	19	113	41	0	3	1073
Total	88	1276	45	130	178	240	6	13	34	1367	37	72	405	178	0	21	4090
Grand Total	293	4852	120	563	645	762	25	97	103	4943	103	381	1778	834	0	67	15566
Apprch %	5	83.3	2.1	9.7	42.2	49.8	1.6	6.3	1.9	89.4	1.9	6.9	66.4	31.1	0	2.5	
Total %	1.9	31.2	0.8	3.6	4.1	4.9	0.2	0.6	0.7	31.8	0.7	2.4	11.4	5.4	0	0.4	
Passenger Vehicles	280	4505	120	520	622	747	25	82	98	4640	103	351	1743	797	0	64	14697
% Passenger Vehicles	95.6	92.8	100	92.4	96.4	98	100	84.5	95.1	93.9	100	92.1	98	95.6	0	95.5	94.4
Heavy Vehicles	13	347	0	43	23	15	0	15	5	303	0	30	35	37	0	3	869
% Heavy Vehicles	4.4	7.2	0	7.6	3.6	2	0	15.5	4.9	6.1	0	7.9	2	4.4	0	4.5	5.6

Zero Pedestrians were observed during this study.

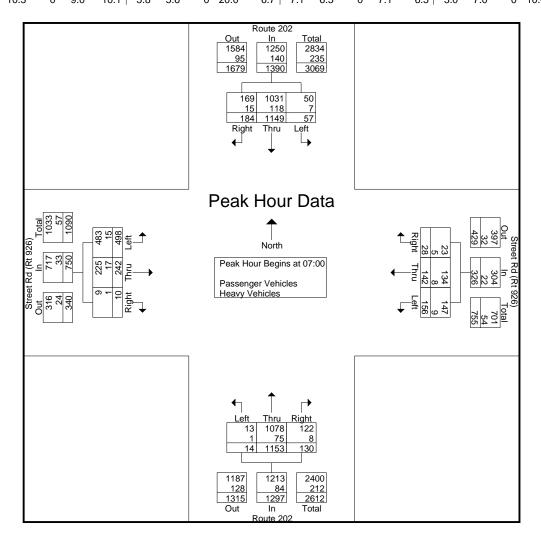
425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 202 & Street Road (Route 926) Counter/Board #: HP+KB File Name: westtown03w

Site Code : 81645103 Start Date : 9/8/2016

		R	oute 2	202			Stree	t Rd (Rt 926	5)		R	oute 2	202			Stree	t Rd (Rt 926	5)	
		So	uthbo	und			We	estbo	und			No	rthbo	und			Ea	stbou	und		
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Left	Thr u	RO R	Rig ht	App. Total	Int. Total
Peak Hour A	Analysi	s Fron	n 07:00	0 to 11	:45 - Pe	eak 1 c	of 1														
Peak Hour fo	or Enti	re Inte	rsection	n Beg	ins at 0	7:00															
07:00	25	278	2	41	346	32	26	1	1	60	2	261	5	33	301	131	68	0	4	203	910
07:15	10	321	5	45	381	49	37	0	11	97	1	319	6	32	358	114	54	0	2	170	1006
07:30	9	283	6	37	335	28	37	0	6	71	5	309	2	21	337	128	63	0	1	192	935
07:45	13	267	5	43	328	47	42	2	7	98	6	264	5	26	301	125	57	0	3	185	912
Total Volume	57	1149	18	166	1390	156	142	3	25	326	14	1153	18	112	1297	498	242	0	10	750	3763
% App. Total	4.1	82.7	1.3	11.9		47.9	43.6	0.9	7.7		1.1	88.9	1.4	8.6		66.4	32.3	0	1.3		
PHF	.570	.895	.750	.922	.912	.796	.845	.375	.568	.832	.583	.904	.750	.848	.906	.950	.890	.000	.625	.924	.935
Passenger Vehicles		1031										1078									
% Passenger Vehicles	87.7	89.7	100	91.0	89.9	94.2	94.4	100	80.0	93.3	92.9	93.5	100	92.9	93.5	97.0	93.0	0	90.0	95.6	92.6
Heavy Vehicles																					
% Heavy Vehicles	12.3	10.3	0	9.0	10.1	5.8	5.6	0	20.0	6.7	7.1	6.5	0	7.1	6.5	3.0	7.0	0	10.0	4.4	7.4



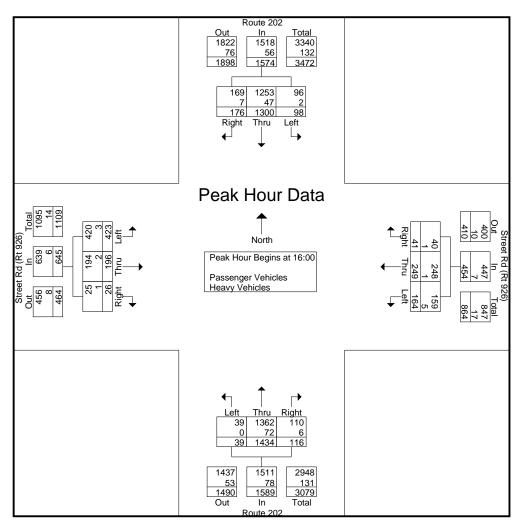
425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 202 & Street Road (Route 926) Counter/Board #: HP+KB File Name: westtown03w

Site Code : 81645103 Start Date : 9/8/2016

	Route 202 Southbound					Street Rd (Rt 926) Westbound				Route 202 Northbound					Street Rd (Rt 926) Eastbound				6)		
		<u> </u>	utnbo	una			W	estbo	una			NC.	rtnbo	una			E	astbo	una		
Start Time	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Left	Thru	ROR	Right	App. Total	Int. Total
Peak Hour A	nalysi	s From	n 12:00	0 to 17	:45 - Pe	eak 1 c	of 1														
Peak Hour fo	or Entii	re Inte	rsection	n Beg	ins at 1	6:00															
16:00	28	312	15	31	386	29	58	0	9	96	16	355	1	26	398	105	49	0	6	160	1040
16:15	13	343	7	40	403	44	62	3	11	120	5	384	9	22	420	87	41	0	4	132	1075
16:30	22	287	13	30	352	43	67	5	3	118	12	338	10	14	374	130	62	0	8	200	1044
16:45	35	358	11	29	433	48	62	6	4	120	6	357	14	20	397	101	44	0	8	153	1103
Total Volume	98	1300	46	130	1574	164	249	14	27	454	39	1434	34	82	1589	423	196	0	26	645	4262
% App. Total	6.2	82.6	2.9	8.3		36.1	54.8	3.1	5.9		2.5	90.2	2.1	5.2		65.6	30.4	0	4		
PHF	.700	.908	.767	.813	.909	.854	.929	.583	.614	.946	.609	.934	.607	.788	.946	.813	.790	.000	.813	.806	.966
Passenger Vehicles		1253										1362									
% Passenger Vehicles	98.0	96.4	100	94.6	96.4	97.0	99.6	100	96.3	98.5	100	95.0	100	92.7	95.1	99.3	99.0	0	96.2	99.1	96.6
Heavy Vehicles																					
% Heavy Vehicles	2.0	3.6	0	5.4	3.6	3.0	0.4	0	3.7	1.5	0	5.0	0	7.3	4.9	0.7	1.0	0	3.8	0.9	3.4



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 202 & Street Road (Route 926)

Counter/Board #: HP+KB

File Name: westtown03w

Site Code : 81645103 Start Date : 9/8/2016

	Route 202				Street Rd (Rt 926)					Route	e 202		Street Rd (Rt 926)				
		South				Westb				North				Eastb			
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	3	31	0	4	2	1	0	1	1	17	0	3	1	5	0	0	69
07:15	0	36	0	6	3	4	0	3	0	12	0	2	1	4	0	0	71
07:30	2	26	0	2	2	1	0	1	0	21	0	0	5	2	0	0	62
07:45	2	25	0	3	2	2	0	0	0	25	0	3	8	6	0	1	77
Total	7	118	0	15	9	8	0	5	1	75	0	8	15	17	0	1	279
	ı																ı
08:00	2	38	0	4	1	3	0	1	2	28	0	3	4	3	0	0	89
08:15	0	25	0	6	1	2	0	0	1	25	0	4	3	7	0	0	74
08:30	0	32	0	6	2	1	0	0	1	26	0	3	3	2	0	0	76
08:45	1	34_	0	4	2	0	0	1	0	21	0	2	2	6	0		74
Total	3	129	0	20	6	6	0	2	4	100	0	12	12	18	0	1	313
16:00	1	12	0	2	1	1	0	1	0	23	0	3	0	0	0	1	45
16:15	0	14	0	4	1	0	0	ó	0	22	0	2	2	2	0	0	43 47
16:30	1	11	0	1	3	0	0	0	0	13	0	1	1	0	0	0	31
16:45	Ö	10	0	Ö	0	0	0	ő	0	14	0	o l	Ó	0	0	0	24
Total	2	47	0	7	5	1	0	1	0	72	0	6	3	2	0	1	147
rotar	_		Ů	• '	·	•	Ŭ		Ů	. –	Ů	0	Ŭ	_	Ů	•	• • • •
17:00	0	17	0	1	0	0	0	2	0	11	0	0	2	0	0	0	33
17:15	1	12	0	0	2	0	0	5	0	16	0	3	1	0	0	0	40
17:30	0	11	0	0	1	0	0	0	0	15	0	0	1	0	0	0	28
17:45	0	13	0	0	0	0	0	0	0	14	0	1	1	0	0	0	29
Total	1	53	0	1	3	0	0	7	0	56	0	4	5	0	0	0	130
Grand Total	13	347	0	43	23	15	0	15	5	303	0	30	35	37	0	3	869
Apprch %	3.2	86.1	0	10.7	43.4	28.3	0	28.3	1.5	89.6	0	8.9	46.7	49.3	0	4	
Total %	1.5	39.9	0	4.9	2.6	1.7	0	1.7	0.6	34.9	0	3.5	4	4.3	0	0.3	

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 202 &
Street Road (Route 926)
Counter/Board #: HP+KB

File Name: westtown03w

Site Code : 81645103 Start Date : 9/8/2016

Page No : 1

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Groups Printed- Passenger Vehicles																	
		Route	202		St	reet Rd	I (Rt 92	6)		Route	2 02		St	reet Rd	(Rt 92	6)	
		South	oound			Westb	ound			North	ound			Eastb	ound		
Start Time	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Left	Thru	ROR	Right	Int. Total
07:00	22	247	2	37	30	25	1	0	1	244	5	30	130	63	0	4	841
07:15	10	285	5	39	46	33	0	8	1	307	6	30	113	50	0	2	935
07:30	7	257	6	35	26	36	0	5	5	288	2	21	123	61	0	1	873
07:45	11_	242	5_	40	45	40	2	7	6	239	5_	23	117	51	0	2	835
Total	50	1031	18	151	147	134	3	20	13	1078	18	104	483	225	0	9	3484
08:00	12	268	1	21	23	37	1	8	2	246	4	24	88	53	0	0	788
08:15	13	242	5	24	40	41	0	6	5	205	5	26	128	50	0	2	792
08:30	10	247	1	28	38	30	0	8	2	212	1	27	115	53	0	3	775
08:45	12	241	4_	44	40	17_	1_	8	3_	226	4_	26	109	44	0	4	783
Total	47	998	11	117	141	125	2	30	12	889	14	103	440	200	0	9	3138
				1				. 1								_	
16:00	27	300	15	29	28	57	0	8	16	332	1	23	105	49	0	5	995
16:15	13	329	7	36	43	62	3	11	5	362	9	20	85	39	0	4	1028
16:30 16:45	21 35	276 348	13 11	29 29	40 48	67 62	5 6	3 4	12 6	325 343	10 14	13 20	129 101	62 44	0	8 8	1013 1079
Total	96	1253	46	123	159	248	14	26	39	1362	34	76	420	194	0	25	4115
Total	90	1255	40	123	139	240	14	20	39	1302	34	70	420	134	U	23	4113
17:00	21	286	10	24	38	57	1	3	7	301	13	17	75	35	0	7	895
17:15	32	306	13	35	35	47	1	1	7	319	10	15	112	69	0	4	1006
17:30	22	325	9	37	40	63	3	0	9	341	7	18	101	33	0	7	1015
17:45	12	306	13	33	62	73	1_	2	11_	350	7	18	112	41	0	3	1044
Total	87	1223	45	129	175	240	6	6	34	1311	37	68	400	178	0	21	3960
Grand Total	280	4505	120	520	622	747	25	82	98	4640	103	351	1743	797	0	64	14697
Apprch %	5.2	83	2.2	9.6	42.1	50.6	1.7	5.6	1.9	89.4	2	6.8	66.9	30.6	0	2.5	
Total %	1.9	30.7	0.8	3.5	4.2	5.1	0.2	0.6	0.7	31.6	0.7	2.4	11.9	5.4	0	0.4	

425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 20 & Pleasant Grove Road Counter/Board #: LB+JB

File Name: westtown04w Site Code: 81645104 Start Date: 9/8/2016

Page No : 1

Groups Printed- Passanger Vehicles - Heavy Vehicles

Groups Printed- Passenger Vehicles - Heavy Vehicles Route 202 Pleasant Grove Rd Route 202 Pleasant Grove Rd													
	R	oute 202		Pleasa	ant Grove	Rd	R	oute 202		Pleasa	ant Grove	Rd	
	So	uthbound	i	We	estbound	l	No	rthbound	l t	Ea	stbound		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	19	370	14	0	0	2	2	455	5	0	0	14	881
07:15	9	433	31	0	0	2	2	545	6	0	0	13	1041
07:30	5	397	37	0	0	0	2	522	4	0	0	10	977
07:45	13	323	50	0	0	2	6	357	17	0	0	10	778
Total	46	1523	132	0	0	6	12	1879	32	0	0	47	3677
08:00	13	367	50	0	0	2	4	407	4	0	1	4	852
08:15	9	252	37	0	0	0	3	290	5	1	0	6	603
08:30	19	275	37	0	0	0	1	231	0	0	0	10	573
08:45	13	332	57	0	0	2	17	304	5	0	0	8	738
Total	54	1226	181	0	0	4	25	1232	14	1	1	28	2766
16:00	22	430	79	0	0	4	15	469	8	0	0	0	1027
16:15	18	424	71	0	0	2	8	518	7	0	0	0	1048
16:30	23	401	91	0	0	0	9	490	4	0	0	0	1018
16:45	19	452	67	0	0	2	7	503	6	0	0	0	1056
Total	82	1707	308	0	0	8	39	1980	25	0	0	0	4149
17:00	32	412	67	0	0	2	5	523	13	0	0	0	1054
17:15	25	461	72	0	0	2	13	545	8	0	0	0	1126
17:30	29	531	90	0	0	0	8	534	14	0	0	0	1206
17:45	19	428	77	0	0	7	12	522	28	0	0	0	1093
Total	105	1832	306	0	0	11	38	2124	63	0	0	0	4479
Grand Total	287	6288	927	0	0	29	114	7215	134	1	1	75	15071
Apprch %	3.8	83.8	12.4	0	0	100	1.5	96.7	1.8	1.3	1.3	97.4	
Total %	1.9	41.7	6.2	0	0	0.2	0.8	47.9	0.9	0	0	0.5	
Passenger Vehicles	281	5903	908	0	0	26	109	6869	130	1	1	75	14303
% Passenger Vehicles	97.9	93.9	98	0	0	89.7	95.6	95.2	97	100	100	100	94.9
Heavy Vehicles	6	385	19	0	0	3	5	346	4	0	0	0	768
% Heavy Vehicles	2.1	6.1	2	0	0	10.3	4.4	4.8	3	0	0	0	5.1

Zero Pedestrians were observed during this study.

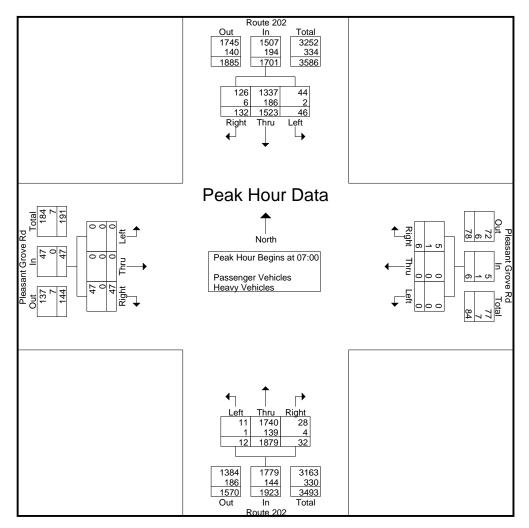
425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

File Name: westtown04w Location: Route 20 & Site Code : 81645104 Pleasant Grove Road Start Date : 9/8/2016

Counter/Board #: LB+JB Page No : 2

	Route 202		Pleasant Grove Rd				Route 202				Pleasant Grove Rd						
		South	bound			West	bound			North	bound			Eastl	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	alysis Fr	om 07:0	00 to 11:	:45 - Pea	k 1 of 1												
Peak Hour for I	Entire In	ntersecti	on Begi	ns at 07:	00												
07:00	19	370	14	403	0	0	2	2	2	455	5	462	0	0	14	14	881
07:15	9	433	31	473	0	0	2	2	2	545	6	553	0	0	13	13	1041
07:30	5	397	37	439	0	0	0	0	2	522	4	528	0	0	10	10	977
07:45	13	323	50	386	0	0	2	2	6	357	17_	380	0	0	10	10	778_
Total Volume	46	1523	132	1701	0	0	6	6	12	1879	32	1923	0	0	47	47	3677
% App. Total	2.7	89.5	7.8		0	0	100		0.6	97.7	1.7		0	0	100		
PHF	.605	.879	.660	.899	.000	.000	.750	.750	.500	.862	.471	.869	.000	.000	.839	.839	.883
Passenger Vehicles	44	1337	126	1507	0	0	5	5	11	1740	28	1779	0	0	47	47	3338
% Passenger Vehicles	95.7	87.8	95.5	88.6	0	0	83.3	83.3	91.7	92.6	87.5	92.5	0	0	100	100	90.8
Heavy Vehicles	2	186	6	194	0	0	1	1	1	139	4	144	0	0	0	0	339
% Heavy Vehicles	4.3	12.2	4.5	11.4	0	0	16.7	16.7	8.3	7.4	12.5	7.5	0	0	0	0	9.2



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

File Name: westtown04w

Site Code: 81645104

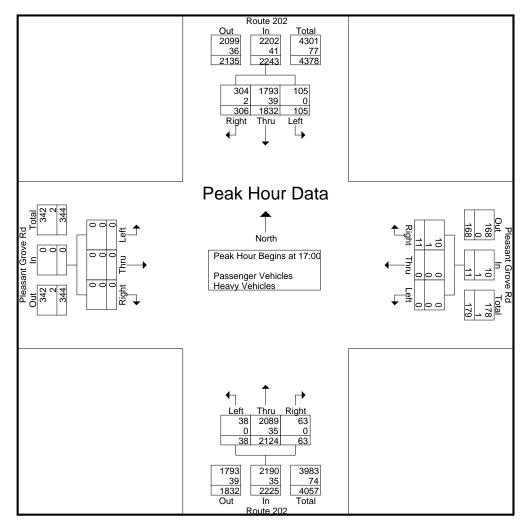
Start Date : 9/8/2016

Municipality: Westtown Township

Location: Route 20 & Pleasant Grove Road

Counter/Board #: LB+JB Page No : 3

	Route 202			Pleasant Grove Rd				Route 202				Pl	easant	Grove	Rd		
		South	bound			West	bound			North	bound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 to 17:45 - Peak 1 of 1																	
Peak Hour for I	Entire In	tersect	ion Begi	ins at 17:	00												
17:00	32	412	67	511	0	0	2	2	5	523	13	541	0	0	0	0	1054
17:15	25	461	72	558	0	0	2	2	13	545	8	566	0	0	0	0	1126
17:30	29	531	90	650	0	0	0	0	8	534	14	556	0	0	0	0	1206
17:45	19	428	77	524	0	0	7	7	12	522	28	562	0	0	0	0	1093
Total Volume	105	1832	306	2243	0	0	11	11	38	2124	63	2225	0	0	0	0	4479
% App. Total	4.7	81.7	13.6		0	0	100		1.7	95.5	2.8		0	0	0		
PHF	.820	.863	.850	.863	.000	.000	.393	.393	.731	.974	.563	.983	.000	.000	.000	.000	.928
Passenger Vehicles	105	1793	304	2202	0	0	10	10	38	2089	63	2190	0	0	0	0	4402
% Passenger Vehicles	100	97.9	99.3	98.2	0	0	90.9	90.9	100	98.4	100	98.4	0	0	0	0	98.3
Heavy Vehicles	0	39	2	41	0	0	1	1	0	35	0	35	0	0	0	0	77
% Heavy Vehicles	0	2.1	0.7	1.8	0	0	9.1	9.1	0	1.6	0	1.6	0	0	0	0	1.7



425 Commerce Drive, Suite 200 Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 20 & Pleasant Grove Road

Counter/Board #: LB+JB

File Name: westtown04w

Site Code: 81645104 Start Date : 9/8/2016

Page No : 1

Groups Printed- Heavy Vehicles

	Route 202		Pleasa	ant Grove	Rd	R	oute 202		Pleasa	nt Grove	Rd		
	Sou	uthbound	i l	We	estbound		No	rthbound	l k	Ea	stbound		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	0	31	2	0	0	0	0	27	3	0	0	0	63
07:15	0	53	2	0	0	0	1	20	0	0	0	0	76
07:30	0	42	1	0	0	0	0	31	0	0	0	0	74
07:45	2	60	1	0	0	1	0	61	1	0	0	0	126
Total	2	186	6	0	0	1	1	139	4	0	0	0	339
1													
08:00	2	43	2	0	0	0	0	42	0	0	0	0	89
08:15	0	21	1	0	0	0	1	41	0	0	0	0	64
08:30	1	33	2	0	0	0	0	23	0	0	0	0	59
08:45	0	28	1	0	0	0	1	21	0	0	0	0	51
Total	3	125	6	0	0	0	2	127	0	0	0	0	263
					_				- 1	_			
16:00	1	10	1	0	0	1	1	12	0	0	0	0	26
16:15	0	2	1	0	0	0	1	9	0	0	0	0	13
16:30	0	12	2	0	0	0	0	10	0	0	0	0	24
16:45	0	11	1	0	0	0	0	14	0	0	0	0	26
Total	1	35	5	0	0	1	2	45	0	0	0	0	89
1	_		. 1			- 1			- 1			. 1	
17:00	0	13	1	0	0	0	0	13	0	0	0	0	27
17:15	0	8	0	0	0	1	0	9	0	0	0	0	18
17:30	0	9	0	0	0	0	0	10	0	0	0	0	19
17:45	0	9	1	0	0	0	0	3	0	0	0	0	13_
Total	0	39	2	0	0	1	0	35	0	0	0	0	77
	_		1			- 1			. 1			. 1	
Grand Total	6	385	19	0	0	3	5	346	4	0	0	0	768
Apprch %	1.5	93.9	4.6	0	0	100	1.4	97.5	1.1	0	0	0	
Total %	8.0	50.1	2.5	0	0	0.4	0.7	45.1	0.5	0	0	0	

McMahon Associates, Inc. 425 Commerce Drive, Suite 200

Fort Washington, P A 19034

Municipality: Westtown Township

Location: Route 20 & Pleasant Grove Road

Counter/Board #: LB+JB

File Name: westtown04w

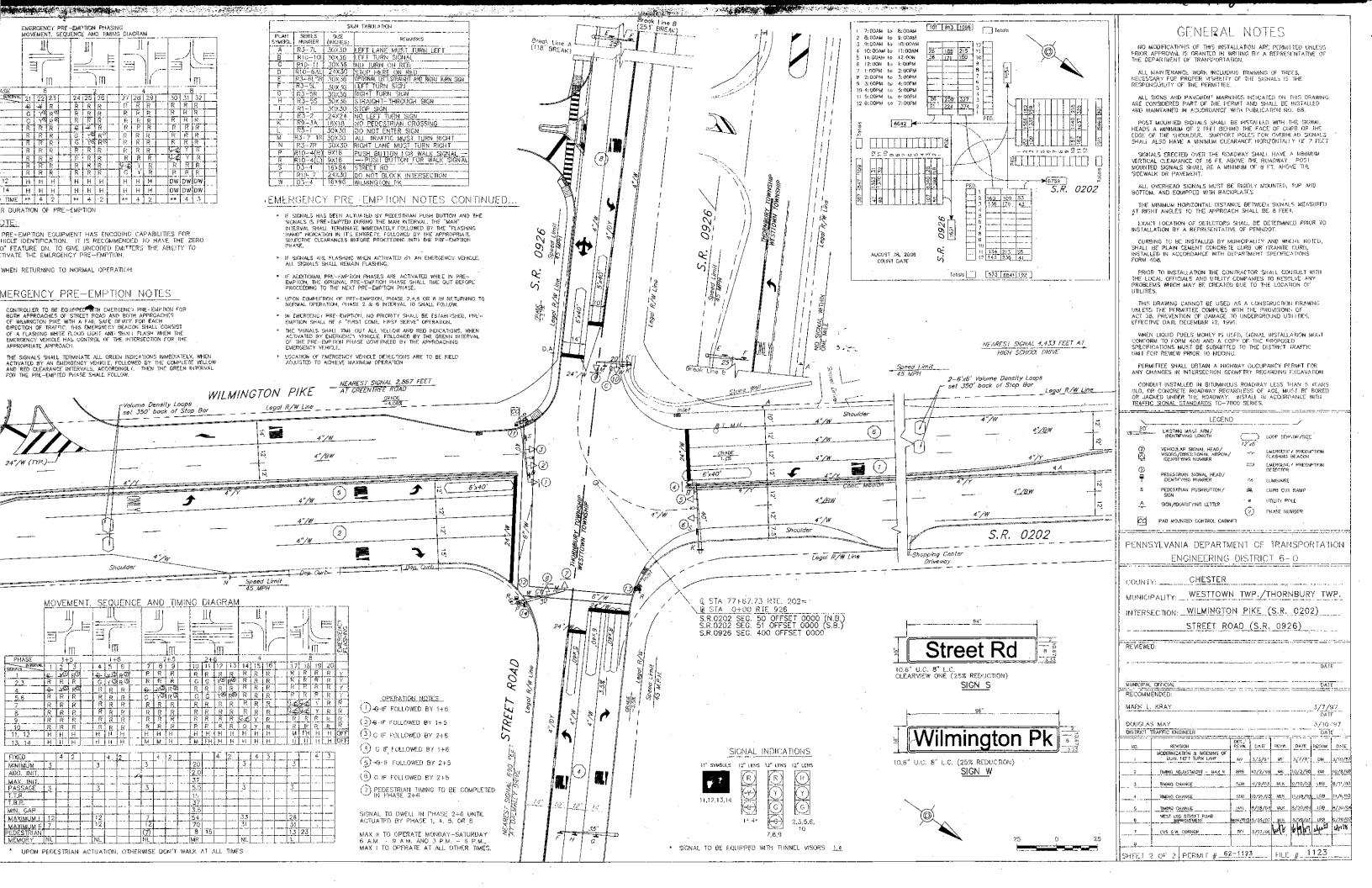
Site Code : 81645104 Start Date : 9/8/2016

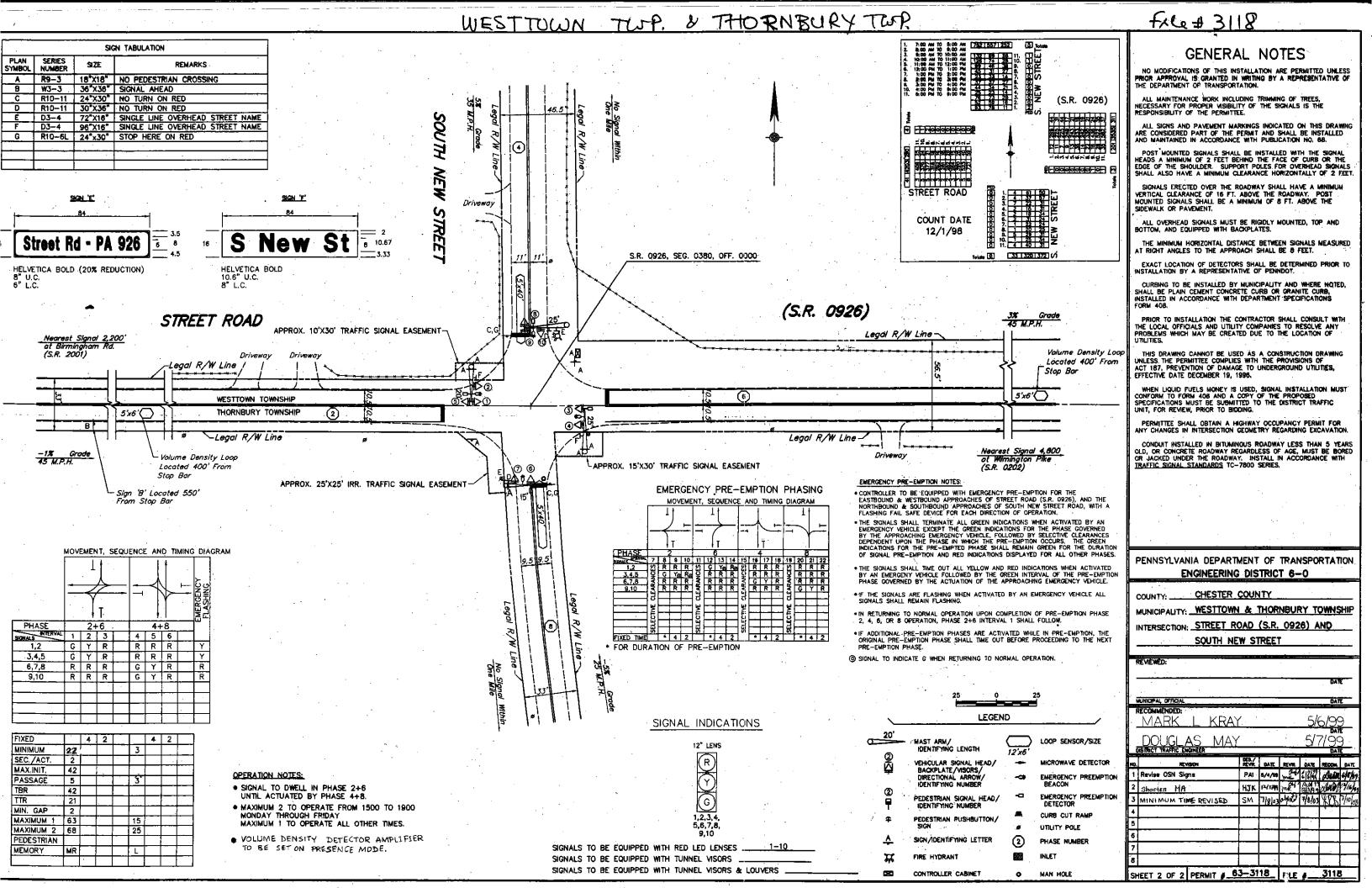
				Grou	ıps Printe	ed- Pass	enger Vel	nicles					
	R	oute 202		Pleasa	nt Grove	Rd	R	oute 202		Pleasa	nt Grove	Rd	
	So	uthbound	b	We	stbound		No	rthbound	k	Ea	stbound		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	19	339	12	0	0	2	2	428	2	0	0	14	818
07:15	9	380	29	0	0	2	1	525	6	0	0	13	965
07:30	5	355	36	0	0	0	2	491	4	0	0	10	903
07:45	11	263	49	0	0	1	6	296	16	0	0	10	652
Total	44	1337	126	0	0	5	11	1740	28	0	0	47	3338
08:00	11	324	48	0	0	2	4	365	4	0	1	4	763
08:15	9	231	36	0	0	0	2	249	5	1	0	6	539
08:30	18	242	35	0	0	0	1	208	0	0	0	10	514
08:45	13	304	56	0	0	2	16	283	5	0	0	8	687
Total	51	1101	175	0	0	4	23	1105	14	1	1	28	2503
16:00	21	420	78	0	0	3	14	457	8	0	0	0	1001
16:15	18	422	70	0	0	2	7	509	7	0	0	0	1035
16:30	23	389	89	0	0	0	9	480	4	0	0	0	994
16:45	19	441	66	0	0	2	7	489	6	0	0	0	1030
Total	81	1672	303	0	0	7	37	1935	25	0	0	0	4060
17:00	32	399	66	0	0	2	5	510	13	0	0	0	1027
17:15	25	453	72	0	0	1	13	536	8	0	0	0	1108
17:30	29	522	90	0	0	0	8	524	14	0	0	0	1187
17:45	19	419	76	0	0	7	12	519	28	0	0	0	1080
Total	105	1793	304	0	0	10	38	2089	63	0	0	0	4402
Grand Total	281	5903	908	0	0	26	109	6869	130	1	1	75	14303
Apprch %	4	83.2	12.8	0	0	100	1.5	96.6	1.8	1.3	1.3	97.4	
Total %	2	41.3	6.3	0	0	0.2	0.8	48	0.9	0	0	0.5	

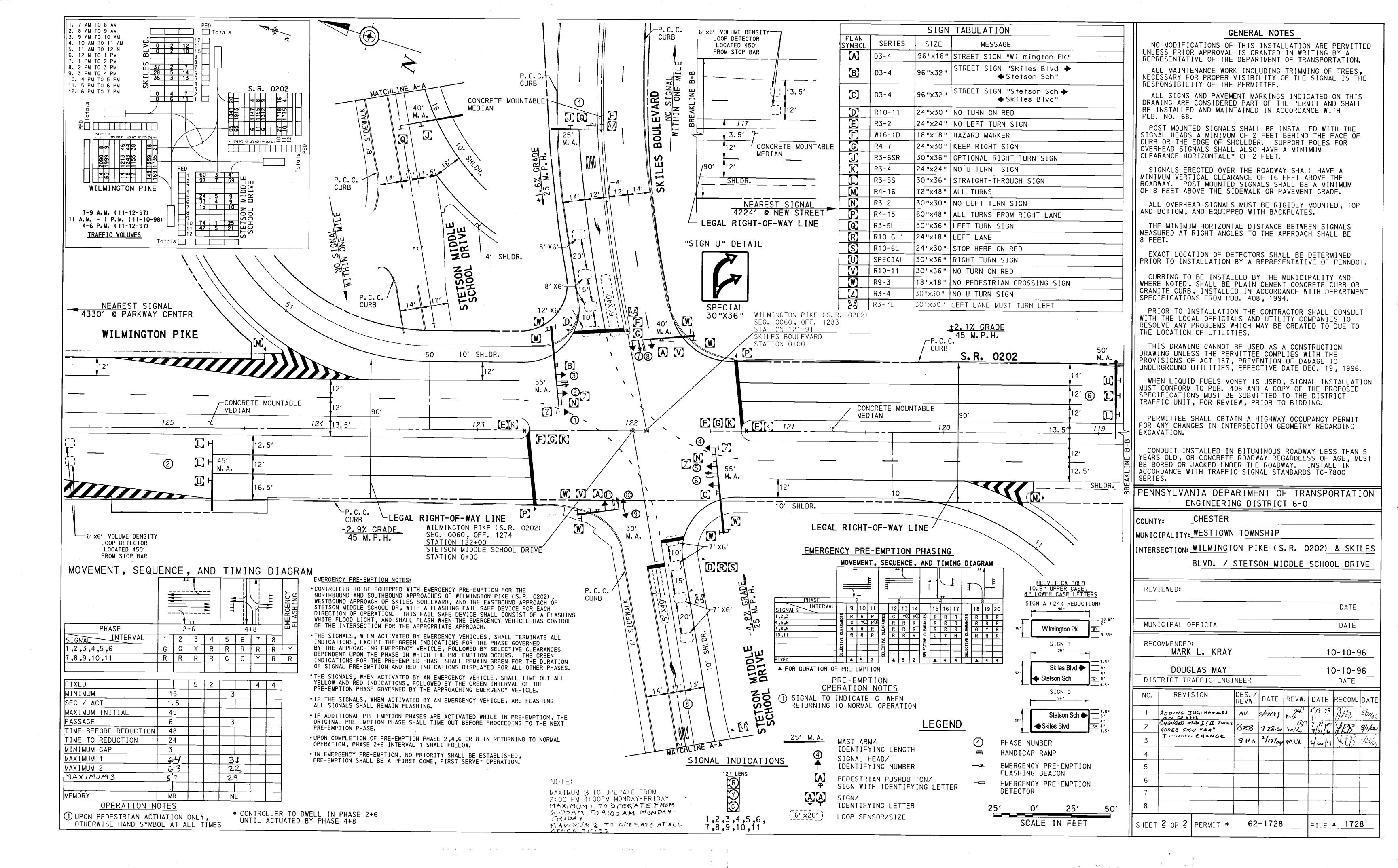


Appendix B

Traffic Signal Permit Plans, Intersection Sketches, and Existing Crash Data







RESPONSIVE TRANSPORTATION SOLUTIONS

SOLUTIONS or 05 803002.00 WESTTOWN TWP 01 McM Project No. Job Sheet 1/10/03 Description RT 202 + 103 Designed By Date 892 926 Checked By Date SM Ĩ5, 15,9, 13, 12 1-17. NWSS. 55 MPH 61-1 WESTTOWN 1. 26 116" Zares 1 lp, 146" (1 055 W ALK 15met 12 57 6 1+17. ול וצ' 11 %1-18 MOBIL ABANDONED 55 MIH STATION



RESPONSIVE TRANSPORTATION SOLUTIONS

Job WESTTOWN TWP

McM Project No. 803002.00

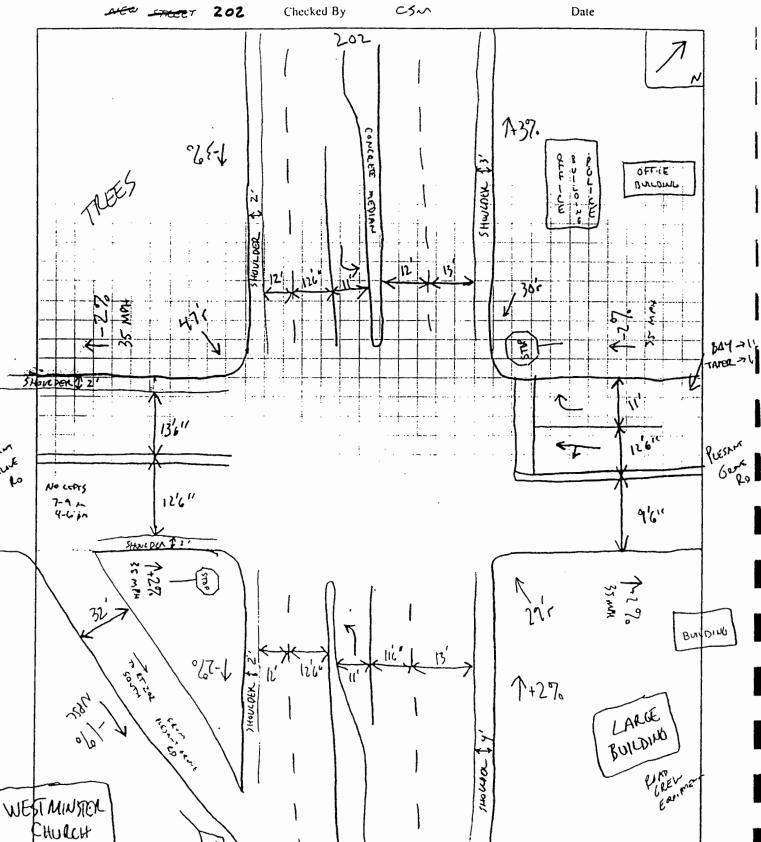
Sheet

01 0105 1/10/03

Description PLESANT GROVE RD +

Designed By ND

Date



7 02



LT

971

RESPONSIVE

TRANSPORTATION SOLUTIONS 04 of 05 WESTTONNING 803002.00 McM Project No. Sheet Job 1/10/07 KT 926 + ~DB Description Designed By Date BLIDGERS BLUD Checked By Date csm 7+3% 14 How Sh HOUSE 45 MPH 7.5-1 LT, NUIDOW <12' 14' 11,00 1+27. HZ WIH 62-1 45 MPH



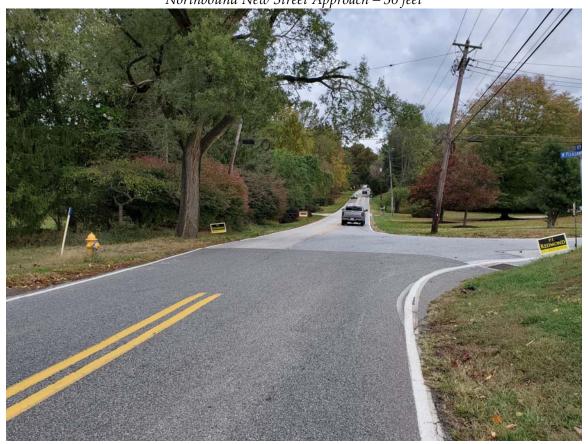
RESPONSIVE TRANSPORTATION SOLUTIONS

926

McM Project No. 803002. 00 WESTTOWN TWP Sheet 03 of 05 Job_ Description RT 926 + NDB 1/10/03 Designed By_ Date NEW ST CSM Checked By Date NEW ST W HOWSE TREES 21+1 35 MPH 96 10, SHOULDON DZ 10 er arb lo' SHOULDER D 21 Situation & z #12 KT 31'(38 96 16 HOW SZ 0202+ KEES ~27. 25 MPH Coop (LEED)

NEW ST

New Street and West Pleasant Grove Road Northbound New Street Approach – 50 feet



Northbound New Street Approach – 200 feet



New Street and West Pleasant Grove Road Southbound New Street Approach – 50 feet



Southbound New Street Approach – 200 feet



New Street and West Pleasant Grove Road



Westbound West Pleasant Grove Road Approach – 200 feet



Street Road (S.R. 0926) and Bridlewood Boulevard Eastbound Street Road (S.R. 0926) Approach -50 feet



Eastbound Street Road (S.R. 0926) Approach – 200 feet



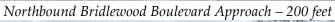
Street Road (S.R. 0926) and Bridlewood Boulevard





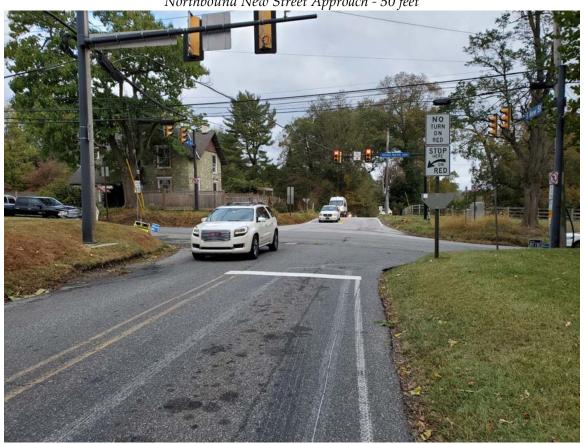
Street Road (S.R. 0926) and Bridlewood Boulevard Northbound Bridlewood Boulevard Approach – 50 feet







Street Road (S.R. 0926) and New Street Northbound New Street Approach - 50 feet



Northbound New Street Approach - 200 feet



Street Road (S.R. 0926) and New Street Southbound New Street Approach - 50 feet



Southbound New Street Approach - 200 feet



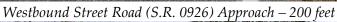
Street Road (S.R. 0926) and New Street





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

Westbound Street Road (S.R. 0926) Approach – 50 feet



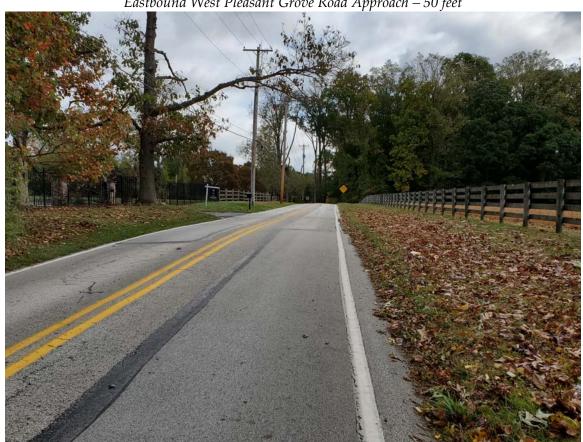


West Pleasant Grove Road and Road M (Site Access) Westbound West Pleasant Grove Road Approach – 50 feet



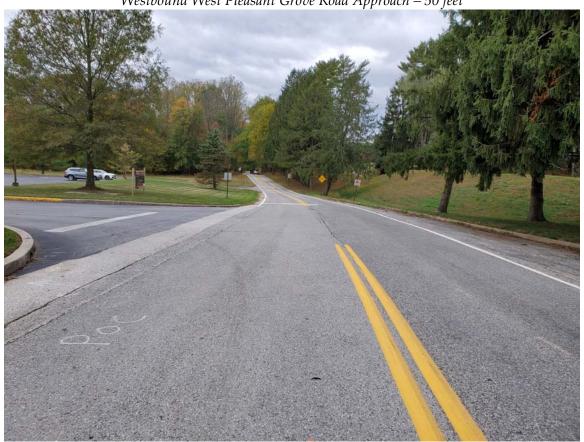


West Pleasant Grove Road and Road M (Site Access) Eastbound West Pleasant Grove Road Approach -50 feet





West Pleasant Grove Road and Church Access Westbound West Pleasant Grove Road Approach – 50 feet





West Pleasant Grove Road and Church Access Eastbound West Pleasant Grove Road Approach – 50 feet





West Pleasant Grove Road and Church Access



Northbound Church Access – 200 feet



West Pleasant Grove Road and Church Egress Access Westbound West Pleasant Grove Road Approach – 50 feet





West Pleasant Grove Road and Church Egress Access Eastbound West Pleasant Grove Road Approach – 50 feet





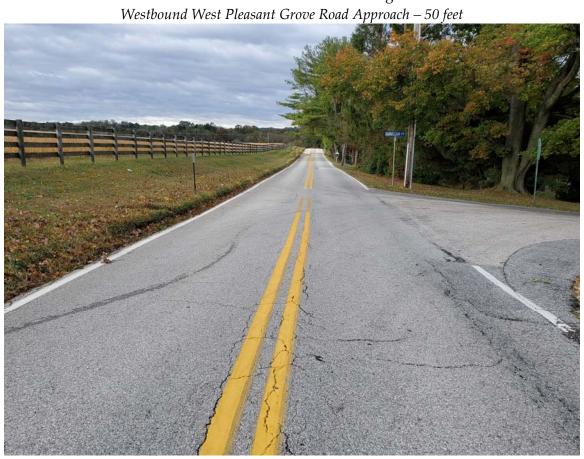
West Pleasant Grove Road and Church Egress Access Northbound Church Access – 50 feet

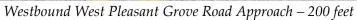


Northbound Church Access – 200 feet



West Pleasant Grove Road and Dunvegan Road







West Pleasant Grove Road and Dunvegan Road Eastbound West Pleasant Grove Road Approach – 50 feet



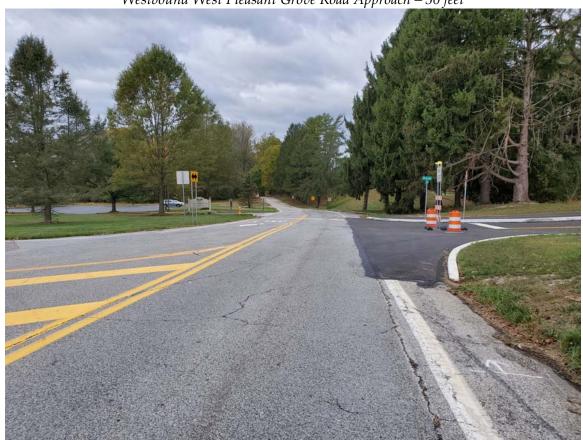


West Pleasant Grove Road and Dunvegan Road Southbound Dunvegan Road Access – 50 feet





West Pleasant Grove Road and Orvis Way Westbound West Pleasant Grove Road Approach – 50 feet





West Pleasant Grove Road and Orvis Way
Eastbound West Pleasant Grove Road Approach – 50 feet





West Pleasant Grove Road and Orvis Way Southbound Orvis Way – 50 feet







Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet



Wilmington Pike (U.S. Route 202) Northbound Approach – 200 feet



Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet

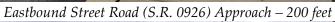


Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet



Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) *Eastbound Street Road (S.R. 0926) Approach – 50 feet*







Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) *Westbound Street Road (S.R. 0926) Approach – 50 feet*



Westbound Street Road (S.R. 0926) Approach – 200 feet



Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet





Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet



Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet



Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Eastbound West Pleasant Grove Road Approach – 50 feet





Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) Westbound East Pleasant Grove Road Approach – 50 feet





Wilmington Pike (U.S. Route 202) and Skiles Boulevard Wilmington Pike (U.S. Route 202) Northbound Approach – 50 feet



Wilmington Pike (U.S. Route 202) Northbound Approach – 200 feet



Wilmington Pike (U.S. Route 202) and Skiles Boulevard Wilmington Pike (U.S. Route 202) Southbound Approach – 50 feet



Wilmington Pike (U.S. Route 202) Southbound Approach – 200 feet



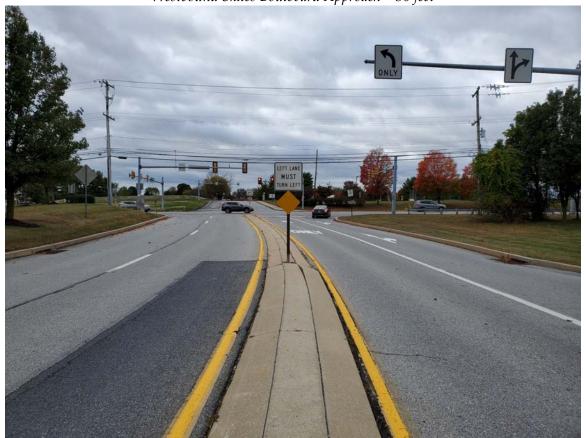
Wilmington Pike (U.S. Route 202) and Skiles Boulevard Eastbound Skiles Boulevard Approach – 50 feet



Eastbound Skiles Boulevard Approach –200 feet



Wilmington Pike (U.S. Route 202) and Skiles Boulevard Westbound Skiles Boulevard Approach – 50 feet



Westbound Skiles Boulevard Approach – 200 feet





Table 1. Reportable Crash Frequency Study Area Intersections

Tandan	Traffic	Fre	Avorago					
Location	Control	2013	2014	2015	2016	2017	Total	Average Per Year
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	6	4	8	6	2	26	5.2
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	2	3	4	4	2	15	3.0
Street Road (S.R. 0926) and New Street	Signal	0	1	3	0	1	5	1.0
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	3	3	4	4	2	16	3.2
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	0	0	1	0	0	1	0.2
New Street and West Pleasant Grove Road	TWSC	0	0	1	0	1	2	0.4
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0	0.0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0	0.0
Total		11	11	21	14	8	65	13.0

Table 2. Reportable Crash Types Study Area Intersections

Intersection/ Type of Crash	Traffic Control	Rear-End	Head-On	Angle	Same Direction Sideswipe	Hit Fixed Object	Total
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	18	1	3	1	3	26
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	14	0	1	0	0	15
Street Road (S.R. 0926) and New Street	Signal	2	0	3	0	0	5
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	10	0	4	1	1	16
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	1	0	0	0	0	1
New Street and West Pleasant Grove Road	TWSC	0	0	1	0	1	2
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0
Total		45	1	12	2	5	65

Table 3. Reportable Crash Severities Study Area Intersections

Intersection/ Type of Crash	Traffic Control	Suspected Serious Injury	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown Severity	Unknown if Injured	Total
U.S. Route 202 (Wilmington Pike) and Street Road (S.R. 0926)	Signal	2	1	3	14	5	1	26
U.S. Route 202 (Wilmington Pike) and Stetson School Drive / Skiles Boulevard	Signal	0	2	2	10	1	0	15
Street Road (S.R. 0926) and New Street	Signal	0	0	1	3	1	0	5
U.S. Route 202 (Wilmington Pike) and West Pleasant Grove Road	TWSC	0	1	3	10	2	0	16
Street Road (S.R. 0926) and Bridlewood Boulevard	TWSC	0	0	0	1	0	0	1
New Street and West Pleasant Grove Road	TWSC	0	0	1	1	0	0	2
West Pleasant Grove Road and Dunvegan Road	TWSC	0	0	0	0	0	0	0
West Pleasant Grove Road and Westminster Presbyterian Church Accesses	TWSC	0	0	0	0	0	0	0
Total		2	4	10	39	9	1	65

Table 4. Reportable Crash Frequency Midblock Locations

Midblock Location	Fre	Average					
WHITE DESCRIPTION OF THE PROPERTY OF THE PROPE		2014	2015	2016	2017	Total	Per Year
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	6	5	3	10	5	29	5.8
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	2	2	1	3	6	14	2.8
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	0	1	2	1	4	0.8
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	0	2	1	1	0	4	0.8
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	1	1	2	4	0.8
West Pleasant Grove Road between New Street and Dunvegan Road	0	1	0	0	0	1	0.2
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0	0.0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0	0.0
Total	8	10	7	17	14	56	11.2

Table 5. Reportable Crash Types Midblock Locations

Midblock Location/ Type of Crash	Head On	Angle	Rear End	Same Direction Sideswipe	Opposite Direction Sideswipe	Hit Fixed Object	Hit Deer	Non- Collision	Total
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	14	2	1	7	4	1	29
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	0	1	9	0	0	2	2	0	14
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	2	2	0	0	0	0	0	4
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	1	0	1	0	0	1	1	0	4
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	1	0	0	0	1	2	0	0	4
West Pleasant Grove Road between New Street and Dunvegan Road	0	0	0	0	0	1	0	0	1
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0	0	0	0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0	0	0	0
Total	1	3	26	2	2	13	7	2	56

Table 6. Reportable Crash Severities Midblock Locations

Midblock Location/ Type of Crash	Fatal	Suspected Minor Injury	Possible Injury	Property Damage Only	Unknown Severity	Total
U.S. Route 202 (Wilmington Pike) between Street Road (S.R. 0926) and West Pleasant Grove Road	1	0	4	21	3	29
U.S. Route 202 (Wilmington Pike) between West Pleasant Grove Road Stetson School Drive / Skiles Boulevard	0	0	0	9	5	14
Street Road (S.R. 0926) between U.S. Route 202 (Wilmington Pike) and Bridlewood Boulevard	0	1	1	2	0	4
Street Road (S.R. 0926) between Bridlewood Boulevard and New Street	0	1	1	1	1	4
New Street between Street Road (S.R. 0926) and West Pleasant Grove Road	0	0	1	2	1	4
West Pleasant Grove Road between New Street and Dunvegan Road	0	0	0	1	0	1
West Pleasant Grove Road between Dunvegan Road and Westminster Presbyterian Accesses	0	0	0	0	0	0
West Pleasant Grove Road between Westminster Presbyterian Accesses and U.S .Route 202 (Wilmington Pike)	0	0	0	0	0	0
Total	1	2	7	36	10	56



Appendix C

PennDOT TIRe Data

US Route 202 Northbound

Avg. Daily Truck Traffic: 1905

County: 15 - CHESTER

Avg. Daily Traffic: 23814

Direction: N - NORTH

District: 08

Daily Truck Vehicle Miles Traveled: 1600

Daily Vehicle Miles Traveled: 20004

Count Duration: 24

D Factor: 55

Jurisdiction: 1 - STATE

K Factor: 9

Offset Begin: 0

Offset End: 1279

Segment Begin: 0050

Segment End: 0080

Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE

Route: 0202

Traffic Pattern Group: 03 - URBAN - OTHER

PRINCIPAL ARTERIALS

Truck Percent: 8

Type of Count: 3 - VOLUME TRAFFIC COUNT

T Factor: 3

Count Date: 20120829

Traffic Count Key: 15020200600958

US Route 202 Southbound

Avg. Daily Truck Traffic: 940

County: 15 - CHESTER

Avg. Daily Traffic: 23487

Direction: S - SOUTH

District: 08

Daily Truck Vehicle Miles Traveled: 790

Daily Vehicle Miles Traveled: 19729

Count Duration: 24

D Factor: 55

Jurisdiction: 1 - STATE

K Factor: 9

Offset Begin: 0

Offset End: 1260

Segment Begin: 0051

Segment End: 0081

Side Ind: 2 - LEFT / SECONDARY / ODD SIDE

Route: 0202

Traffic Pattern Group: 03 - URBAN - OTHER

PRINCIPAL ARTERIALS

Truck Percent: 4

Type of Count: 3 - VOLUME TRAFFIC COUNT

T Factor: 3

Count Date: 20120829

Traffic Count Key: 15020200610608

Street Road SR 0926

Avg. Daily Truck Traffic: 648

County: 15 - CHESTER

Avg. Daily Traffic: 12952

Direction: B - BOTH

District: 08

Daily Truck Vehicle Miles Traveled: 885

Daily Vehicle Miles Traveled: 17291

Count Duration: 24

D Factor: 55

Jurisdiction: 1 - STATE

K Factor: 11

Offset Begin: 0

Offset End: 0

Segment Begin: 0370

Segment End: 0400

Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE

Route: 0926

Traffic Pattern Group: 05 - URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS

Truck Percent: 5

Type of Count: 3 - VOLUME TRAFFIC COUNT

T Factor: 3

Count Date: 20140716

Traffic Count Key: 15092603900000

New Street

Avg. Daily Truck Traffic: 48 County: 15 - CHESTER Avg. Daily Traffic: 5058 Direction: B - BOTH District: 08 Daily Truck Vehicle Miles Traveled: 185 Daily Vehicle Miles Traveled: 19511 Count Duration: 24 D Factor: 53 Jurisdiction: 5 - NON-STATE FEDERAL AID ROADS K Factor: 10 Offset Begin: 0 Offset End: 686 Segment Begin: 0020 Segment End: 0080 Side Ind: 1 - RIGHT / PRIMARY / EVEN SIDE Route: G391 Traffic Pattern Group: 05 - URBAN - MINOR ARTERIALS, COLLECTORS, LOCAL ROADS Truck Percent: 1 Type of Count: 2 - MACHINE TRAFFIC CLASSIFICATION COUNT T Factor: 1 Count Date: 20170920 Traffic Count Key: 15G39100500001



Appendix D

Manual Turning Movement Counts

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

File Name: dunvegan01w

13.6

Site Code : 81645101

Start Date : 8/6/2019

Municipality: Westtown Township Location: West Pleasant Grove Road &

Dunvegan Road

Heavy Vehicles

% Heavy Vehicles

Counter RR Page No : 1

	Dunvegan R	Rd	West Pleasant Gro	ve Rd	West Pleasant Gro	ve Rd	
	Southbound	d	Westbound	l	Eastbound		
Start Time	Left	Right	Thru	Right	Left	Thru	Int. Total
07:00	2	0	0	0	0	0	2
07:15	1	0	0	1	0	0	2
07:30	1	1	0	1	0	0	3
07:45	1	1	0	1	0	0	3
Total	5	2	0	3	0	0	10
08:00	2	2	0	0	0	0	4
08:15	2	0	0	0	1	0	3
08:30	0	4	0	2	0	0	6
08:45	0	1	0	0	0	0	1
Total	4	7	0	2	1	0	14
*** BREAK ***							
16:00	0	1	0	4	0	0	5
16:15	0	1	0	2	2	0	5
16:30	1	0	0	2	0	0	3
16:45	0	0	0	3	1	0	4
Total	1	2	0	11	3	0	17
17:00	2	0	0	4	2	0	8
17:15	1	0	0	1	2	0	4
17:30	1	0	0	3	0	0	4
17:45	0	2	0	0	0	0	2
Total	4	2	0	8	4	0	18
Grand Total	14	13	0	24	8	0	59
Apprch %	51.9	48.1	0	100	100	0	
Total %	23.7	22	0	40.7	13.6	0	
Passenger Vehicles	12	13	0	18	8	0	51
% Passenger Vehicles	85.7	100	0	75	100	0	86.4

0

14.3

6

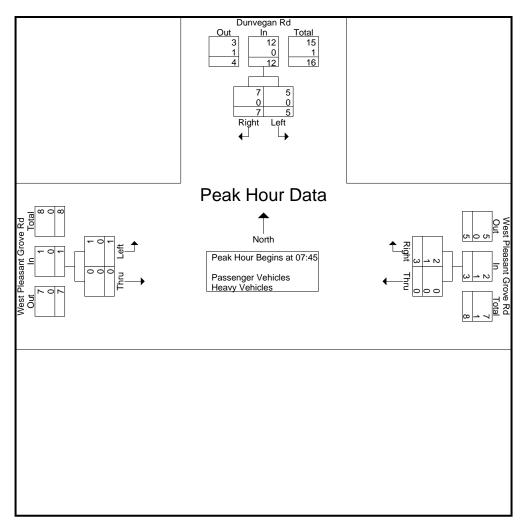
25

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

Municipality: Westtown Township Location: West Pleasant Grove Road &

Dunvegan Road Counter RR File Name: dunvegan01w Site Code: 81645101 Start Date: 8/6/2019

]	Dunvegan R		West 1	Pleasant Gro		West	Pleasant Gro		
		Southbound			Westbound			Eastbound		
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis Fron	n 07:00 to 11	:45 - Peak 1	of 1							
Peak Hour for Entire Inte	ersection Beg	ins at 07:45								
07:45	1	1	2	0	1	1	0	0	0	3
08:00	2	2	4	0	0	0	0	0	0	4
08:15	2	0	2	0	0	0	1	0	1	3
08:30	0	4	4	0	2	2	0	0	0	6_
Total Volume	5	7	12	0	3	3	1	0	1	16
% App. Total	41.7	58.3		0	100		100	0		
PHF	.625	.438	.750	.000	.375	.375	.250	.000	.250	.667
Passenger Vehicles	5	7	12	0	2	2	1	0	1	15
% Passenger Vehicles	100	100	100	0	66.7	66.7	100	0	100	93.8
Heavy Vehicles	0	0	0	0	1	1	0	0	0	1
% Heavy Vehicles	0	0	0	0	33.3	33.3	0	0	0	6.3

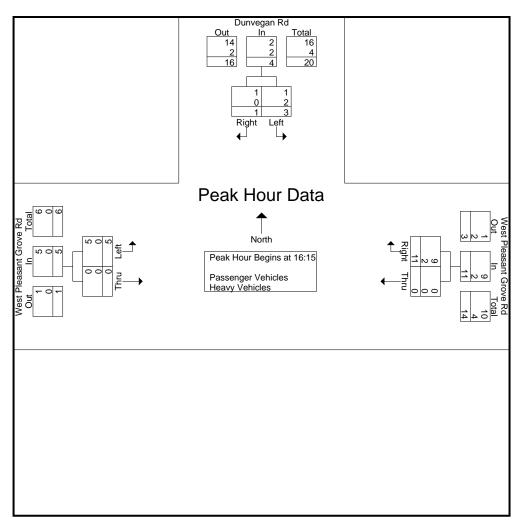


Transportation Engineers and Planners 425 Commerce Drive, Suite 200 Fort Washington, PA 19034

Municipality: Westtown Township Location: West Pleasant Grove Road &

Dunvegan Road Counter RR File Name: dunvegan01w Site Code: 81645101 Start Date: 8/6/2019

		Dunvegan R Southbound		West 1	Pleasant Gro Westbound		West	Pleasant Gro Eastbound		
Start Time	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	Int. Total
Peak Hour Analysis Fron	n 12:00 to 17	':45 - Peak 1	of 1							
Peak Hour for Entire Inte	ersection Beg	ins at 16:15								
16:15	0	1	1	0	2	2	2	0	2	5
16:30	1	0	1	0	2	2	0	0	0	3
16:45	0	0	0	0	3	3	1	0	1	4
17:00	2	0	2	0	4	4	2	0	2	8
Total Volume	3	1	4	0	11	11	5	0	5	20
% App. Total	75	25		0	100		100	0		
PHF	.375	.250	.500	.000	.688	.688	.625	.000	.625	.625
Passenger Vehicles	1	1	2	0	9	9	5	0	5	16
% Passenger Vehicles	33.3	100	50.0	0	81.8	81.8	100	0	100	80.0
Heavy Vehicles	2	0	2	0	2	2	0	0	0	4
% Heavy Vehicles	66.7	0	50.0	0	18.2	18.2	0	0	0	20.0



								I		
West Plesa	nt Grove Ro	oad & Westi	minster Pre	sbyterian Chu	rch A	ccesses				
Tuesday, A	ugust 6, 20	19 7-9am ar	nd 4-6pm							
Counter: L	3									
	Eastern Dr	iveway					Western D	riveway		
	<u>Left In</u>	<u>Left Out</u>	Right In	Right Out			<u>Left In</u>	<u>Left Out</u>	Right In	Right Out
7:00	1	0	0	0		7:00	0	0	0	0
7:15	1	0	0	0		7:15	0	0	0	0
7:30	2	0	1	0		7:30	1	0	0	0
7:45	3	1	0	0		7:45	0	0	0	0
8:00	1	0	1	1		8:00	0	0	0	0
8:15	1	0	2	2		8:15	0	0	0	0
8:30	1	0	2	1		8:30	0	0	0	0
8:45	2	2	2	1		8:45	0	0	1	0
4:00	1	0	0	0		4:00	0	0	0	0
4:15	0	1	0	0		4:15	0	0	0	0
4:30	2	0	0	1		4:30	0	0	0	0
4:45	2	0	0	3		4:45	0	0	0	0
5:00	2	0	1	2		5:00	0	0	0	0
5:15	0	2	0	0		5:15	0	0	0	0
5:30	1	2	0	2		5:30	0	0	0	0
5:45	0	0	0	0		5:45	0	0	0	0

Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township

File Name: westtown01w Location: Route 202 & Site Code:

Skiles Boulevard Start Date : 10/10/2019

Page No : 1 Counter: M

Groups Printed- Passenger Vehicles - Heavy Vehicles

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

Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township

Location: Route 202 &

Skiles Boulevard

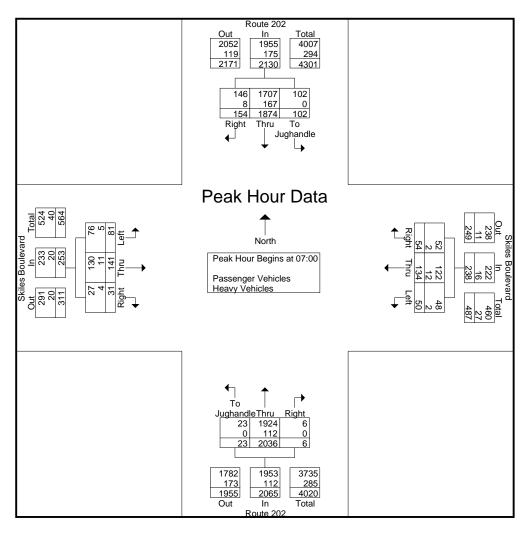
Counter: M

File Name: westtown01w

Site Code:

Start Date : 10/10/2019

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



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township

Location: Route 202 &

Skiles Boulevard

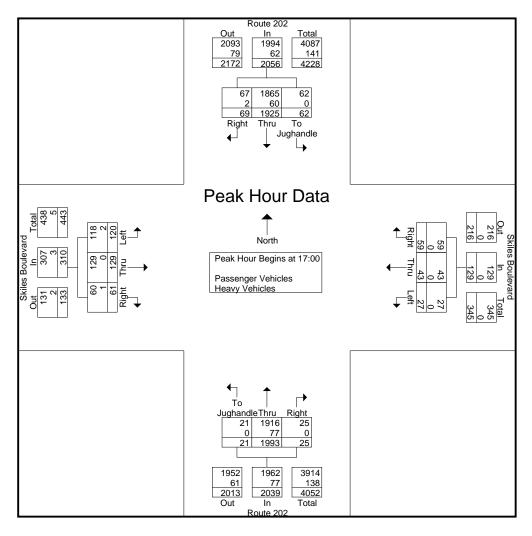
Counter: M

File Name: westtown01w

Site Code:

Start Date : 10/10/2019

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



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

File Name: westtown02w

Start Date : 10/10/2019

Municipality: Westtown Township

Location: Route 202 & Site Code: Pleasant Grove Road

Page No : 1 Counter: M

Groups Printed- Passenger Vehicles - Heavy Vehicles

			Ģ	<u>roups Print</u>	<u>ed-Pass</u>	<u>enger Ve</u>	<u> ehicles - He</u>	eavy Vehi	cles				
	R	oute 202		Pleasa	ant Grove	Rd	R	oute 202		Pleasa	ant Grove	Rd	
	So	uthbound		We	estbound		No	orthbound		Ea	astbound		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	8	470	14	0	0	2	1	560	6	0	0	3	1064
07:15	6	463	37	0	0	3	5	546	11	0	0	3	1074
07:30	8	419	56	0	0	0	1	502	12	0	0	4	1002
07:45	15	401	43	0	0	2	3	474	23	0	0	2	963
Total	37	1753	150	0	0	7	10	2082	52	0	0	12	4103
			1										
08:00	13	438	61	0	0	5	1	454	11	0	0	4	987
08:15	9	414	66	0	0	2	2	480	8	0	0	2	983
08:30	6	412	40	0	0	1	6	474	8	0	0	1	948
08:45	4	415	46	0	0	2	15	479	6	0	0	5	972
Total	32	1679	213	0	0	10	24	1887	33	0	0	12	3890
			1			1						1	
16:00	12	352	36	0	0	2	4	507	8	0	0	3	924
16:15	19	412	56	0	0	2	8	469	7	0	0	5	978
16:30	22	383	46	0	0	3	4	529	9	0	0	3	999
16:45	20	410	39	0	0	5	10	489	5	0	0	2	980
Total	73	1557	177	0	0	12	26	1994	29	0	0	13	3881
			i			1						1	
17:00	25	453	43	0	0	1	9	471	7	0	0	6	1015
17:15	18	444	43	0	0	3	7	514	13	0	0	6	1048
17:30	26	419	59	0	0	1	9	499	13	0	0	7	1033
17:45	20	385	57	0	0	6	7	520	13	00	0	5	1013
Total	89	1701	202	0	0	11	32	2004	46	0	0	24	4109
			1			1			1			1	
Grand Total	231	6690	742	0	0	40	92	7967	160	0	0	61	15983
Apprch %	3	87.3	9.7	0	0	100	1.1	96.9	1.9	0	0	100	
Total %	1.4	41.9	4.6	0	0	0.3	0.6	49.8	1	0	0	0.4	
Passenger Vehicles	229	6234	726	0	0	38	89	7527	152	0	0	61	15056
% Passenger Vehicles	99.1	93.2	97.8	0	0	95	96.7	94.5	95	0	0	100	94.2
Heavy Vehicles	2	456	16	0	0	2	3	440	8	0	0	0	927
% Heavy Vehicles	0.9	6.8	2.2	0	0	5	3.3	5.5	5	0	0	0	5.8

Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

File Name: westtown02w

Site Code:

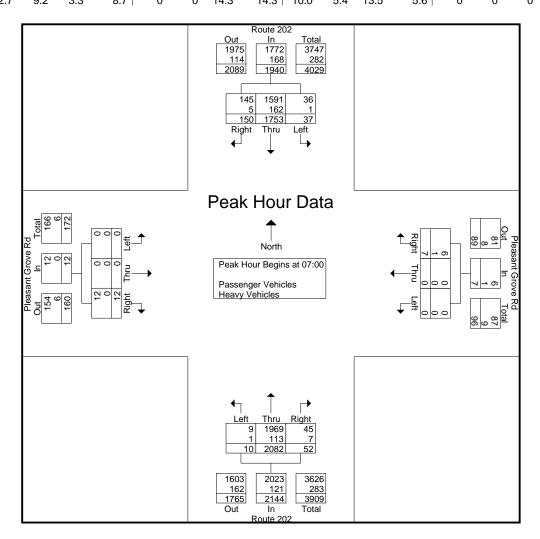
Municipality: Westtown Township

Location: Route 202 &

Pleasant Grove Road Start Date : 10/10/2019 Page No : 2

Counter: M

		Rou	te 202		PI	easant	Grove	Rd		Rou	te 202		Р	leasant	t Grove	Rd	
		South	nbound			West	tbound			North	bound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	lysis Fr	om 07:0	00 to 11	:45 - Pea	k 1 of 1		_				-				-		
Peak Hour for I	Entire In	tersect	ion Begi	ins at 07:	00												
07:00	8	470	14	492	0	0	2	2	1	560	6	567	0	0	3	3	1064
07:15	6	463	37	506	0	0	3	3	5	546	11	562	0	0	3	3	1074
07:30	8	419	56	483	0	0	0	0	1	502	12	515	0	0	4	4	1002
07:45	15	401	43	459	0	0	2	2	3	474	23	500	0	0	2	2	963
Total Volume	37	1753	150	1940	0	0	7	7	10	2082	52	2144	0	0	12	12	4103
% App. Total	1.9	90.4	7.7		0	0	100		0.5	97.1	2.4		0	0	100		
PHF	.617	.932	.670	.958	.000	.000	.583	.583	.500	.929	.565	.945	.000	.000	.750	.750	.955
Passenger Vehicles	36	1591	145	1772	0	0	6	6	9	1969	45	2023	0	0	12	12	3813
% Passenger Vehicles	97.3	90.8	96.7	91.3	0	0	85.7	85.7	90.0	94.6	86.5	94.4	0	0	100	100	92.9
Heavy Vehicles	1	162	5	168	0	0	1	1	1	113	7	121	0	0	0	0	290
% Heavy Vehicles	2.7	9.2	3.3	8.7	0	0	14.3	14.3	10.0	5.4	13.5	5.6	0	0	0	0	7.1



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

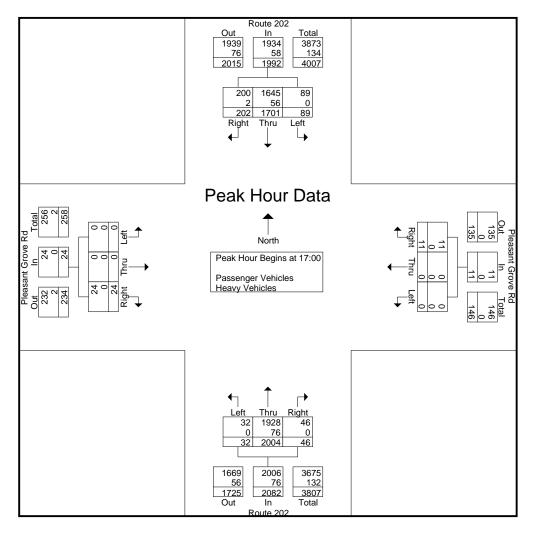
Municipality: Westtown Township

File Name: westtown02w Location: Route 202 & Site Code:

Pleasant Grove Road Start Date : 10/10/2019

Page No : 3 Counter: M

		Rout	e 202		Р	leasant	Grove	Rd			te 202		Р	leasant	Grove	Rd	
		South	bound			West	bound			North	nbound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	lysis Fr	om 12:0	00 to 17	:45 - Pea	k 1 of 1												
Peak Hour for I	Entire In	tersecti	on Begi	ns at 17:	00												
17:00	25	453	43	521	0	0	1	1	9	471	7	487	0	0	6	6	1015
17:15	18	444	43	505	0	0	3	3	7	514	13	534	0	0	6	6	1048
17:30	26	419	59	504	0	0	1	1	9	499	13	521	0	0	7	7	1033
17:45	20	385	57	462	0	0	6	6	7	520	13	540	0	0	5	5	1013
Total Volume	89	1701	202	1992	0	0	11	11	32	2004	46	2082	0	0	24	24	4109
% App. Total	4.5	85.4	10.1		0	0	100		1.5	96.3	2.2		0	0	100		
PHF	.856	.939	.856	.956	.000	.000	.458	.458	.889	.963	.885	.964	.000	.000	.857	.857	.980
Passenger Vehicles	89	1645	200	1934	0	0	11	11	32	1928	46	2006	0	0	24	24	3975
% Passenger Vehicles	100	96.7	99.0	97.1	0	0	100	100	100	96.2	100	96.3	0	0	100	100	96.7
Heavy Vehicles	0	56	2	58	0	0	0	0	0	76	0	76	0	0	0	0	134
% Heavy Vehicles	0	3.3	1.0	2.9	0	0	0	0	0	3.8	0	3.7	0	0	0	0	3.3



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township File Name: westtown03w

Location: New Street & Site Code :

Pleasant Grove Road Start Date : 10/17/2019

Counter: M Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	New S		Plesant G		Nev	, C+	
	Southboo		Westb		North		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	3	18	Len	Kigiit	17	Nigiti 0	
	3				27	_	
07:15	1	25	38	6		0	97
07:30	3 3	28	44	5	55	2	137
07:45	3 10	21 92	52	6	61	0	143
Total	10	92	149	19	160	2	432
08:00	4	49	58	7	34	1	153
08:15	3	29	49	3	23	3	110
08:30	1	28	44	8	34	0	115
08:45	9	19	41	10	34	19	132
Total	17	125	192	28	125	23	510
16:00	7	49	37	9	23	4	129
16:15	3	38	48	13	25	1	128
16:30	10	46	66	9	27	3	161
16:45	2	28	48	8	23	2	111
Total	22	161	199	39	98	10	529
17:00	3	37	44	14	35	2	135
17:15	6	68	40	11	37	4	166
17:30	3	27	57	10	35	5	137
17:45	6	36	57	12	36	6	153
Total	18	168	198	47	143	17	591
Grand Total	07	540	700	400	500	50	0000
	67	546	738	133	526	52	2062
Apprch %	10.9	89.1	84.7	15.3	91	9	
Total %	3.2	26.5	35.8	6.5	25.5	2.5	0040
Passenger Vehicles	65 07	533	731	126	510	51	2016
% Passenger Vehicles	97	97.6	99.1	94.7	97	98.1	97.8
Heavy Vehicles	2	13	7	7	16	1	46
% Heavy Vehicles	3	2.4	0.9	5.3	3	1.9	2.2

Zero Pedestrians were observed during this study.

Transportation Engineers and Planners 425 Commerce Drive, Suite 200

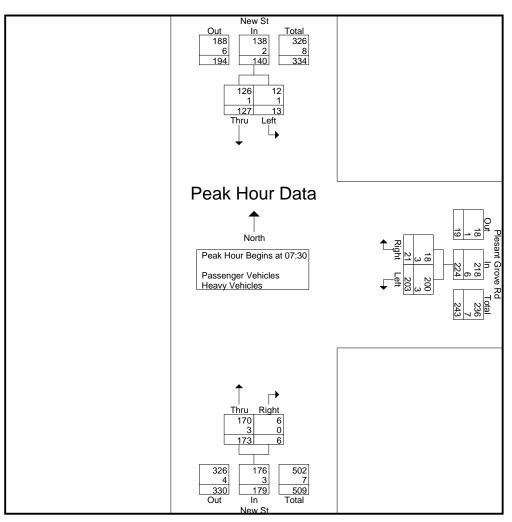
Fort Washington, PA 19034

File Name: westtown03w

Site Code:

Start Date : 10/17/2019

		New St Southbound	4	Ple	esant Grove Westbound	-		New St Northbound	1	
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 07:00 to	11:45 - Pea	ık 1 of 1							
Peak Hour for Entire In	tersection Be	egins at 07:	:30							
07:30	3	28	31	44	5	49	55	2	57	137
07:45	3	21	24	52	6	58	61	0	61	143
08:00	4	49	53	58	7	65	34	1	35	153
08:15	3	29	32	49	3	52	23	3	26	110
Total Volume	13	127	140	203	21	224	173	6	179	543
% App. Total	9.3	90.7		90.6	9.4		96.6	3.4		
PHF	.813	.648	.660	.875	.750	.862	.709	.500	.734	.887
Passenger Vehicles	12	126	138	200	18	218	170	6	176	532
% Passenger Vehicles	92.3	99.2	98.6	98.5	85.7	97.3	98.3	100	98.3	98.0
Heavy Vehicles	1	1	2	3	3	6	3	0	3	11
% Heavy Vehicles	7.7	0.8	1.4	1.5	14.3	2.7	1.7	0	1.7	2.0



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

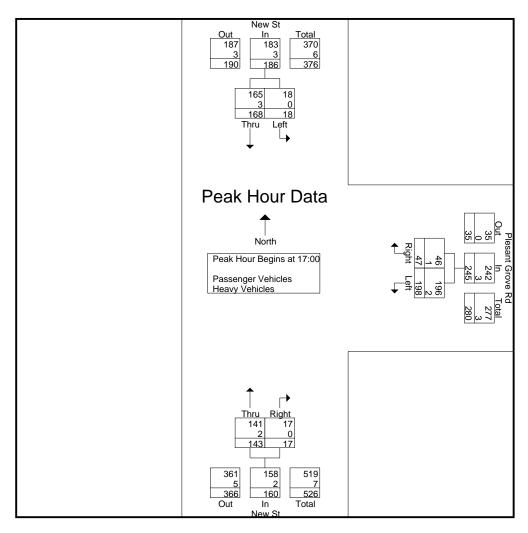
Fort Washington, PA 19034

File Name: westtown03w

Site Code:

Start Date : 10/17/2019

		New St Southbound	4	Ple	esant Grove Westbound	-		New St Northbound	d	
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 12:00 to	17:45 - Pea	k 1 of 1							
Peak Hour for Entire In	itersection E	Begins at 17:	:00							
17:00	3	37	40	44	14	58	35	2	37	135
17:15	6	68	74	40	11	51	37	4	41	166
17:30	3	27	30	57	10	67	35	5	40	137
17:45	6	36	42	57	12	69	36	6	42	153
Total Volume	18	168	186	198	47	245	143	17	160	591
% App. Total	9.7	90.3		80.8	19.2		89.4	10.6		
PHF	.750	.618	.628	.868	.839	.888	.966	.708	.952	.890
Passenger Vehicles	18	165	183	196	46	242	141	17	158	583
% Passenger Vehicles	100	98.2	98.4	99.0	97.9	98.8	98.6	100	98.8	98.6
Heavy Vehicles	0	3	3	2	1	3	2	0	2	8
% Heavy Vehicles	0	1.8	1.6	1.0	2.1	1.2	1.4	0	1.3	1.4



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

File Name: westtown04w

Municipality: Westtown Township

Location: Route 926 & Site Code:

Bridlewood Boulevard Start Date: 10/17/2019

Counter: M Page No : 1

Groups Printed- Passenger Vehicles - Other Vehicles

	Route 926		Passenger ven Bridlewo		Route	926	
	Westbound		Northb		Eastb		
Start Time	Left	Thru	Left	Right	Thru	Right	Int. Total
07:00	0	76	5	14	186	1	282
07:15	2	98	6	13	160	4	283
07:30	7	79	1	11	163	2	263
07:45	3	88	6	11	157	5	270
Total	12	341	18	49	666	12	1098
08:00	4	85	8	12	172	7	288
08:15	3	74	7	9	181	6	280
08:30	3	78	4	7	172	13	277
08:45	2	56	7	8	154	10	237
Total	12	293	26	36	679	36	1082
16:00	8	105	0	8	154	11	286
16:15	o 5	105	8	6	163	9	295
16:30	4	104	5	10	152	7	293
16:45	6	88	0	9	180	9	292
Total	23	400	13	33	649	36	1154
i otai į	25	400	13	33	043	30	1134
17:00	6	81	5	9	170	12	283
17:15	4	85	6	6	190	9	300
17:30	7	75	7	10	162	13	274
17:45	8	106	5	12	145	3	279
Total	25	347	23	37	667	37	1136
·							
Grand Total	72	1381	80	155	2661	121	4470
Apprch %	5	95	34	66	95.7	4.3	
Total %	1.6	30.9	1.8	3.5	59.5	2.7	
Passenger Vehicles	69	1305	79	150	2564	117	4284
% Passenger Vehicles	95.8	94.5	98.8	96.8	96.4	96.7	95.8
Other Vehicles	3	76	1	5	97	4	186
% Other Vehicles	4.2	5.5	1.2	3.2	3.6	3.3	4.2

Zero Pedestrians were observed during this study.

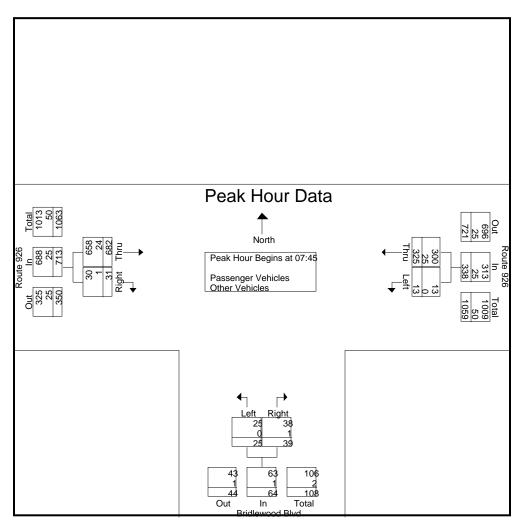
Transportation Engineers and Planners 425 Commerce Drive, Suite 200 Fort Washington, PA 19034

File Name: westtown04w

Site Code:

Start Date: 10/17/2019

		Route 926		В	ridlewood B	-		Route 926	I	
		Westbound	d		Northbound			Eastboung		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 07:00 to	11:45 - Pea	k 1 of 1							
Peak Hour for Entire Ir	tersection E	Begins at 07:	:45							
07:45	3	88	91	6	11	17	157	5	162	270
08:00	4	85	89	8	12	20	172	7	179	288
08:15	3	74	77	7	9	16	181	6	187	280
08:30	3	78	81	4	7	11	172	13	185	277
Total Volume	13	325	338	25	39	64	682	31	713	1115
% App. Total	3.8	96.2		39.1	60.9		95.7	4.3		
PHF	.813	.923	.929	.781	.813	.800	.942	.596	.953	.968
Passenger Vehicles	13	300	313	25	38	63	658	30	688	1064
Vehicles	100	92.3	92.6	100	97.4	98.4	96.5	96.8	96.5	95.4
Other Vehicles	0	25	25	0	1	1	24	1	25	51
% Other Vehicles	0	7.7	7.4	0	2.6	1.6	3.5	3.2	3.5	4.6



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

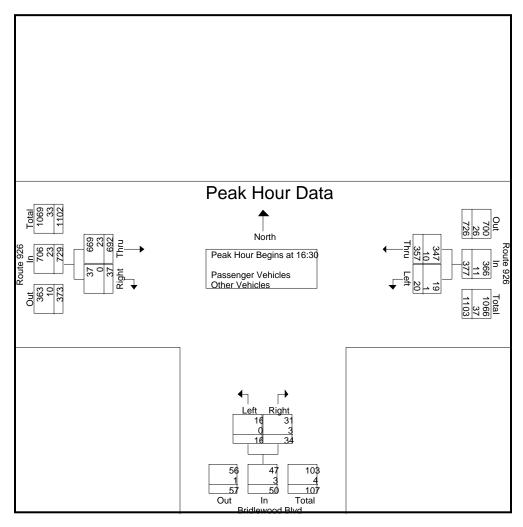
Fort Washington, PA 19034

File Name: westtown04w

Site Code:

Start Date: 10/17/2019

		Route 926		В	ridlewood E			Route 926	I	
		Westbound	-		Northboun			Eastbound		
Start Time	Left	Thru	App. Total	Left	Right	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis Fr	om 12:00 to	17:45 - Pea	ak 1 of 1							
Peak Hour for Entire In	tersection E	Begins at 16	:30							
16:30	4	103	107	5	10	15	152	7	159	281
16:45	6	88	94	0	9	9	180	9	189	292
17:00	6	81	87	5	9	14	170	12	182	283
17:15	4	85	89	6	6	12	190	9	199	300
Total Volume	20	357	377	16	34	50	692	37	729	1156
% App. Total	5.3	94.7		32	68		94.9	5.1		
PHF	.833	.867	.881	.667	.850	.833	.911	.771	.916	.963
Passenger Vehicles **Passenger**	19	347	366	16	31	47	669	37	706	1119
Vehicles	95.0	97.2	97.1	100	91.2	94.0	96.7	100	96.8	96.8
Other Vehicles	1	10	11	0	3	3	23	0	23	37
% Other Vehicles	5.0	2.8	2.9	0	8.8	6.0	3.3	0	3.2	3.2



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township File Name: westtown05w

Location: Route 926 & Route 202 Site Code : Start Date : 10/17/2019

Counter: M Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

			Ģ	roups Print		enger Ve			cles				
	R	oute 202		Ro	oute 926		F	Route 202		R	oute 926		
	So	uthbound		We	estbound		N	orthbound		E:	astbound		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	21	365	48	26	26	7	1	381	45	148	67	1	1136
07:15	9	372	53	33	50	15	4	406	34	124	54	1	1155
07:30	6	397	40	36	37	11	3	414	39	123	49	3	1158
07:45	12	331	40	47	45	12	4	350	33	136	51	3	1064
Total	48	1465	181	142	158	45	12	1551	151	531	221	8	4513
08:00	12	375	61	42	34	11	1	391	41	117	37	2	1124
08:15	10	374	35	42	35	7	1	378	31	104	71	5	1093
08:30	12	335	36	37	39	12	3	354	30	130	65	6	1059
08:45	22	380	33	34	26	15	5	386	31	118	42	3	1095
Total	56	1464	165	155	134	45	10	1509	133	469	215	16	4371
16:00	37	320	39	53	58	6	7	339	22	123	46	8	1058
16:15	13	363	50	34	57	14	6	419	40	107	35	4	1142
16:30	14	315	33	55	70	17	8	321	38	119	60	3	1053
16:45	16	379	37	44	55	15	8	412	37	103	54	6	1166_
Total	80	1377	159	186	240	52	29	1491	137	452	195	21	4419
17:00	22	338	30	57	59	11	9	354	22	117	54	8	1081
17:15	30	365	24	47	49	18	5	394	25	131	51	8	1147
17:30	11	369	37	51	58	13	7	391	37	100	45	5	1124
17:45	21	361	38	52	60	10	3	371	26	127	46	13	1128
Total	84	1433	129	207	226	52	24	1510	110	475	196	34	4480
Grand Total	268	5739	634	690	758	194	75	6061	531	1927	827	79	17783
Apprch %	4	86.4	9.5	42	46.2	11.8	1.1	90.9	8	68	29.2	2.8	11100
Total %	1.5	32.3	3.6	3.9	4.3	1.1	0.4	34.1	3	10.8	4.7	0.4	
Passenger Vehicles	257	5349	572	672	742	184	71	5727	511	1852	801	73	16811
% Passenger Vehicles	95.9	93.2	90.2	97.4	97.9	94.8	94.7	94.5	96.2	96.1	96.9	92.4	94.5
Heavy Vehicles	11	390	62	18	16	10	4	334	20	75	26	6	972
% Heavy Vehicles	4.1	6.8	9.8	2.6	2.1	5.2	5.3	5.5	3.8	3.9	3.1	7.6	5.5

Zero Pedestrians were observed during this study.

Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

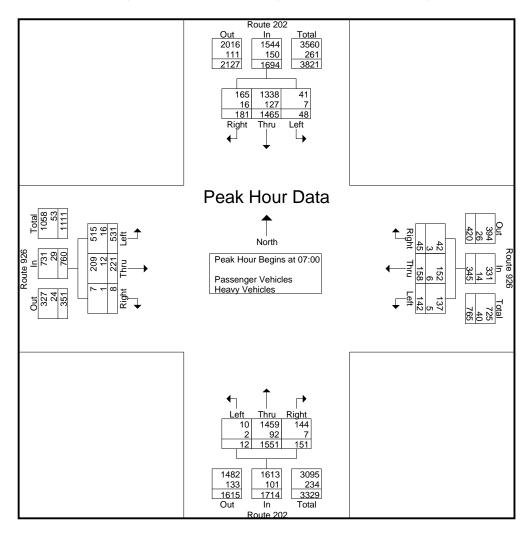
Municipality: Westtown Township File Name: westtown05w

Location: Route 926 & Route 202

Counter: M Start Date : 10/17/2019

Page No : 2

			e 202				te 926				te 202				te 926		
		South	bound			West	bound			<u>North</u>	<u>lbound</u>			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	alysis Fr	om 07:0	00 to 11	:45 - Pea	k 1 of 1												
Peak Hour for I	Entire Ir	itersecti	on Begi	ins at 07:	00												
07:00	21	365	48	434	26	26	7	59	1	381	45	427	148	67	1	216	1136
07:15	9	372	53	434	33	50	15	98	4	406	34	444	124	54	1	179	1155
07:30	6	397	40	443	36	37	11	84	3	414	39	456	123	49	3	175	1158
07:45	12	331	40	383	47	45	12	104	4	350	33	387	136	51	3	190	1064
Total Volume	48	1465	181	1694	142	158	45	345	12	1551	151	1714	531	221	8	760	4513
% App. Total	2.8	86.5	10.7		41.2	45.8	13		0.7	90.5	8.8		69.9	29.1	1.1		
PHF	.571	.923	.854	.956	.755	.790	.750	.829	.750	.937	.839	.940	.897	.825	.667	.880	.974
Passenger Vehicles	41	1338	165	1544	137	152	42	331	10	1459	144	1613	515	209	7	731	4219
% Passenger Vehicles	85.4	91.3	91.2	91.1	96.5	96.2	93.3	95.9	83.3	94.1	95.4	94.1	97.0	94.6	87.5	96.2	93.5
Heavy Vehicles	7	127	16	150	5	6	3	14	2	92	7	101	16	12	1	29	294
% Heavy Vehicles	14.6	8.7	8.8	8.9	3.5	3.8	6.7	4.1	16.7	5.9	4.6	5.9	3.0	5.4	12.5	3.8	6.5



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

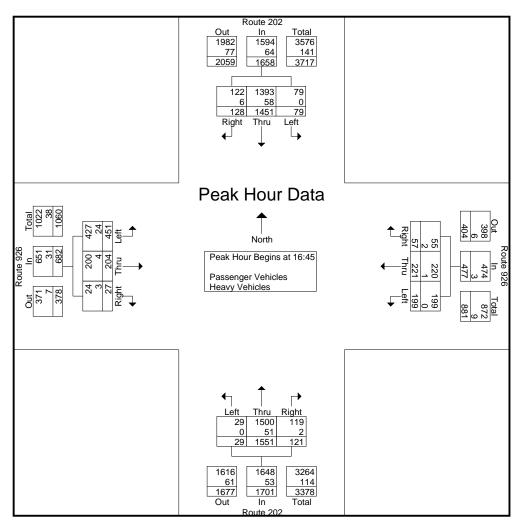
Municipality: Westtown Township File Name: westtown05w

Location: Route 926 & Route 202

Start Date : 10/17/2019

Counter: M Page No : 3

		Rout	e 202			Rou	te 926			Rou	te 202			Rou	te 926		
		South	bound			West	bound			North	nbound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	lysis Fr	om 12:0	00 to 17:	:45 - Pea	k 1 of 1												
Peak Hour for I	Entire In	ntersecti	on Begi	ns at 16:	45												
16:45	16	379	37	432	44	55	15	114	8	412	37	457	103	54	6	163	1166
17:00	22	338	30	390	57	59	11	127	9	354	22	385	117	54	8	179	1081
17:15	30	365	24	419	47	49	18	114	5	394	25	424	131	51	8	190	1147
17:30	11	369	37	417	51	58	13	122	7	391	37	435	100	45	5	150	1124
Total Volume	79	1451	128	1658	199	221	57	477	29	1551	121	1701	451	204	27	682	4518
% App. Total	4.8	87.5	7.7		41.7	46.3	11.9		1.7	91.2	7.1		66.1	29.9	4		
PHF	.658	.957	.865	.959	.873	.936	.792	.939	.806	.941	.818	.931	.861	.944	.844	.897	.969
Passenger Vehicles	79	1393	122	1594	199	220	55	474	29	1500	119	1648	427	200	24	651	4367
% Passenger Vehicles	100	96.0	95.3	96.1	100	99.5	96.5	99.4	100	96.7	98.3	96.9	94.7	98.0	88.9	95.5	96.7
Heavy Vehicles	0	58	6	64	0	1	2	3	0	51	2	53	24	4	3	31	151
% Heavy Vehicles	0	4.0	4.7	3.9	0	0.5	3.5	0.6	0	3.3	1.7	3.1	5.3	2.0	11.1	4.5	3.3



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

Municipality: Westtown Township File Name: westtown06w

Location: New Street & Site Code :

Route 926 Start Date : 10/17/2019

Counter: M Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

			ĢI			enger ve	riicies - ne		LIES				
		New St			oute 926			New St			oute 926		
		<u>uthbound</u>			<u>estbound</u>			<u>rthbound</u>			<u>astbound</u>		
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:00	1	13	16	0	78	4	1	10	9	4	178	5	319
07:15	0	21	39	4	84	7	2	9	9	11	151	1	338
07:30	2	23	44	3	73	13	6	34	12	14	165	4	393
07:45	1	29	39	0	79	12	1	37	7	14	150	0	369
Total	4	86	138	7	314	36	10	90	37	43	644	10	1419
08:00	4	33	49	3	81	5	2	17	12	10	157	0	373
08:15	1	37	58	2	77	6	0	9	10	10	176	1	387
08:30	6	26	43	1	60	9	2	16	6	11	171	2	353
08:45	1	34	31	1	59	11	0	24	8	19	157	3	348
Total	12	130	181	7	277	31	4	66	36	50	661	6	1461
16:00	15	33	47	6	81	4	2	15	3	10	135	3	354
16:15	11	33	46	5	108	9	1	12	4	4	160	2	395
16:30	19	32	50	5	90	4	0	13	7	10	131	0	361
16:45	14	47	36	6	78	10	1	11	13	4	168	3	391_
Total	59	145	179	22	357	27	4	51	27	28	594	8	1501
17:00	16	31	40	8	71	3	4	25	9	8	155	5	375
17:15	10	47	29	1	79	10	0	23	11	12	172	4	398
17:30	9	39	38	4	77	7	4	24	4	6	164	1	377
17:45	7	43	51	4	89	8	1	22	6	13	134	1	379_
Total	42	160	158	17	316	28	9	94	30	39	625	11	1529
Grand Total	117	521	656	53	1264	122	27	301	130	160	2524	35	5910
Apprch %	9	40.3	50.7	3.7	87.8	8.5	5.9	65.7	28.4	5.9	92.8	1.3	
Total %	2	8.8	11.1	0.9	21.4	2.1	0.5	5.1	2.2	2.7	42.7	0.6	
Passenger Vehicles	112	519	645	50	1193	119	23	295	125	153	2432	30	5696
% Passenger Vehicles	95.7	99.6	98.3	94.3	94.4	97.5	85.2	98	96.2	95.6	96.4	85.7	96.4
Heavy Vehicles	5	2	11	3	71	3	4	6	5	7	92	5	214
% Heavy Vehicles	4.3	0.4	1.7	5.7	5.6	2.5	14.8	2	3.8	4.4	3.6	14.3	3.6

Zero Pedestrians were observed during this study.

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

Municipality: Westtown Township

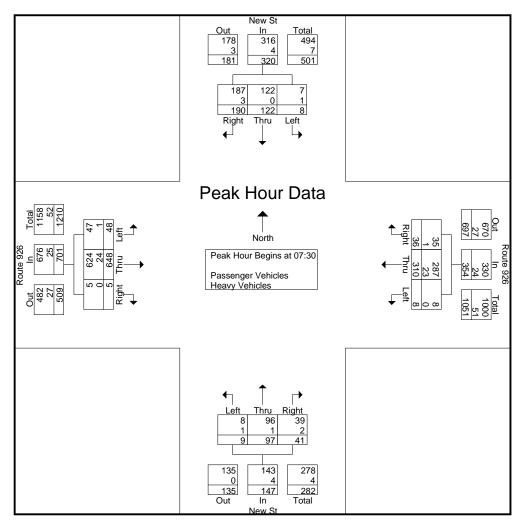
Location: New Street &

Route 926 Counter: M File Name: westtown06w

Site Code :

Start Date : 10/17/2019

		Ne	w St			Rou	te 926			Ne	w St			Rou	te 926		
		South	nbound			West	tbound			North	bound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	alysis Fr	om 07:0	00 to 11	:45 - Pea	k 1 of 1		-				-				-		
Peak Hour for I	Entire In	tersecti	ion Beg	ins at 07:	30												
07:30	2	23	44	69	3	73	13	89	6	34	12	52	14	165	4	183	393
07:45	1	29	39	69	0	79	12	91	1	37	7	45	14	150	0	164	369
08:00	4	33	49	86	3	81	5	89	2	17	12	31	10	157	0	167	373
08:15	1	37	58	96	2	77	6	85	0	9	10	19	10	176	1	187	387
Total Volume	8	122	190	320	8	310	36	354	9	97	41	147	48	648	5	701	1522
% App. Total	2.5	38.1	59.4		2.3	87.6	10.2		6.1	66	27.9		6.8	92.4	0.7		
PHF	.500	.824	.819	.833	.667	.957	.692	.973	.375	.655	.854	.707	.857	.920	.313	.937	.968
Passenger Vehicles	7	122	187	316	8	287	35	330	8	96	39	143	47	624	5	676	1465
% Passenger Vehicles	87.5	100	98.4	98.8	100	92.6	97.2	93.2	88.9	99.0	95.1	97.3	97.9	96.3	100	96.4	96.3
Heavy Vehicles	1	0	3	4	0	23	1	24	1	1	2	4	1	24	0	25	57
% Heavy Vehicles	12.5	0	1.6	1.3	0	7.4	2.8	6.8	11.1	1.0	4.9	2.7	2.1	3.7	0	3.6	3.7



Transportation Engineers and Planners 425 Commerce Drive, Suite 200

Fort Washington, PA 19034

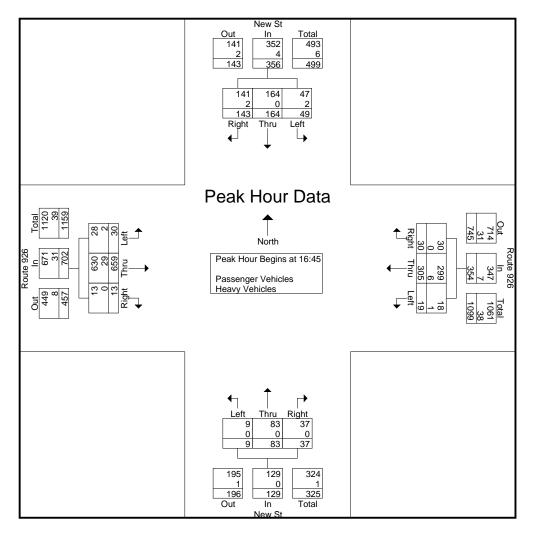
Municipality: Westtown Township File Name: westtown06w

Location: New Street & Site Code :

Route 926 Start Date : 10/17/2019

Counter: M Page No : 3

			w St			Rout	te 926				w St			Rou	te 926		
		South	bound			West	bound			North	nbound			East	bound		
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Ana	ilysis Fr	om 12:0	00 to 17:	45 - Pea	k 1 of 1												
Peak Hour for I	Entire In	tersecti	on Begi	ns at 16:	45												
16:45	14	47	36	97	6	78	10	94	1	11	13	25	4	168	3	175	391
17:00	16	31	40	87	8	71	3	82	4	25	9	38	8	155	5	168	375
17:15	10	47	29	86	1	79	10	90	0	23	11	34	12	172	4	188	398
17:30	9	39	38	86	4	77	7	88	4	24	4	32	6	164	1	171	377
Total Volume	49	164	143	356	19	305	30	354	9	83	37	129	30	659	13	702	1541
% App. Total	13.8	46.1	40.2		5.4	86.2	8.5		7	64.3	28.7		4.3	93.9	1.9		
PHF	.766	.872	.894	.918	.594	.965	.750	.941	.563	.830	.712	.849	.625	.958	.650	.934	.968_
Passenger Vehicles	47	164	141	352	18	299	30	347	9	83	37	129	28	630	13	671	1499
% Passenger Vehicles	95.9	100	98.6	98.9	94.7	98.0	100	98.0	100	100	100	100	93.3	95.6	100	95.6	97.3
Heavy Vehicles	2	0	2	4	1	6	0	7	0	0	0	0	2	29	0	31	42
% Heavy Vehicles	4.1	0	1.4	1.1	5.3	2.0	0	2.0	0	0	0	0	6.7	4.4	0	4.4	2.7





Appendix E

Initial Queue Observations

WEEKDAY PM THURSDAY, OCTOBER 17,2019

	SI	R 926 EASTBOU	ND	SR	926 WESTBOU	ND •	US	202 NORTHBOU	JND •	US	202 SOUTHBOU	ND
	4	4>	-	4	1	7	4	11	7	5	17	
,	5.0.0	7.0.3					0.0	0.0	0.0			
7	0,	0.		2-1.3	5.7.6	0.0.2						
				1.0	1.3	2.0	0.0.0	0.0,4	0.0.0	SEF	=	
)	O.	٥.	每.	0,	2.	٥٠	0.0.0	0.2.0	0.0.0			
	2-1-6	3.3.9		٥.	2.	0.	0	0	0	SEPER	ATE	
١	9			0.0.0	0.0.1	0.0.0	0.0	0.0	0.0			,
	7.5.7	7.610		4						SHE	ET	
		4										
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10/17/2019

US 202 and PA 926 INITIAL QUEUE OBSERVATIONS

WEEKDAY AM THURSDAY, OCTOBER 17,2019

SR 926 EASTBOUND		SR 926 WESTBOUND			US 202 NORTHBOUND 🔥			US 202 SOUTHBOUND			
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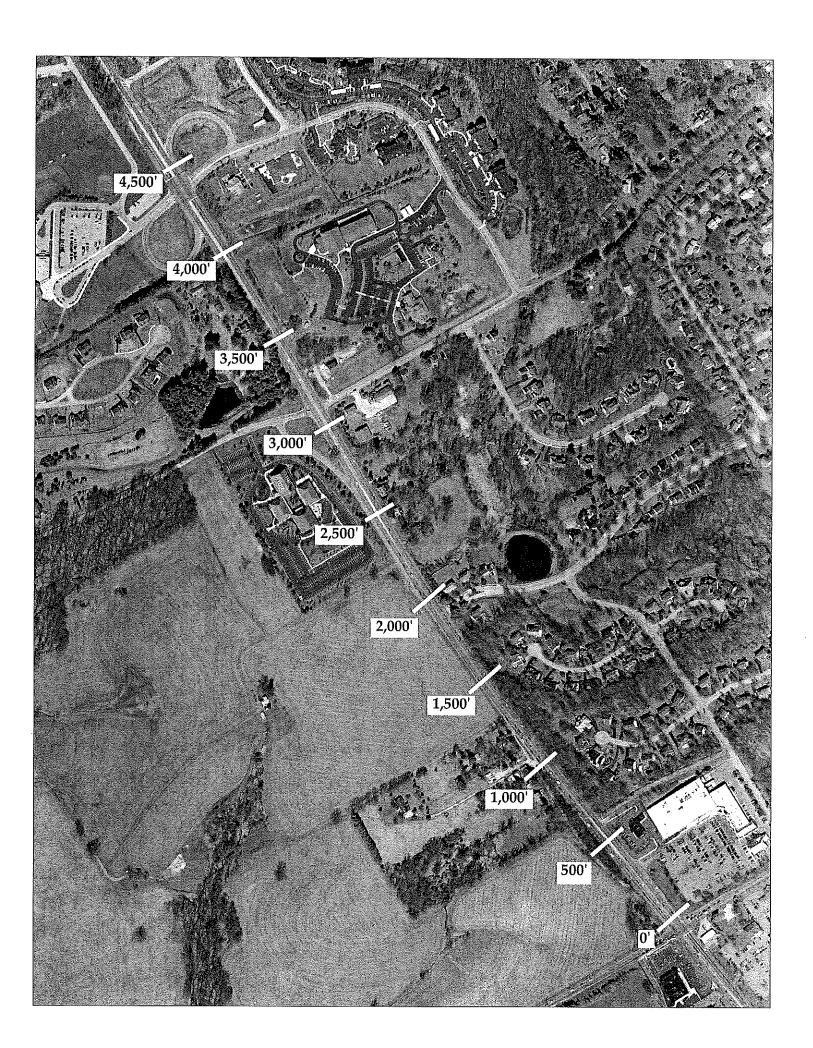
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Appendix F

Site Trip Generation

Project Information					
Project Name:	Robinson Tract				
McMahon Project No:	816451				
Date:	8/5/2019				
City/Municipality:	Westtown Township				
State:	Pennsylvania				
Client Name:	Toll Brothers, Inc.				
Analyst's Name:	BGG				
ITE Edition:	ITE-TGM 10th Edition				

		Daily	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour			
Land Use	Size	Total	In	Out	Total	In	Out	Total
220 - Multifamily Housing (Low-Rise)	135 dwelling units	980	14	49	63	48	29	77
210 - Single Family Detached Housing	184 dwelling units	1,822	33	102	135	115	67	182
Total Trips		2,802	47	151	198	163	96	259



Appendix G

Collector Road and Site Access
Traffic Signal and Turning Lane
Warrant Analysis Worksheets

Signal Warrant Analysis Collector Road Diversions Only

2025 BUILD-OUT YEAR SIGNAL WARRANT VOLUME DEVELOPMENT (COLLECTOR ROAD DIVERSIONS ONLY)

		S1	REET ROA	D (S.R. 092	26)		CC	LLECTOR RO	AD	BRIDL	WOOD BOUL	EVARD
		Eastbound			Westbound		Southbound		Northbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
8:00 AM - 9:00 AM (see Figure 5B)	26	652	32	13	243	0	0	15	147	26	27	13
			No ad	ljustment fo	or base existing	g counts sin	ce traffic vo	olumes are 99	% of the pea	ak hour		
7:00 AM - 8:00 AM			No ac	djustment t	o background	developme	nts since th	ere are very fo	ew trips gen	erated		
	26	652	32	13	243	0	0	15	147	26	27	13
5:00 PM - 6:00 PM(see Figure 5B)	111	582	38	21	301	0	0	250	121	17	23	12
		Adj	ust without	developm	ent and divers	ion volumes	to 88 perc	ent of peak ho	our based o	n existing c	ounts	
4:00 PM - 5:00 PM w/o dev		-70	-5	-3	-36					-2		-1
diversions	-14	14	0	0	8	0	0	0	-15	0	-3	3
	97	526	33	18	273	0	0	250	106	15	20	14

816451.11 - Robinson Tract Residential November 15, 2019

STUDY AND ANALYSIS INFORMATION

Municipality: Westtown Township
County: Chester County
PennDOT Engineering District: 6

Analysis Date: 11/14/2019
Conducted By: BGG
Agency/Company Name: McMahon

Analysis Information

Data Collection Date: 10/10/2019
Day of the Week: Thursday

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

Nο

Major Street Information

Major Street Approach #1 Direction: E-Bound
Major Street Approach #2 Direction: W-Bound

Number of Lanes for Moving Traffic on Each Major Street Approach: 1 LANE(S)

Speed Limit or 85th Percentile Speed on the Major Street: 45 MPH

Minor Street Information

Minor Street Approach #1 Direction: S-Bound
Minor Street Approach #2 Direction: N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach: 2 LANE(S)

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	No	N/A
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes
Warrant 3, Peak Hour	No	N/A
Warrant 4, Pedestrian Volume	No	N/A
Warrant 5, School Crossing	No	N/A
Warrant 6, Coordinated Signal System	No	N/A
Warrant 7, Crash Experience	No	N/A
Warrant 8, Roadway Network	No	N/A
Warrant 9, Intersection Near a Grade Crossing	No	N/A
Warrant PA-1, ADT Volume Warrant	No	N/A
Warrant PA-2, Midblock and Trail Crossings	No	N/A



	ENTER V	OLUME DATA	PER 15 MINU	JTE INTERVAI	L, PER APPRO	ACH
Time Ir	nterval	Major Street Approach #1 (E-Bound)	Major Street Approach #2 (W-Bound)	Major Street Combined	Minor Street Approach #1 (S-Bound)	Minor Street Approach #2 (N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 AM	12:14 AM			0		
12:15 AM	12:29 AM			0		
12:30 AM	12:44 AM			0		
12:45 AM	12:59 AM			0		
1:00 AM	1:14 AM			0		
1:15 AM	1:29 AM			0		
1:30 AM	1:44 AM			0		
1:45 AM	1:59 AM			0		
2:00 AM	2:14 AM			0		
2:15 AM	2:29 AM			0		
2:30 AM	2:44 AM			0		
2:45 AM	2:59 AM			0		
3:00 AM	3:14 AM			0		
3:15 AM	3:29 AM			0		
3:30 AM	3:44 AM			0		
3:45 AM	3:59 AM			0		
4:00 AM	4:14 AM			0		
4:15 AM	4:29 AM			0		
4:30 AM	4:44 AM			0		
4:45 AM	4:59 AM			0		
5:00 AM	5:14 AM			0		
5:15 AM	5:29 AM			0		
5:30 AM	5:44 AM			0		
5:45 AM	5:59 AM			0		
6:00 AM	6:14 AM			0		
6:15 AM	6:29 AM			0		
6:30 AM	6:44 AM			0		
6:45 AM	6:59 AM			0		
7:00 AM	7:14 AM	710	256	966	162	66
7:15 AM	7:29 AM			0		
7:30 AM	7:44 AM			0		
7:45 AM	7:59 AM			0		
8:00 AM	8:14 AM	710	256	966	162	66
8:15 AM	8:29 AM			0		
8:30 AM	8:44 AM			0		
8:45 AM	8:59 AM			0		
9:00 AM	9:14 AM			0		
9:15 AM	9:29 AM			0		
9:30 AM	9:44 AM			0		
9:45 AM	9:59 AM			0		
10:00 AM	10:14 AM			0		
10:15 AM	10:29 AM			0		
10:30 AM	10:44 AM			0		
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11:00 AM	11:14 AM			0		
11:15 AM	11:29 AM			0		
11:30 AM	11:44 AM			0		
11:45 AM	11:59 AM			0		



		Major Street	Major Street	Major Street	Minor Street	Minor Street
		Approach #1	Approach #2	Major Street Combined	Approach #1	Approach #2
Time In	terval	(E-Bound)	(W-Bound)	Combined	(S-Bound)	(N-Bound)
Begin At	End Of	Volume	Volume	Total Volume	Volume	Volume
12:00 PM	12:14 PM			0		
12:15 PM	12:29 PM			0		
12:30 PM	12:44 PM			0		
12:45 PM	12:59 PM			0		
1:00 PM	1:14 PM			0		
1:15 PM	1:29 PM			0		
1:30 PM	1:44 PM			0		
1:45 PM	1:59 PM			0		
2:00 PM	2:14 PM			0		
2:15 PM	2:29 PM			0		
2:30 PM	2:44 PM			0		
2:45 PM	2:59 PM			0		
3:00 PM	3:14 PM			0		
3:15 PM	3:29 PM			0		
3:30 PM	3:44 PM			0		
3:45 PM	3:59 PM			0		
4:00 PM	4:14 PM	656	291	947	356	49
4:15 PM	4:29 PM			0		
4:30 PM	4:44 PM			0		
4:45 PM	4:59 PM			0		
5:00 PM	5:14 PM	731	322	1053	371	52
5:15 PM	5:29 PM			0		
5:30 PM	5:44 PM			0		
5:45 PM	5:59 PM			0		
6:00 PM	6:14 PM			0		
6:15 PM	6:29 PM			0		
6:30 PM	6:44 PM			0		
6:45 PM	6:59 PM			0		
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MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach				
Major Street:	1 Lane			
Minor Street:	2 or More Lanes			

Total Number of Unique Hours Met				
On Figure 4C-2				
4				

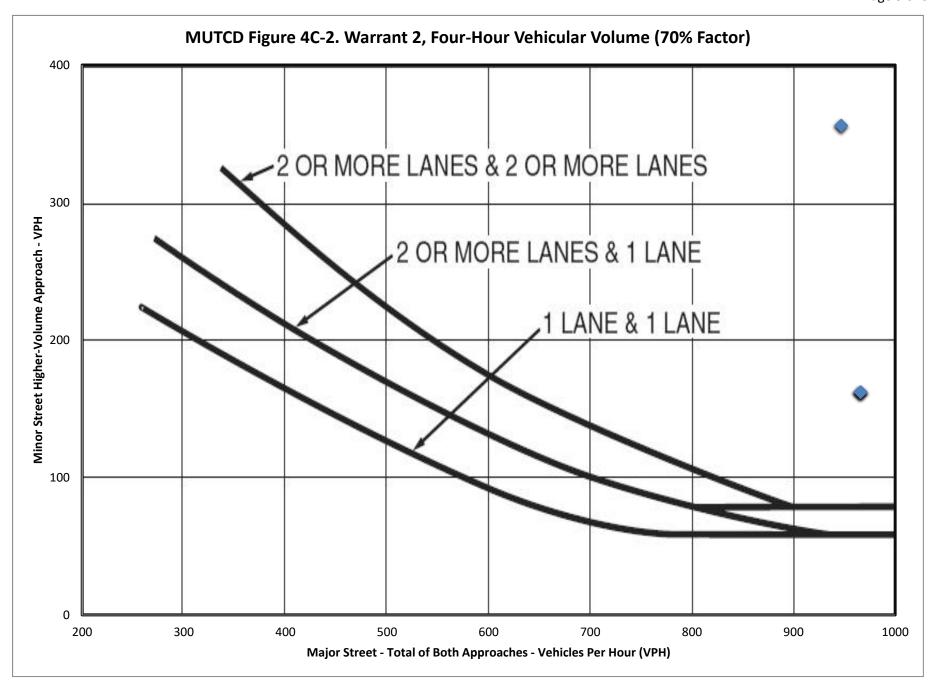
Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH	Yes
on Major Street?	res

Hourly Vehicular Volume						
Hour Interval	Major Street Combined	Highest Minor Street Approach				
Beginning At	Vehicles Per Hour (VPH)	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				
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6:15 AM	966	162	Met			
6:30 AM	966	162	Met			
6:45 AM	966	162	Met			
7:00 AM	966	162	Met			
7:15 AM	966	162	Met			
7:30 AM	966	162	Met			
7:45 AM	966	162	Met			
8:00 AM	966	162	Met			
8:15 AM	0	0				
8:30 AM	0	0				
8:45 AM	0	0				
9:00 AM	0	0				
9:15 AM	0	0				
9:30 AM	0	0				
9:45 AM	0	0				
10:00 AM	0	0				
10:15 AM	0	0				
10:30 AM	0	0				
10:45 AM	0	0				
11:00 AM	0	0				
11:00 AM	0	0				
11:30 AM	0	0				
11:45 AM	0	0				



Hourly Vehicular Volume						
Hour Interval	Major Street Combined	Highest Minor Street Approach				
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	Hour Met?			
12:00 PM	0	0				
12:15 PM	0	0				
12:30 PM	0	0				
12:45 PM	0	0				
1:00 PM	0	0				
1:15 PM	0	0				
1:30 PM	0	0				
1:45 PM	0	0				
2:00 PM	0	0				
2:15 PM	0	0				
2:30 PM	0	0				
2:45 PM	0	0				
3:00 PM	0	0				
3:15 PM	947	356	Met			
3:30 PM	947	356	Met			
3:45 PM	947	356	Met			
4:00 PM	947	356	Met			
4:15 PM	1053	371	Met			
4:30 PM	1053	371	Met			
4:45 PM	1053	371	Met			
5:00 PM	1053	371	Met			
5:15 PM	0	0	Wicc			
5:30 PM	0	0				
5:45 PM	0	0				
6:00 PM	0	0				
6:15 PM	0	0				
6:30 PM	0	0				
6:45 PM	0	0				
7:00 PM	0	0				
7:15 PM	0	0				
7:30 PM	0	0				
7:45 PM	0	0				
8:00 PM	0	0				
8:15 PM	0	0				
8:30 PM	0	0				
8:45 PM	0	0				
9:00 PM	0	0				
9:15 PM	0	0				
9:30 PM	0	0				
9:45 PM	0	0				
10:00 PM	0	0				
10:15 PM	0	0				
10:30 PM	0	0				
10:45 PM	0	0				
11:00 PM	0	0				





Signal Warrant Analysis Collector Road Diversions and Site Traffic

2025 BUILD-OUT YEAR SIGNAL WARRANT VOLUME DEVELOPMENT (COLLECTOR ROAD DIVERSIONS AND SITE TRAFFIC)

			ST	REET ROA	D (S.R. 092	26)		СО	LLECTOR RC	AD	BRIDL	WOOD BOUL	EVARD
			Eastbound			Westbound			Southbound	ł		Northbound	l
		Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right
8:00 AM - 9:00 AM (see	Figure 5B)	30	652	32	13	243	14	46	15	159	26	31	13
				No ad	justment fo	or base existin	g counts sin	ce traffic vo	olumes are 99	% of the pea	ak hour		
				No ac	djustment to	o background	developme	nts since th	ere are very f	ew trips gen	erated		
7:00 AM - 8:00 AM		Ad	just site trip ge	en to 79% o	f peak hour	(Single family	trip gen = 7	79% of peak	hour; Multif	amily low ris	se trip gen :	= 79% of peak	hour)
	Site Trip	<u>-1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>-3</u>	<u>-10</u>	<u>-3</u>	<u>-3</u>	<u>0</u>	<u>-1</u>	<u>0</u>
		29	652	32	13	243	11	36	12	156	26	30	13
5:00 PM - 6:00 PM(see Figure 5B)		124	582	38	21	301	49	29	260	128	17	40	12
			Adj	ust without	developme	ent and divers	ion volumes	s to 88 perc	ent of peak h	our based o	n existing c	ounts	
		Adju	st site trip gen	to 94% of t	he peak ho	ur (Single fam	ily trip gen	= 94% of pe	ak hour; Mul	tifamily low	rise trip ge	n = 95% of pea	ık hour)
4:00 PM - 5:00 PM	w/o dev		-70	-5	-3	-36					-2		-1
	diversions	-14	14	0	0	8	0	0	0	-15	0	-3	3
	site trips	<u>-1</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>-3</u>	<u>-2</u>	<u>-1</u>	<u>0</u>	<u>0</u>	<u>-1</u>	<u>0</u>
		109	526	33	18	273	46	27	259	113	15	36	14

816451.11 - Robinson Tract Residential November 15, 2019

STUDY AND ANALYSIS INFORMATION

Municipality: Westtown Township
County: Chester County
PennDOT Engineering District: 6

 Analysis Date:
 11/6/2019

 Conducted By:
 BGG

 Agency/Company Name:
 McMahon

Analysis Information

Data Collection Date: 10/10/2019
Day of the Week: Thursday

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

Nο

Major Street Information

Major Street Approach #1 Direction:

Major Street Approach #2 Direction:

W-Bound

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

Speed Limit or 85th Percentile Speed on the Major Street:

45

MPH

Minor Street Information

Minor Street Approach #1 Direction: S-Bound
Minor Street Approach #2 Direction: N-Bound

Number of Lanes for Moving Traffic on Each Minor Street Approach: 2 LANE(S)

TRAFFIC SIGNAL WARRANT ANALYSIS FINDINGS

	Applicable?	Warrant Met?
Warrant 1, Eight-Hour Vehicular Volume	No	N/A
Warrant 2, Four-Hour Vehicular Volume	Yes	Yes
Warrant 3, Peak Hour	No	N/A
Warrant 4, Pedestrian Volume	No	N/A
Warrant 5, School Crossing	No	N/A
Warrant 6, Coordinated Signal System	No	N/A
Warrant 7, Crash Experience	No	N/A
Warrant 8, Roadway Network	No	N/A
Warrant 9, Intersection Near a Grade Crossing	No	N/A
Warrant PA-1, ADT Volume Warrant	No	N/A
Warrant PA-2, Midblock and Trail Crossings	No	N/A



MUTCD WARRANT 2, FOUR-HOUR VEHICULAR VOLUME

Number of Lanes for Moving Traffic on Each Approach					
Major Street:	1 Lane				
Minor Street:	Minor Street: 2 or More Lanes				

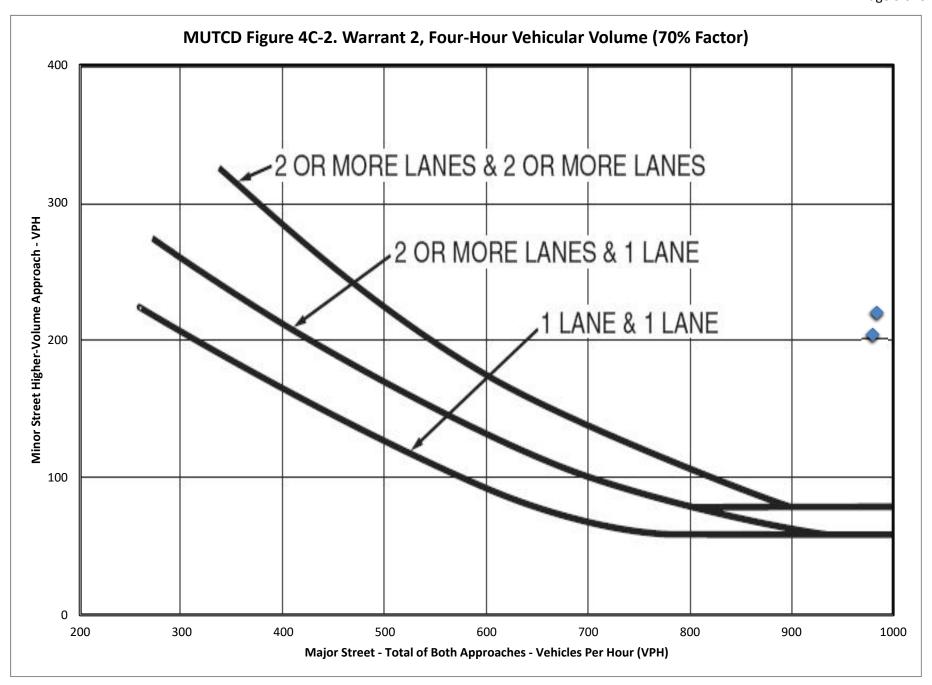
Total Number of Unique Hours Met
On Figure 4C-2
4

Built-up Isolated Community With Less Than 10,000 Population or Above 40 MPH	Yes
on Major Street?	res

	Hourly Vehicular Volume					
Hour Interval	Major Street Combined	Highest Minor Street Approach	Hour Met?			
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	Hour Metr			
12:00 AM	0	0				
12:15 AM	0	0				
12:30 AM	0	0				
12:45 AM	0	0				
1:00 AM	0	0				
1:15 AM	0	0				
1:30 AM	0	0				
1:45 AM	0	0				
2:00 AM	0	0				
2:15 AM	0	0				
2:30 AM	0	0				
2:45 AM	0	0				
3:00 AM	0	0				
3:15 AM	0	0				
3:30 AM	0	0				
3:45 AM	0	0				
4:00 AM	0	0				
4:15 AM	0	0				
4:30 AM	0	0				
4:45 AM	0	0				
5:00 AM	0	0				
5:15 AM	0	0				
5:30 AM	0	0				
5:45 AM	0	0				
6:00 AM	0	0				
6:15 AM	980	204	Met			
6:30 AM	980	204	Met			
6:45 AM	980	204	Met			
7:00 AM	980	204	Met			
7:15 AM	984	220	Met			
7:30 AM	984	220	Met			
7:45 AM	984	220	Met			
8:00 AM	984	220	Met			
8:15 AM	0	0				
8:30 AM	0	0				
8:45 AM	0	0				
9:00 AM	0	0				
9:15 AM	0	0				
9:30 AM	0	0				
9:45 AM	0	0				
10:00 AM	0	0				
10:15 AM	0	0				
10:30 AM	0	0				
10:45 AM	0	0				
11:00 AM	0	0				
11:15 AM	0	0				
11:30 AM	0	0				
11:45 AM	0	0				
11.75 /101	<u>_</u>	·				

		Hourly Vehicular Volume	
Hour Interval	Major Street Combined	Highest Minor Street Approach	
Beginning At	Vehicles Per Hour (VPH)	Vehicles Per Hour (VPH)	Hour Met?
12:00 PM	0	0	
12:15 PM	0	0	
12:30 PM	0	0	
12:45 PM	0	0	
1:00 PM	0	0	
1:15 PM	0	0	
1:30 PM	0	0	
1:45 PM	0	0	
2:00 PM	0	0	
2:15 PM	0	0	
2:30 PM	0	0	
2:45 PM	0	0	
3:00 PM	0	0	
3:15 PM	1005	399	Met
3:30 PM	1005	399	Met
3:45 PM	1005	399	Met
4:00 PM	1005	399	Met
4:15 PM	1115	417	Met
4:30 PM	1115	417	Met
4:45 PM	1115	417	Met
5:00 PM	1115	417	Met
5:15 PM	0	0	Witt
5:30 PM	0	0	
5:45 PM	0	0	
6:00 PM	0	0	
6:15 PM	0	0	
6:30 PM	0	0	
6:45 PM	0	0	
7:00 PM	0	0	
7:15 PM	0	0	
7:30 PM	0	0	
7:45 PM	0	0	
8:00 PM	0	0	
8:15 PM	0	0	
8:30 PM	0	0	
8:45 PM	0	0	
9:00 PM	0	0	
9:15 PM	0	0	
9:30 PM	0	0	
9:45 PM	0	0	
10:00 PM	0	0	
10:15 PM	0	0	
10:30 PM	0	0	
10:45 PM	0	0	
11:00 PM	0	0	
11.00 1 141	<u> </u>	J	





NOTE: The points (1005,399) and (1115, 417) are beyond the viewport of the graph

Left Turn Conflict Worksheet

Intersection: Street Rd (SR 926) and Bridlewood/Connector



County: Chester Municipality: Westtown Township

Count Date: 10/17/2019 **File Number:** 816451.11

NB Approach: Bridlewood Blvd

Exclusive Left-Turn Lane
Number of Opposing Lanes
Include Right Turns

Required C.F. (Protected/Permitted)
Required C.F. (Protected/Prohibited)

Υ	
1	
Υ	
50000	
67500	

Hour	NB Left	SB Through	,		NB Conflict Factor	L.T.P. Justified
AM Peak	26	174	90	0.65	4524	No
PM Peak	17	388	100	0.4722	6596	No

EB Approach: Street Road (S.R. 0926)

Exclusive Lane
Number of Opposing Lanes
Include Right Turns

Required C.F. (Protected/Permitted)
Required C.F. (Protected/Prohibited)

Υ
1
Υ
50000
67500

Hour	EB Left	WB Through	,		EB Conflict Factor	L.T.P. Justified
AM Peak	30	257	90	0.75	7710	No
PM Peak	124	350	100	3.4444	43400	No

Remarks: 2025 with Development Volumes

Compiled By BGG
Checked By: JDG
Date: November 6, 2019

SB Approach: Collector Road

Exclusive Lane

Number of Opposing Lanes

Include Right Turns

Required C.F. (Protected/Permitted)
Required C.F. (Protected/Prohibited)

Υ
1
Υ
50000
67500

Hour	SB Left	NB Cycle Through Lengt		Turns Per Cycle	SB Conflict Factor	L.T.P. Justified	
AM Peak	46	44	90	1.15	2024	No	
PM Peak	29	52	100	0.8056	1508	No	

WB Approach: Street Road (S.R. 0926)

Exclusive Lane

Number of Opposing Lanes

Include Right Turns

Required C.F. (Protected/Permitted)
Required C.F. (Protected/Prohibited)

1
Υ
50000
67500

Hour	WB Left	EB Through	,		WB Conflict Factor	L.T.P. Justified	
AM Peak	13	684	90	0.325	8892	No	
PM Peak	21	620	100	0.5833	13020	No	

Traffic Count Entry

Traffic Count Insert

Street name	Bridlewood Blvd		Collector Road		Street Road (S.R. 0926)			Street Road (S.R. 0926)			Cycle Length		
Hour	North Bound Approach		South Bound Approach		East Bound Approach			West Bound Approach			All		
Houi	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right	Left	Straight	Right	Approaches
AM Peak	26	31	13	46	15	159	30	652	32	13	243	14	90
PM Peak	17	40	12	29	260	128	124	582	38	21	301	49	100

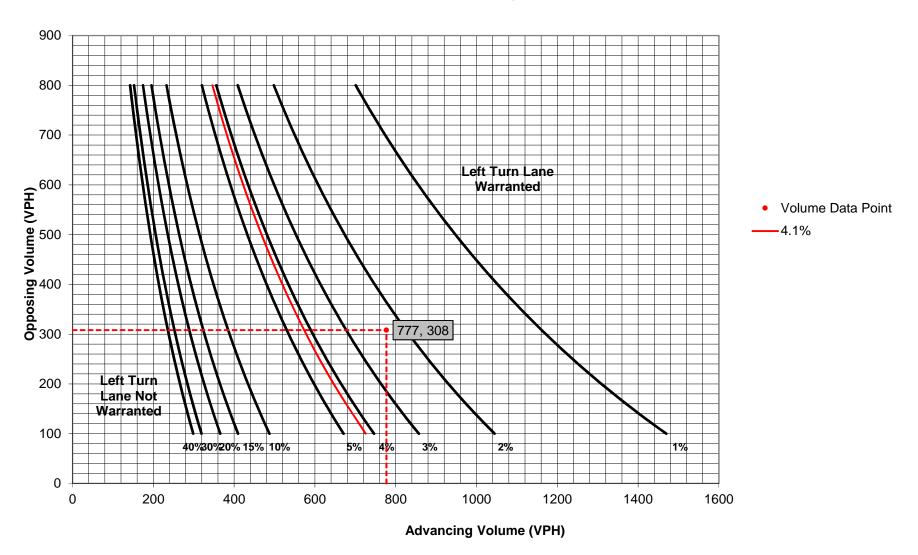
Street Road (S.R. 0926) and Collector Road / Bridlewood Boulevard

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road Eastbound Street Road (S.R. 0926) Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 777 Yes 31 **Advancing Volume:** 710 Through 669 4.0% 308 Advancing **Opposing Volume** 3.0% Right Yes 33 35 **Left Turn Volume:** 32 Left Yes 14 0.0% 14 Opposing Through 249 8.0% 279 Right Yes 14 4.12% 2.0% 15 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Yes N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** Warrant Met?: Yes Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Signalized Intersection Control: **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): Known 40 Cycles Per Hour (If Known): Average # of Vehicles/Cycle: 1.0 PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet 125 Condition B: Feet **Condition C:** 150 Feet 150 Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBL- AM

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

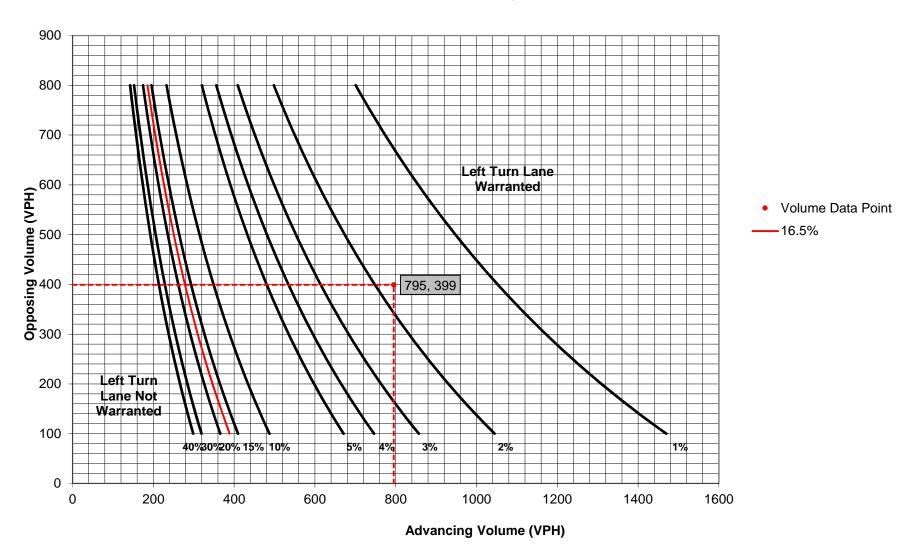


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road Eastbound Street Road (S.R. 0926) Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 131 795 Yes 127 **Advancing Volume:** Through 598 3.0% 625 399 Advancing **Opposing Volume** 0.0% 39 Right Yes 39 **Left Turn Volume:** 131 Left Yes 21 5.0% 23 Opposing Through 311 3.0% 325 16.48% Right Yes 49 2.0% 51 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Yes N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** Warrant Met?: Yes Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Signalized Intersection Control: **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): Known 4.0 Cycles Per Hour (If Known): 36 Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet 125 Condition B: Feet **Condition C:** 250 Feet 250 Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBL- PM

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

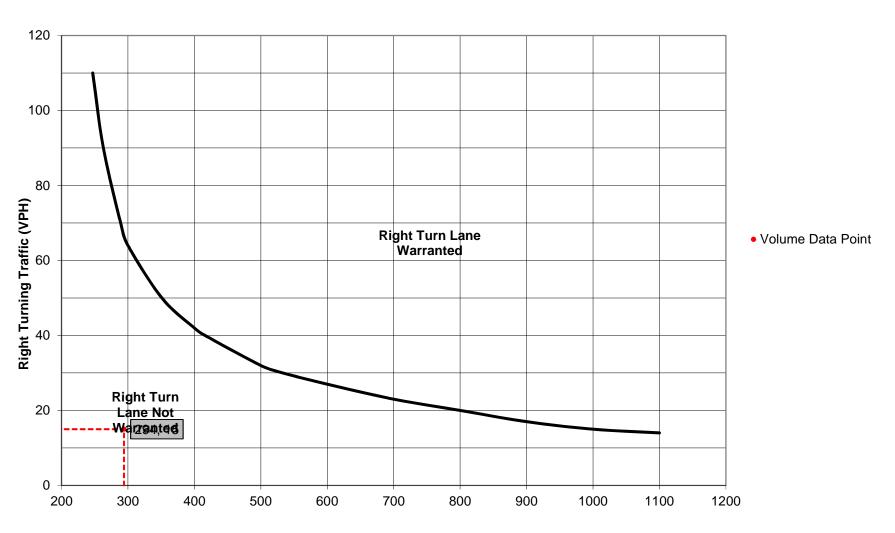


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** No 14 0.0% N/A Advancing 249 8.0% 279 **Advancing Volume:** 294 Through Right 14 2.0% 15 **Right Turn Volume:** 15 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 10 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized Intersection Control: **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): Known 40 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBR - AM

Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



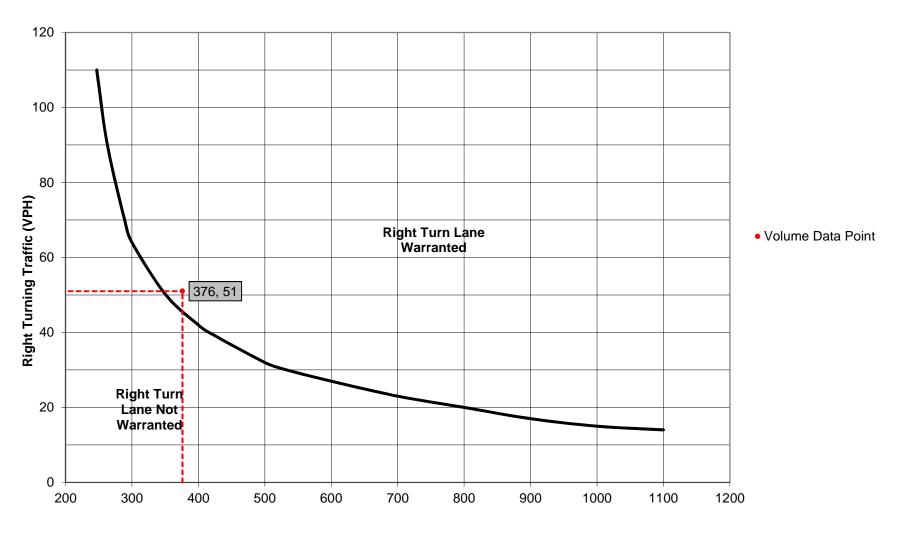
Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and Connector Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** PM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** No 21 5.0% N/A Advancing 311 3.0% 325 **Advancing Volume:** 376 Through Right 49 2.0% 51 **Right Turn Volume:** 51 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 10 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Signalized Intersection Control: **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): Known 40 Cycles Per Hour (If Known): Average # of Vehicles/Cycle: 1.0 PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Right Turn Lane Storage Length, Condition A: Feet 125 Condition B: Feet Condition C: 150 Feet Required Right Turn Lane Storage Length: 150 Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBR - PM

Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



Advancing Volume including Right Turns (VPH)

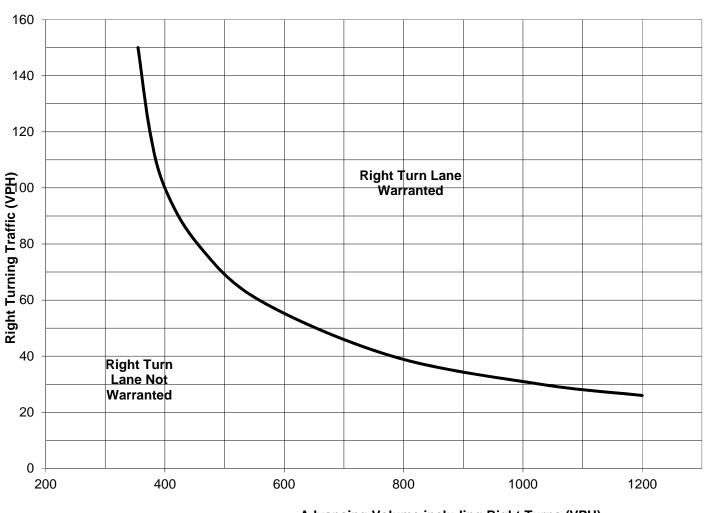
W. Pleasant Grove Road and Collector Road

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Connector Road Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** No N/A Advancing 0.0% 71 **Advancing Volume:** Through Right 2.0% **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS Intersection Control:** Unsignalized **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

Advancing Volume including Right Turns (VPH)

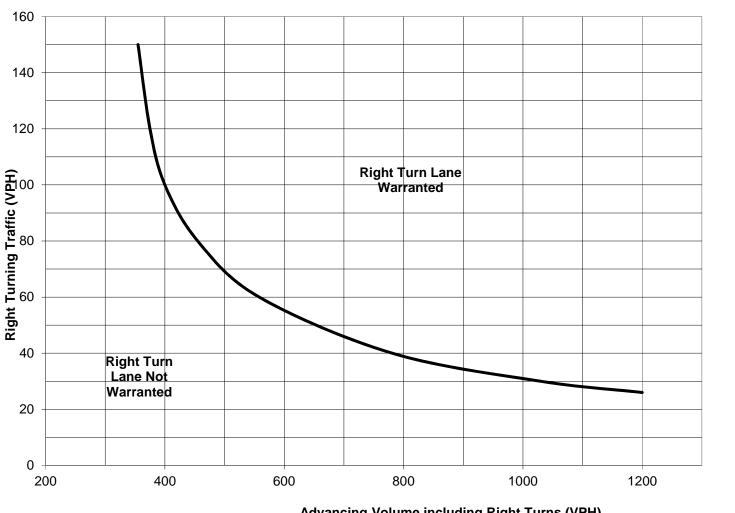
NOTE: The point (73,2) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Connector Road Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** No N/A Advancing 65 0.0% 65 **Advancing Volume:** 70 Through Right 2.0% **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - PM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

Advancing Volume including Right Turns (VPH)

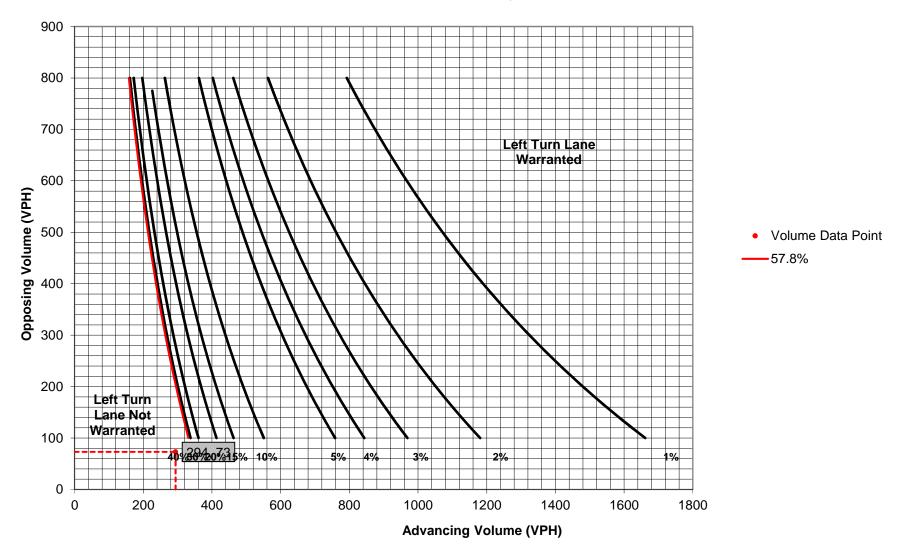
NOTE: The point (70,5) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Connector Road Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 170 294 Yes 165 **Advancing Volume:** Through 118 124 3.0% 73 Advancing **Opposing Volume** Right Yes 0 **Left Turn Volume:** 170 Left Yes 0 Opposing Through 71 0.0% 71 Right Yes 2.0% 2 57.82% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 170 Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - AM

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)

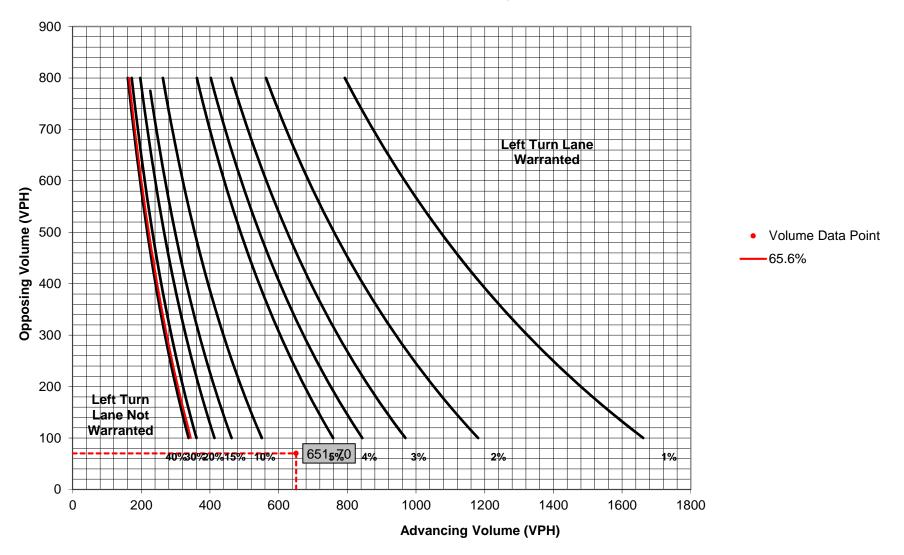


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Connector Road Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** PM Peak Hour **Undivided or Divided Highway** Undivided Design Hour **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 427 651 Yes 414 **Advancing Volume:** Through 220 224 1.0% 70 Advancing **Opposing Volume** Right Yes 0 **Left Turn Volume:** Left Yes 0 Opposing Through 65 0.0% 65 Right Yes 2.0% 5 65.59% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - PM

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



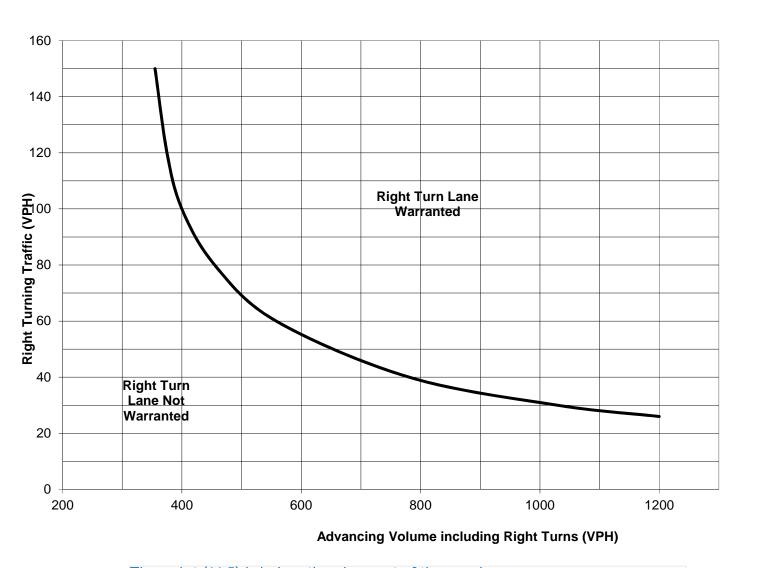
W. Pleasant Grove Road and Road K / Dunvegan Road

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** Yes Advancing 56 5.0% 61 **Advancing Volume:** Through Right 2.0% **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

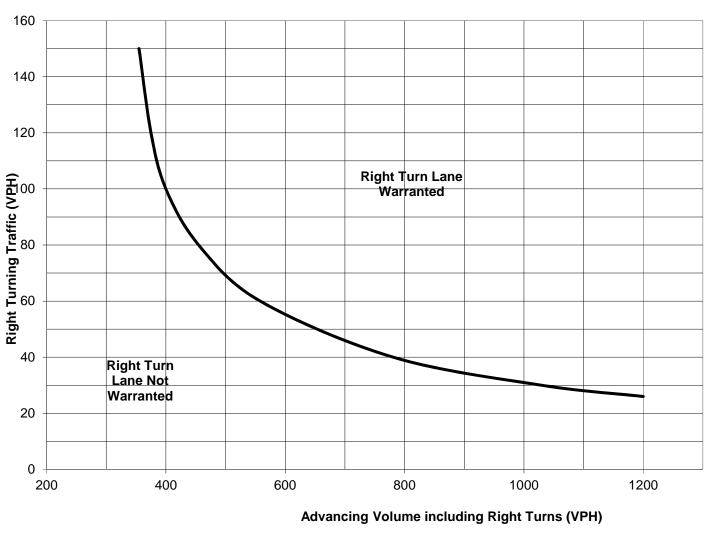
The point (66,5) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** Yes 0.0% Advancing 69 0.0% 69 **Advancing Volume:** 86 Through Right 13 2.0% 14 **Right Turn Volume:** 14 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - PM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

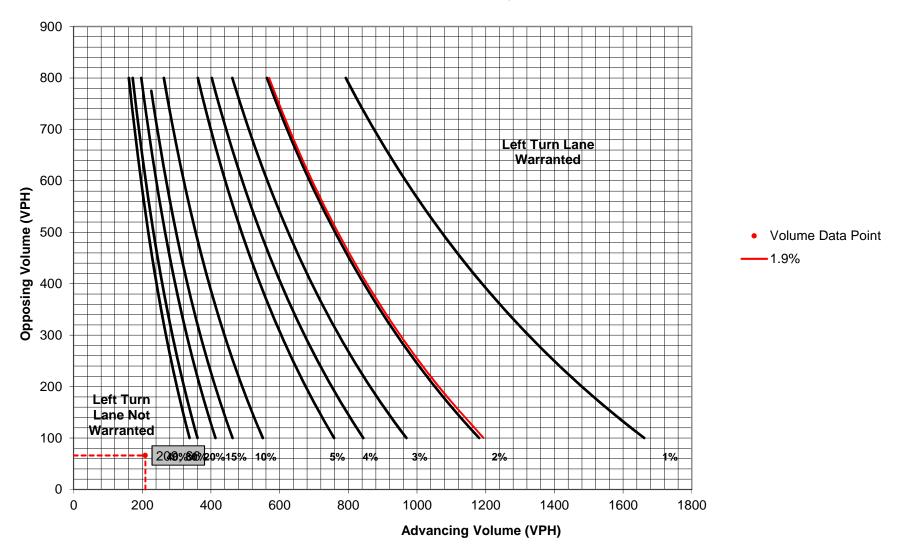
The point (86,14) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 209 Yes **Advancing Volume:** Through 190 199 3.0% Advancing **Opposing Volume** 66 50.0% Right Yes 3 6 **Left Turn Volume:** Left Yes 0 0.0% 0 Opposing Through 56 5.0% 61 Right 1.91% Yes 2.0% 5 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - AM

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)

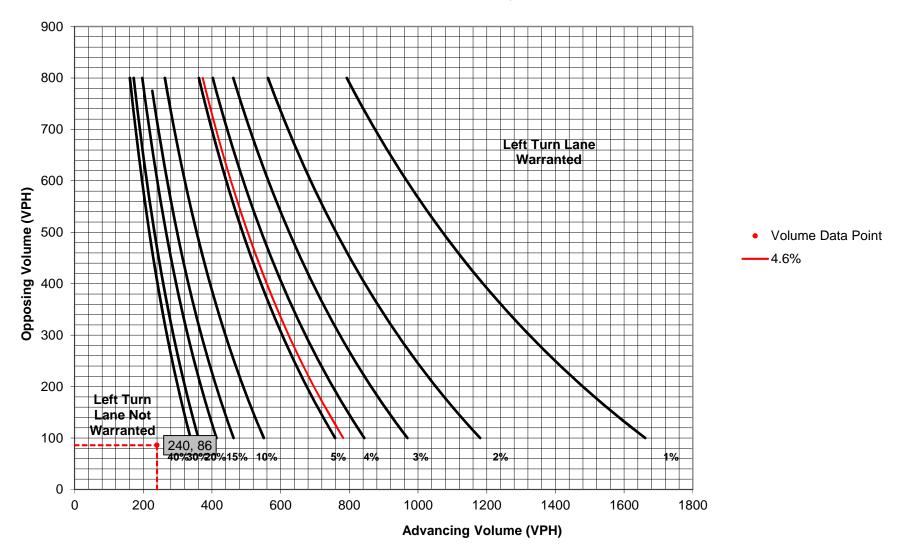


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road K / Dunvegan Road Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** PM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 240 Yes 10 **Advancing Volume:** Through 213 217 1.0% 86 Advancing **Opposing Volume** 0.0% Right Yes 12 12 **Left Turn Volume:** 11 Left Yes 3 0.0% 3 Opposing Through 69 0.0% 69 Right 4.58% Yes 13 14 2.0% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - PM

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



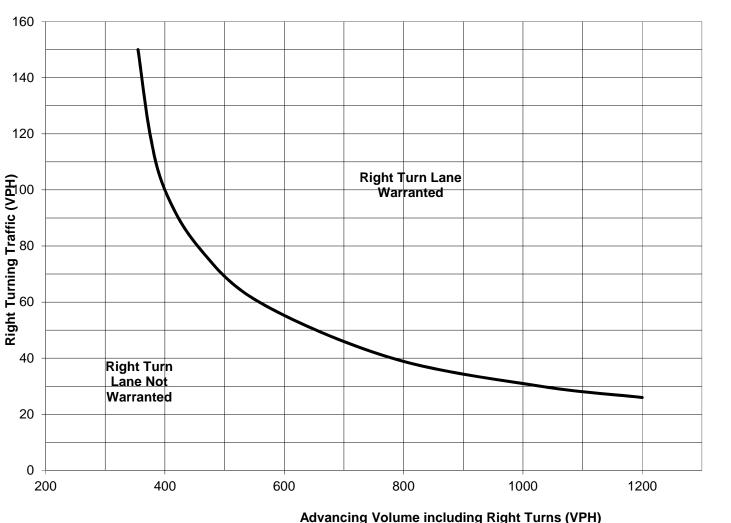
W. Pleasant Grove Road and Road M

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road M Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left N/A N/A Yes **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Volume Movement Include? % Trucks **PCEV** No N/A Advancing 69 5.0% 75 **Advancing Volume:** Through Right 2.0% 0 **Right Turn Volume:** 0 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

Advancing Volume including Right Turns (VPH)

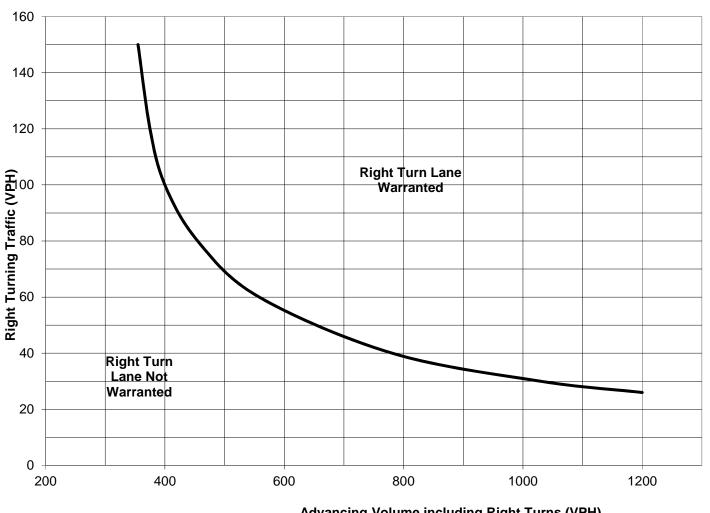
NOTE: The point (75,0) is below the viewport of the graph

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road M Eastbound W. Pleasant Grove Road Right-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes N/A N/A **Advancing Volume:** Through N/A N/A Advancing **Opposing Volume** Right Yes N/A **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right N/A Yes N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** No N/A Advancing 74 0.0% 74 **Advancing Volume:** 77 Through Right 2.0% **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A Figure 9 **Applicable Warrant Figure:** Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High High High Signalized B or C B or C B or C B or C Unsignalized B or C N/A Right Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet Required Right Turn Lane Storage Length: N/A Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 EBR - PM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

Advancing Volume including Right Turns (VPH)

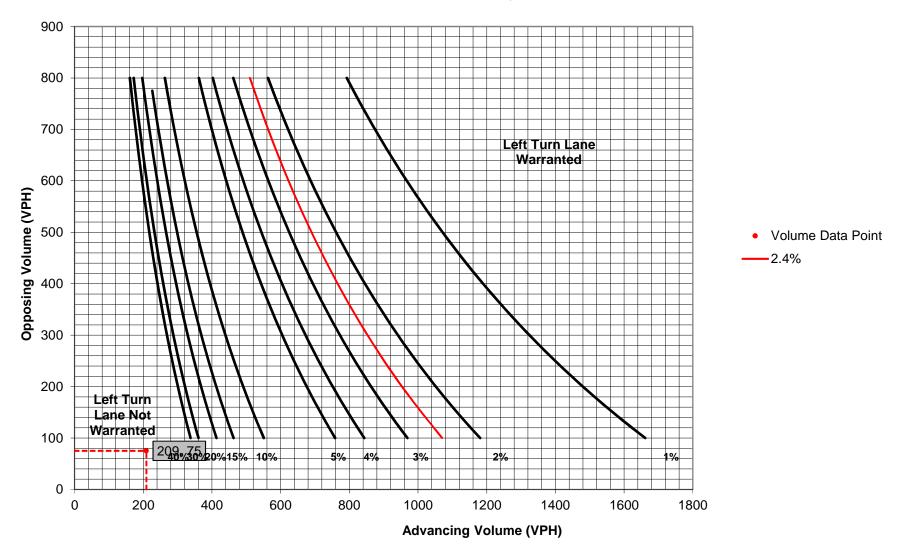
NOTE: The point (77,3) is below the viewport of the graph

STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road M Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** Design Hour: AM Peak Hour **Undivided or Divided Highway** Undivided Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Volume Movement Include? % Trucks PCEV Left 2.0% 209 Yes **Advancing Volume:** Through 195 204 3.0% Advancing **Opposing Volume** 75 Right Yes 0 **Left Turn Volume:** Left Yes 0 Opposing Through 69 5.0% 75 2.39% Right Yes 0 2.0% 0 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - AM

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)

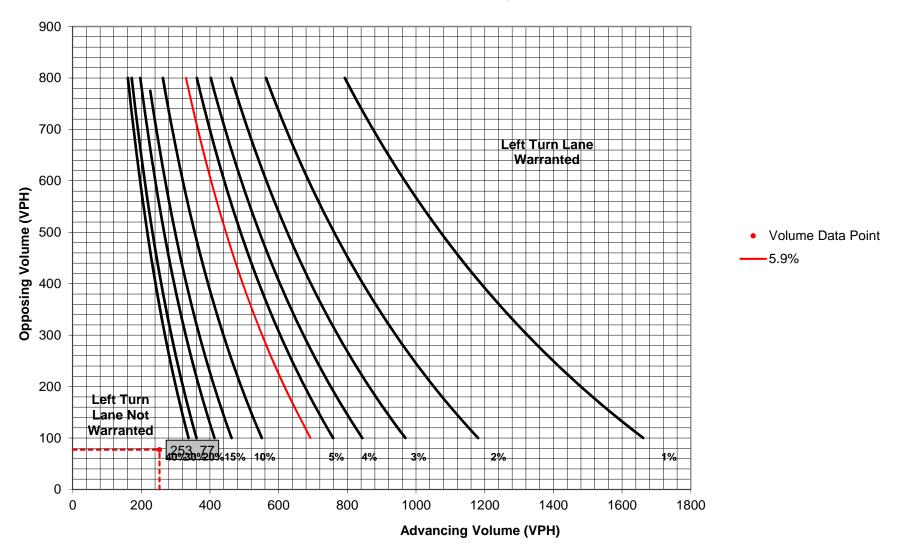


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 11/5/2019 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: W. Pleasant Grove Road and Road M Westbound W. Pleasant Grove Road Left-Turn Lane 2030 Design Year **Analysis Period: Number of Approach Lanes:** Design Hour: PM Peak Hour **Undivided or Divided Highway** Undivided Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left 2.0% 253 Yes 14 15 **Advancing Volume:** Through 234 238 1.0% Advancing **Opposing Volume** 77 Right Yes 0 **Left Turn Volume:** Left Yes 0 Opposing Through 74 0.0% 74 5.93% Right Yes 2.0% 3 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 WBL - PM

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)





Appendix H

PennDOT M-950S

DRIVEWAY SIGHT DISTANCE MEASUREMENTS

(FOR LOCAL ROADS, USE PENNDOT PUB 70)

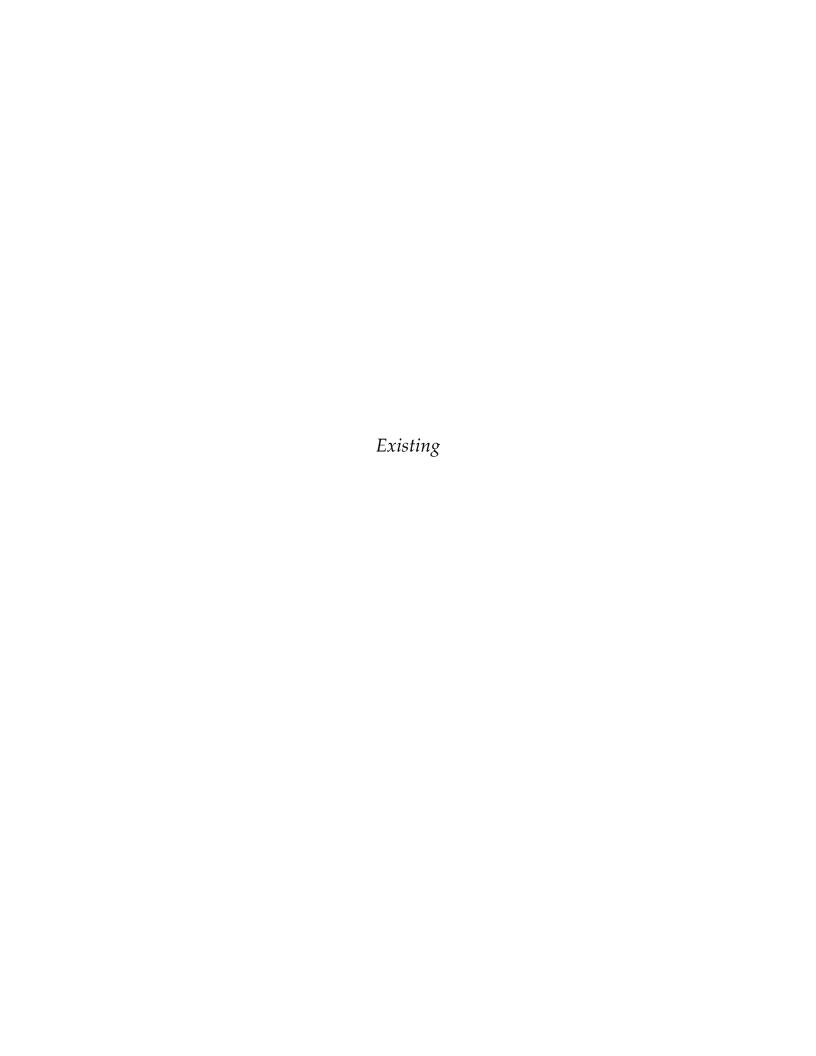
(101)	LOCAL HOADS,	OOL I LIVING	0110010)	
APPLICANT Toll Brothers, Inc	•		APPLICATION NO	
s.r0926seg0		0757	LEGAL SPEED LIMIT_	
MEASURED BY	BGG		DATE8/8	8/2019
FOR DEPARTMENT USE ONLY: S S.R. 0926 & Connector	270 (8			
3.50	466' -8.0 %	**************************************	700'+ DE +8.6 % 3.50'	1
CAN CONTINUO	Sight Line	NG WHICH A DR	DRIVER'S EYE 10' DISTANCE REQUIRED FSD= Desirable - 570' IVER AT A DRIVEWAY LOCA' ACHING ON THE ROADWAY.	
B		3.50'	₹ 700'+ GRADE _+8.6 _% ₹ Sight Line = =	3.50'
CONTINUOUSLY SEE THE		$ m FSD=M_{ m O}$ ONG WHICH A D WHICH IS LOCA	CE REQUIRED eets minimum over 70 m RIVER ON THE ROADWAY C TED IN THE DRIVER'S TRAV RN INTO A DRIVEWAY.	AN
NOTE: Available sight distan clearing of vegetation along the property frontage.	8.0% ces include	ine	DISTANCE REQUESTABLE	

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.



Appendix I

Off-Site Intersection Turn Lane Warrants



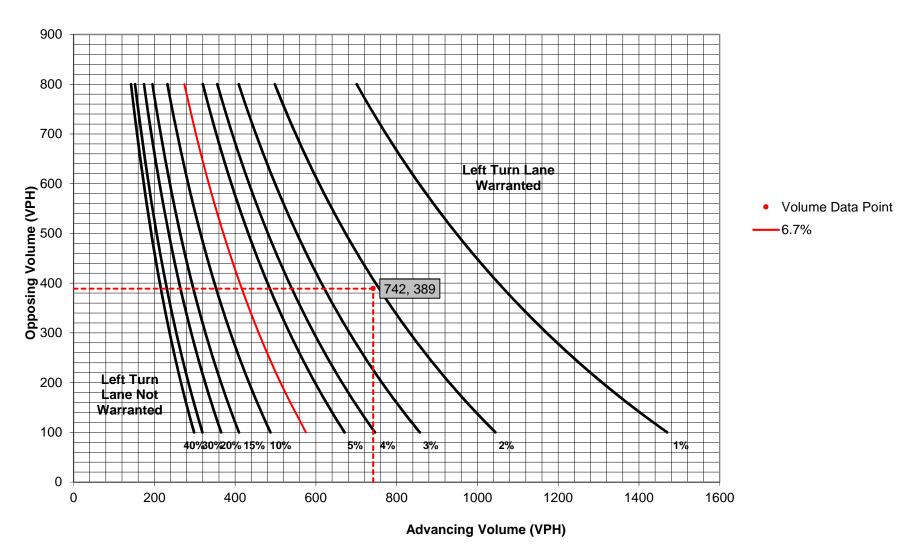
Street Road (S.R. 0926) and New Street

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Left-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 48 2.0% 50 742 **Advancing Volume:** Advancing Through 648 4.0% 687 389 **Opposing Volume:** 0.0% 5 Right Yes 5 **Left Turn Volume:** 50 Left Yes 8 0.0% 8 Opposing Through 310 7.0% 343 Right Yes 36 3.0% 38 6.74% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** N/A Warrant Met?: N/A Yes Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet **Condition C:** 150 Feet 150 Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



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Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

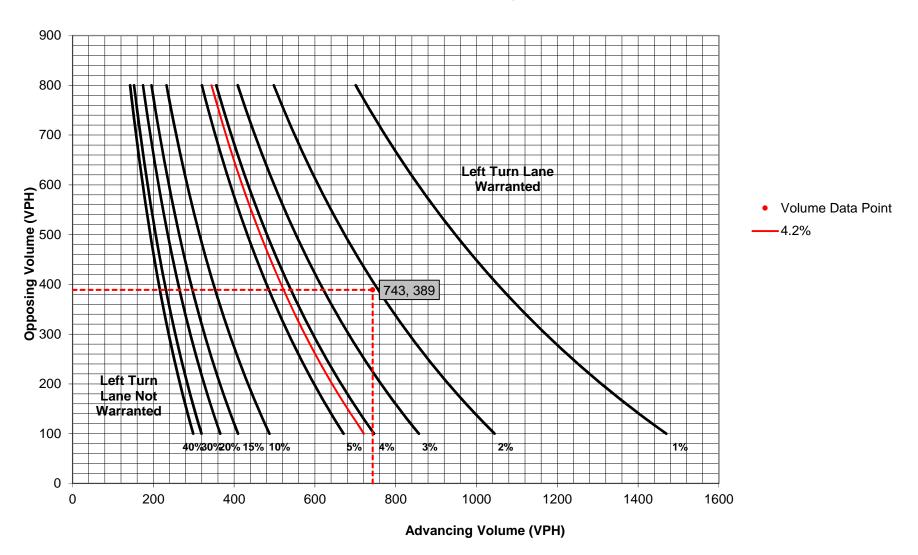


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Left-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 30 2.0% 31 743 **Advancing Volume:** Advancing Through 659 4.0% 699 389 **Opposing Volume:** 0.0% 13 Right Yes 13 **Left Turn Volume:** 31 Left Yes 19 0.0% 19 Opposing Through 305 7.0% 338 Right Yes 30 3.0% 32 4.17% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** N/A Warrant Met?: N/A Yes Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 31 Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet **Condition C:** 150 Feet 150 Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

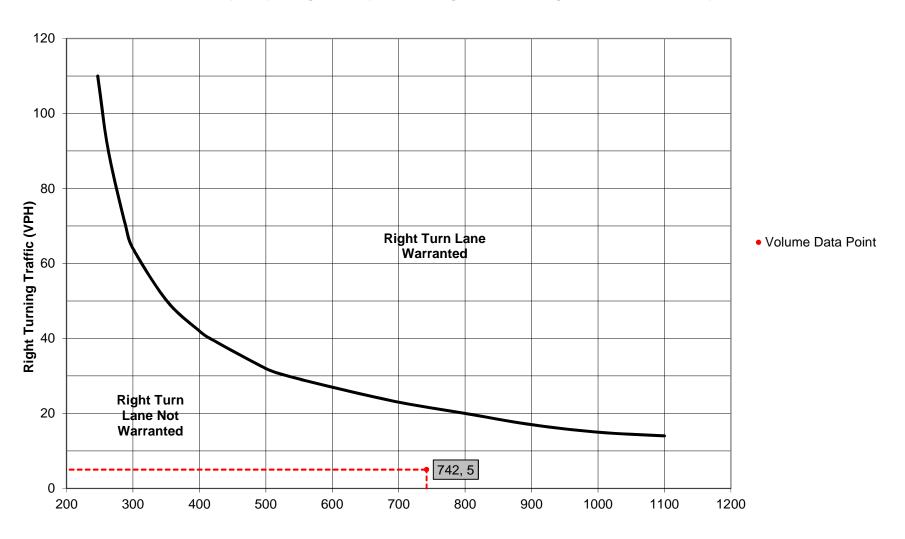


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV 50 Left Yes 48 2.0% Advancing 648 4.0% 687 **Advancing Volume:** 742 Through Right 0.0% **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



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Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



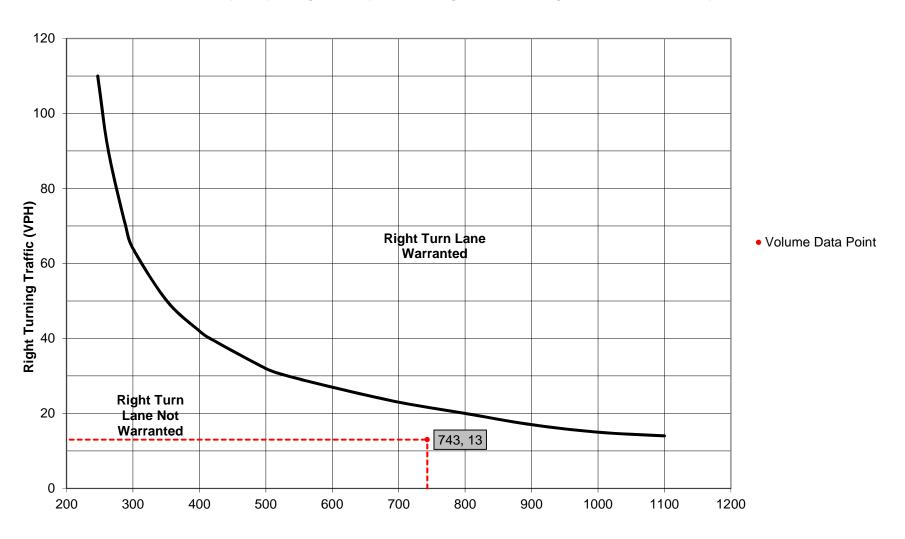
Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes 30 2.0% 31 Advancing 659 4.0% 699 **Advancing Volume:** 743 Through Right 13 0.0% 13 **Right Turn Volume:** 13 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 13 Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



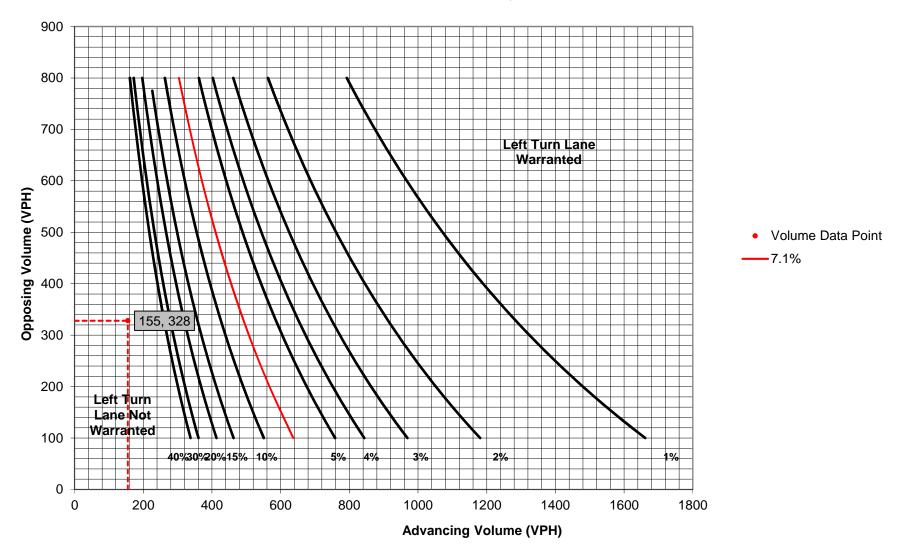
Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Northbound New Street Left-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided Intersection Control: Signalized Posted Speed Limit (MPH): 25 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 11.0% 11 155 9 **Advancing Volume:** Advancing Through 97 1.0% 99 328 **Opposing Volume:** 41 5.0% 45 Right Yes **Left Turn Volume:** 11 Left Yes 8 13.0% 10 Opposing Through 122 0.0% 122 Right Yes 190 2.0% 196 7.10% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 11 Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

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)

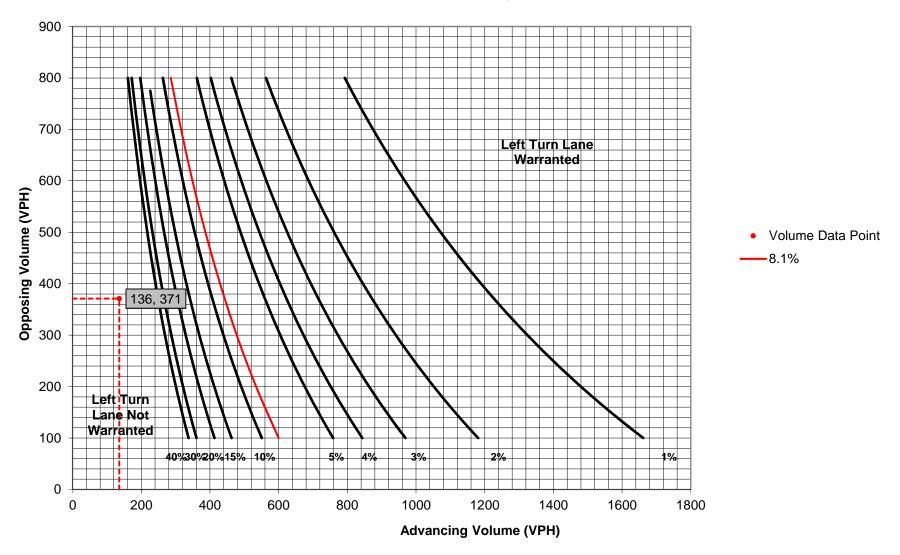


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Northbound New Street Left-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided Intersection Control: Signalized Posted Speed Limit (MPH): 25 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 11.0% 11 136 9 **Advancing Volume:** Advancing Through 83 1.0% 85 371 **Opposing Volume:** 37 5.0% 40 Right Yes **Left Turn Volume:** 11 Left Yes 49 13.0% 59 Opposing Through 164 0.0% 164 Right Yes 143 2.0% 148 8.09% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 11 Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

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)

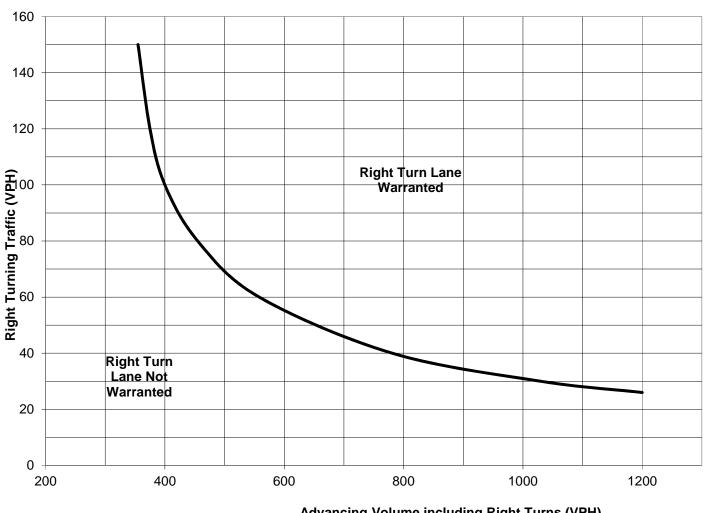


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Northbound New Street Right-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 25 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV 11.0% Left Yes 9 11 1.0% Advancing 97 99 **Advancing Volume:** 155 Through Right 41 5.0% 45 **Right Turn Volume:** 45 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 45 Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Volume Data Point

Advancing Volume including Right Turns (VPH)

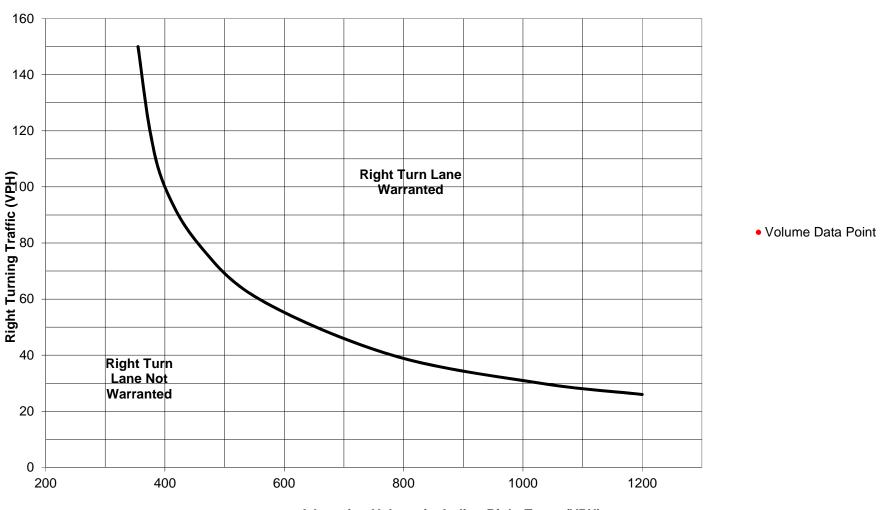
NOTE: The point (155,45) is below the viewport of the graph

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Northbound New Street Right-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 25 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV 9 11.0% Left Yes 11 1.0% Advancing 83 85 **Advancing Volume:** 136 Through Right 37 5.0% 40 **Right Turn Volume:** 40 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Advancing Volume including Right Turns (VPH)

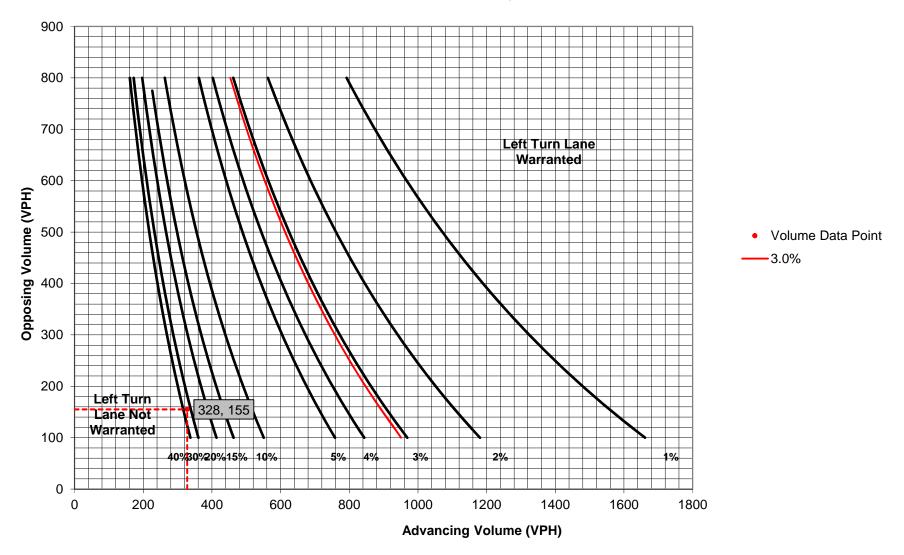
NOTE: The point (136,40) is below the viewport of the graph

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Southbound New Street Left-Turn Lane 2019 Exisitng **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 13.0% 10 328 8 **Advancing Volume:** Advancing Through 122 0.0% 122 155 **Opposing Volume:** 190 2.0% 196 Right Yes **Left Turn Volume:** 10 Left Yes 9 11.0% 11 Opposing Through 97 1.0% 99 Right Yes 41 5.0% 45 3.05% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 10 Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

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)

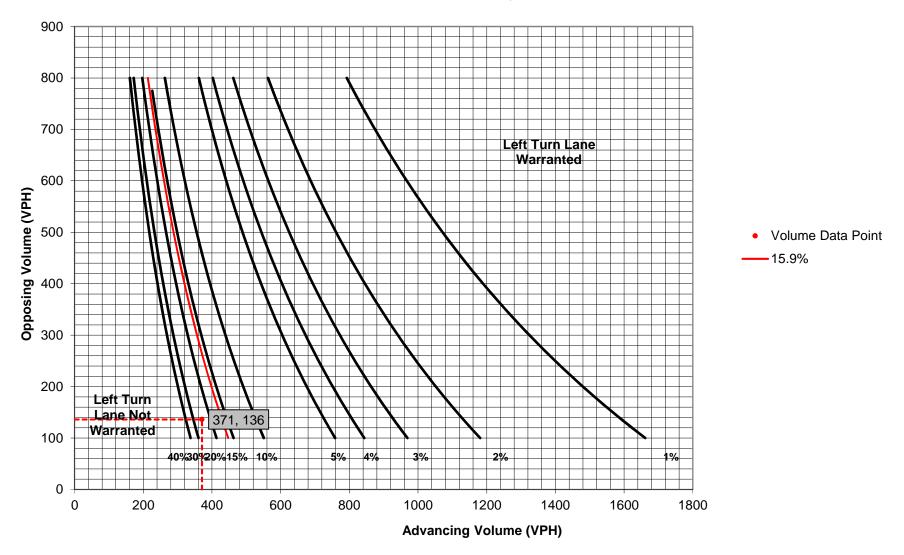


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Southbound New Street Left-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 49 13.0% 59 371 **Advancing Volume:** Advancing Through 164 0.0% 164 136 **Opposing Volume:** 143 2.0% 148 Right Yes **Left Turn Volume:** 59 Left Yes 9 11.0% 11 Opposing Through 83 1.0% 85 Right Yes 37 5.0% 40 15.90% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

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)

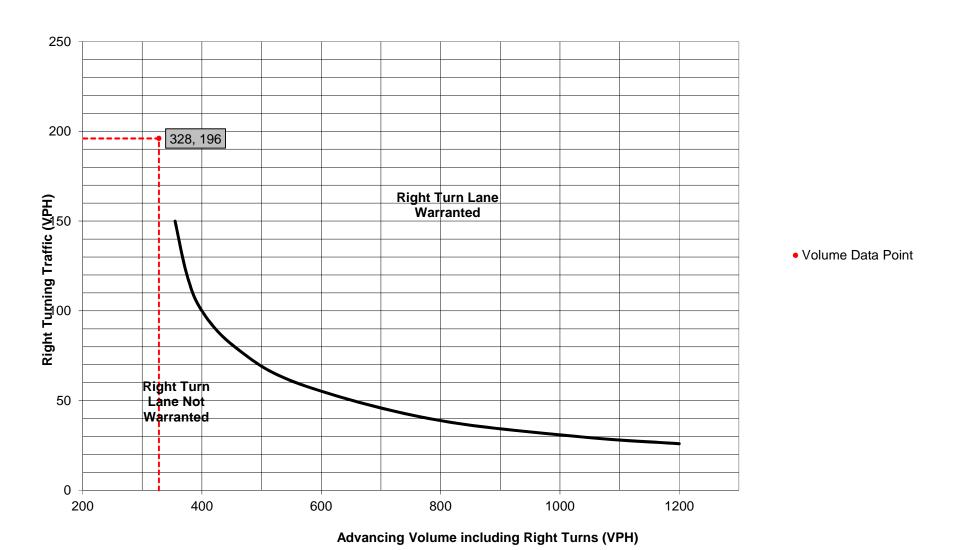


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Southbound New Street Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 13.0% 10 Left Yes 8 Advancing 122 0.0% 122 **Advancing Volume:** 328 Through Right 190 2.0% 196 **Right Turn Volume:** 196 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 196 Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)

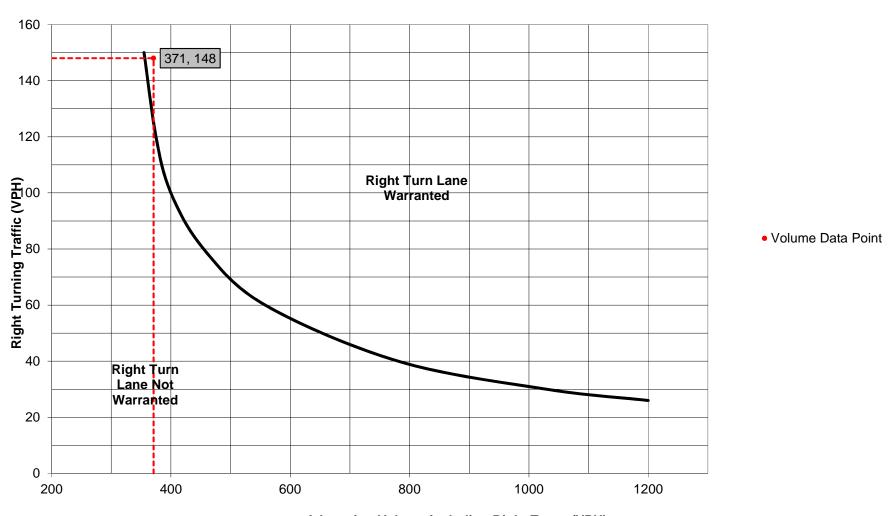


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Southbound New Street Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 13.0% 59 Left Yes Advancing 164 0.0% 164 **Advancing Volume:** 371 Through Right 143 2.0% 148 **Right Turn Volume:** 148 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** 148 Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Low Signalized Α B or C B or C B or C B or C Α Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: 175 Feet N/A Condition B: Feet Condition C: N/A Feet 175 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



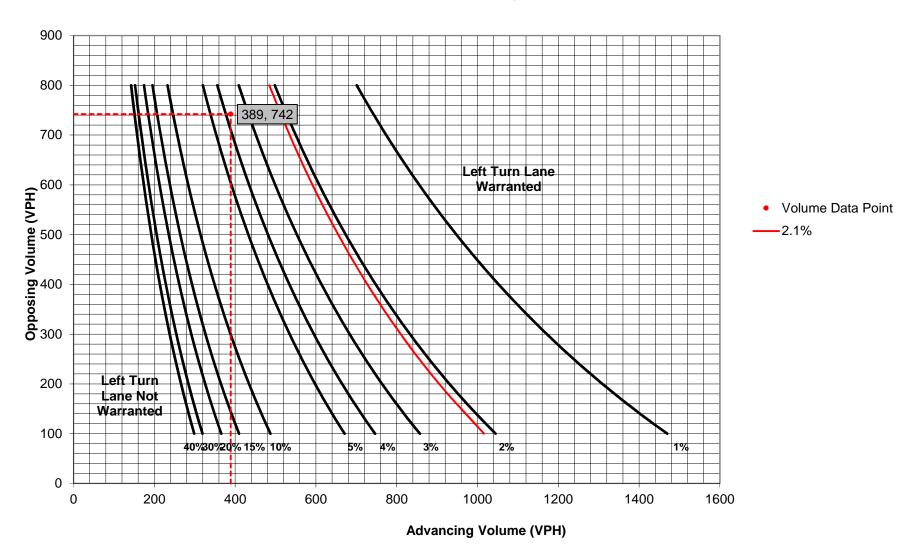
Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Left-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 0.0% 389 8 8 **Advancing Volume:** Advancing Through 310 7.0% 343 742 **Opposing Volume:** 3.0% 38 Right Yes 36 **Left Turn Volume:** 8 Left Yes 48 2.0% 50 Opposing Through 648 4.0% 687 Right Yes 0.0% 2.06% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

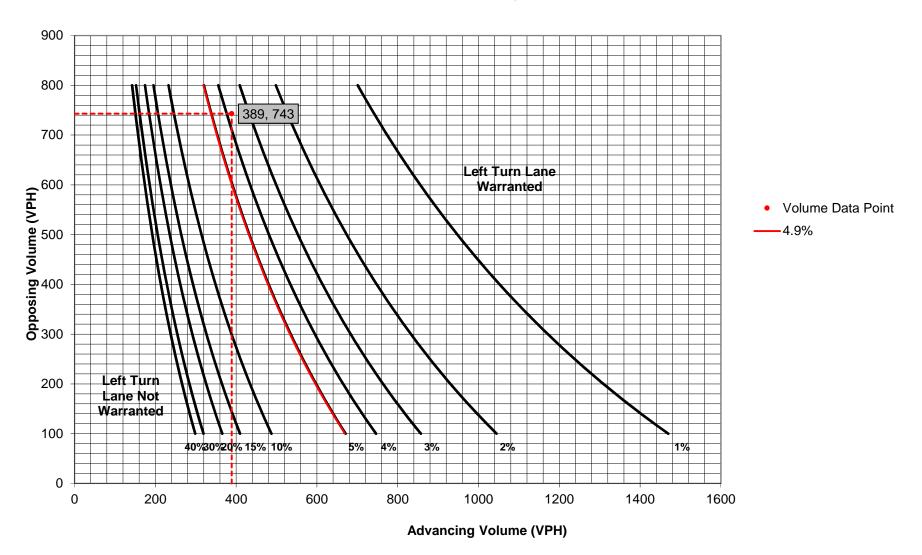


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Left-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 19 0.0% 19 389 **Advancing Volume:** Advancing Through 305 7.0% 338 743 **Opposing Volume:** 3.0% 32 Right Yes 30 **Left Turn Volume:** 19 Left Yes 30 2.0% 31 Opposing Through 659 4.0% 699 Right Yes 13 0.0% 13 4.88% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** N/A Warrant Met?: N/A Yes Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet **Condition C:** 150 Feet 150 Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

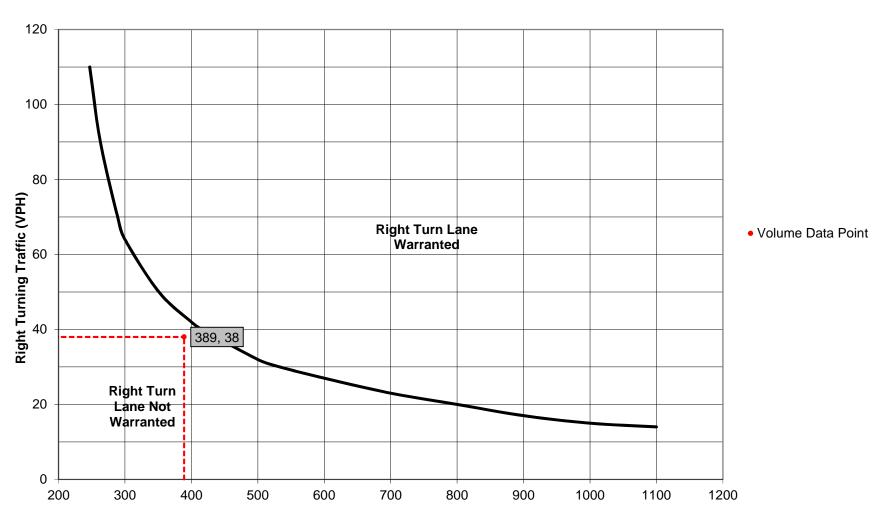


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2019 Exisiting Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV 0.0% Left Yes 8 8 Advancing 310 7.0% 343 **Advancing Volume:** 389 Through Right 36 3.0% 38 **Right Turn Volume:** 38 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday AM

Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



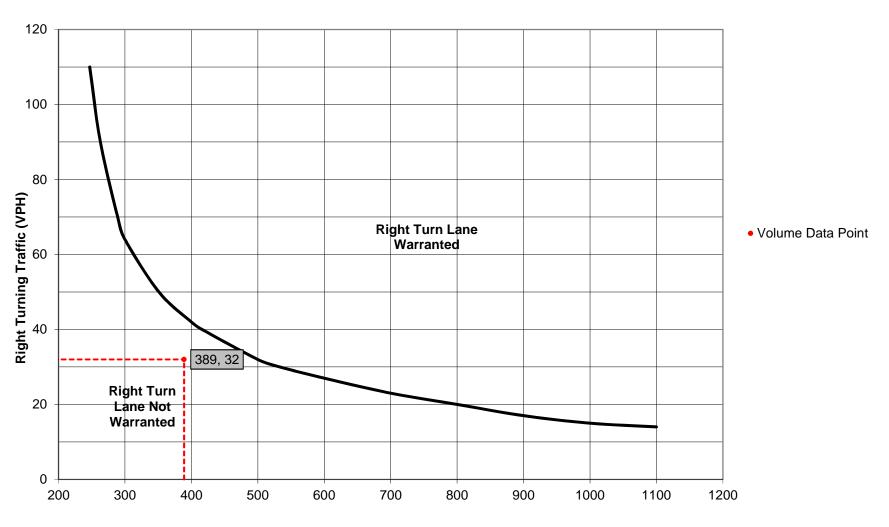
Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 0.0% 19 Left Yes 19 Advancing 305 7.0% 338 **Advancing Volume:** 389 Through Right 30 3.0% 32 **Right Turn Volume:** 32 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/7/2019 Weekday PM

Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



Advancing Volume including Right Turns (VPH)

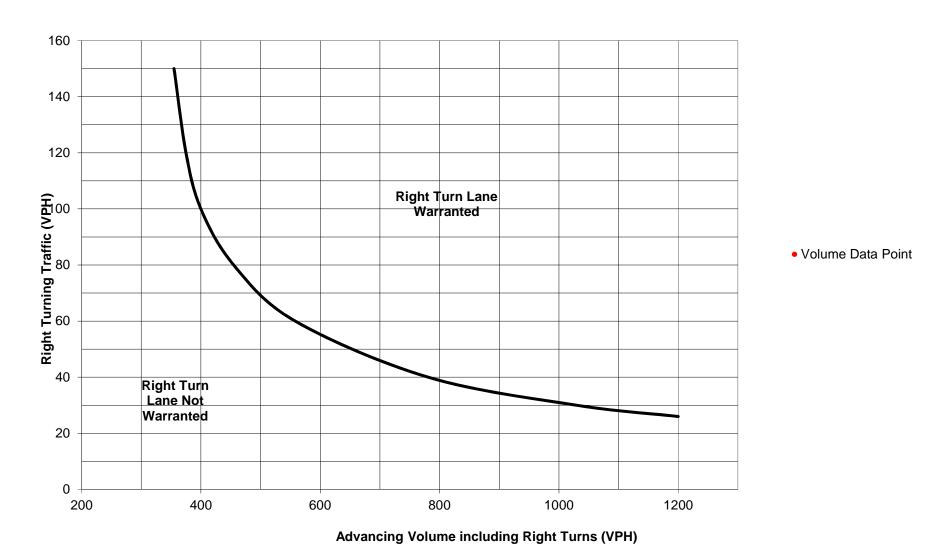
New Street and W. Pleasant Grove Road

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Northbound New Street Right-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes 0 0.0% 0 Advancing 173 2.0% 179 **Advancing Volume:** 185 Through Right 0.0% 6 **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane:** 6 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/6/2019 Weekday AM

Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)

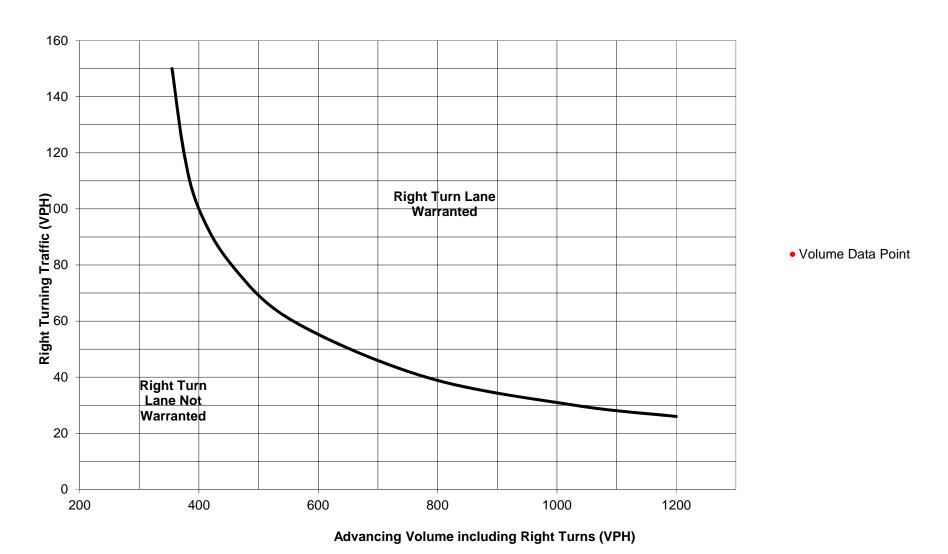


NOTE: The point (185,6) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Northbound New Street Right-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes 0 0.0% 0 Advancing 143 1.0% 146 **Advancing Volume:** 163 Through Right 17 0.0% 17 **Right Turn Volume:** 17 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 17 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



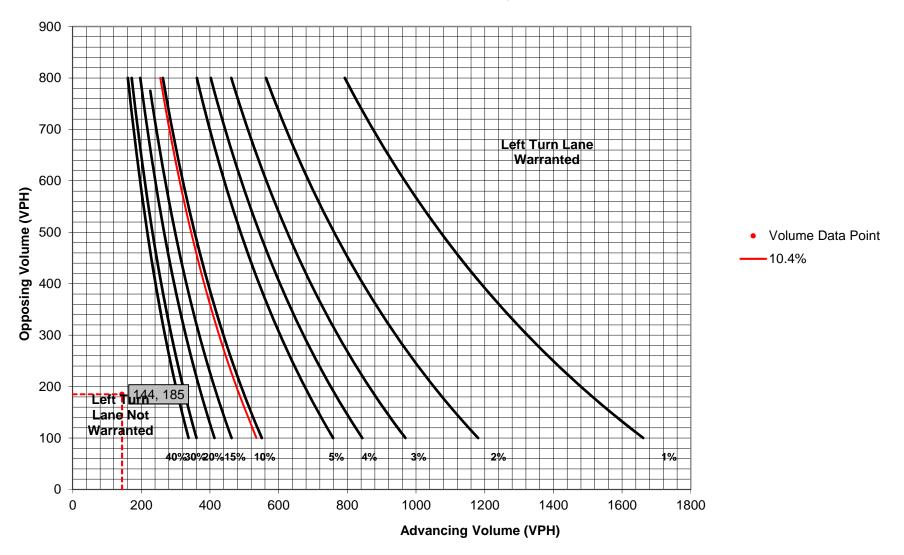
NOTE: The point (163,17) is below the viewport of the graph.

STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Southbound New Street Left-Turn Lane 2019 Exisitng **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 8.0% 15 144 13 **Advancing Volume:** Advancing Through 127 1.0% 129 185 **Opposing Volume:** 0.0% 0 Right Yes 0 **Left Turn Volume:** 15 Left Yes 0 0.0% 0 Opposing Through 173 2.0% 179 Right Yes 0.0% 10.42% 6 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 0 0.0% N/A Advancing 0 0.0% N/A **Advancing Volume:** N/A Through Right 0 0.0% N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane:** 15 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/6/2019 Weekday AM

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)

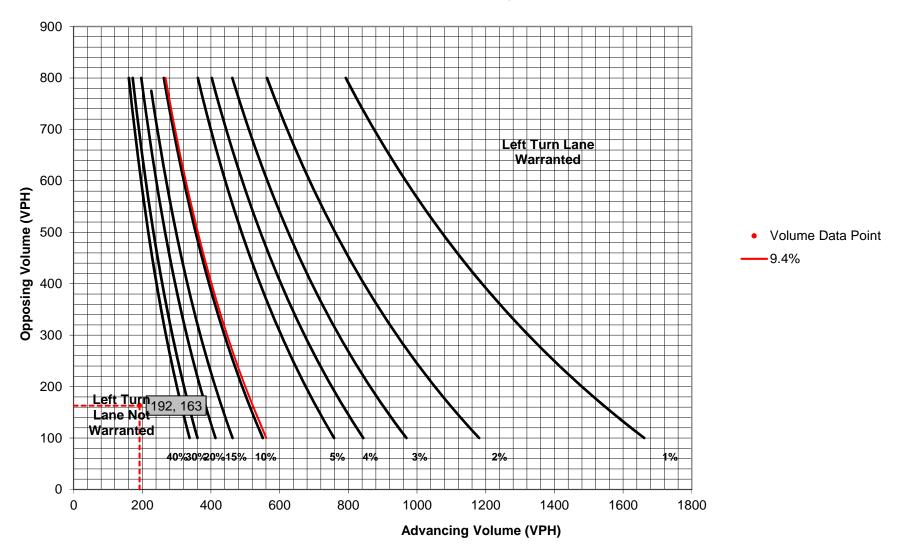


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Southbound New Street Left-Turn Lane 2019 Existing **Analysis Period:** Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 18 0.0% 18 192 **Advancing Volume:** Advancing Through 168 2.0% 174 163 **Opposing Volume:** 0 0.0% 0 Right Yes **Left Turn Volume:** 18 Left Yes 0 0.0% 0 Opposing Through 143 1.0% 146 Right Yes 17 0.0% 17 9.38% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 0 0.0% N/A Advancing 0 0.0% N/A **Advancing Volume:** N/A Through Right 0 0.0% N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane:** 18 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



11/6/2019 Weekday PM

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)

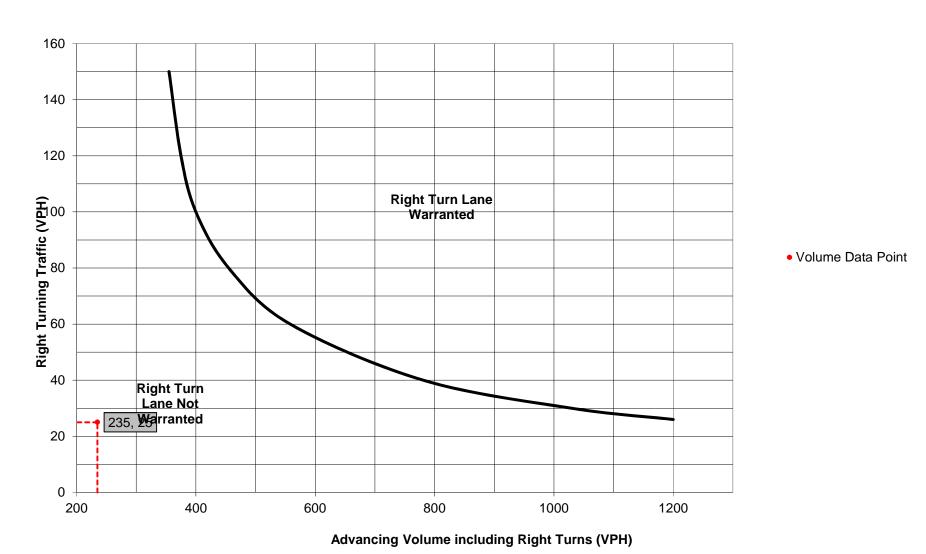


STUDY LOCATION AND ANALYSIS INFORMATION 10/21/219 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2019 Exisiting Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV 210 Left Yes 203 2.0% Advancing 0 0.0% 0 **Advancing Volume:** 235 Through Right 21 12.0% 25 **Right Turn Volume:** 25 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 25 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/6/2019 Weekday AM

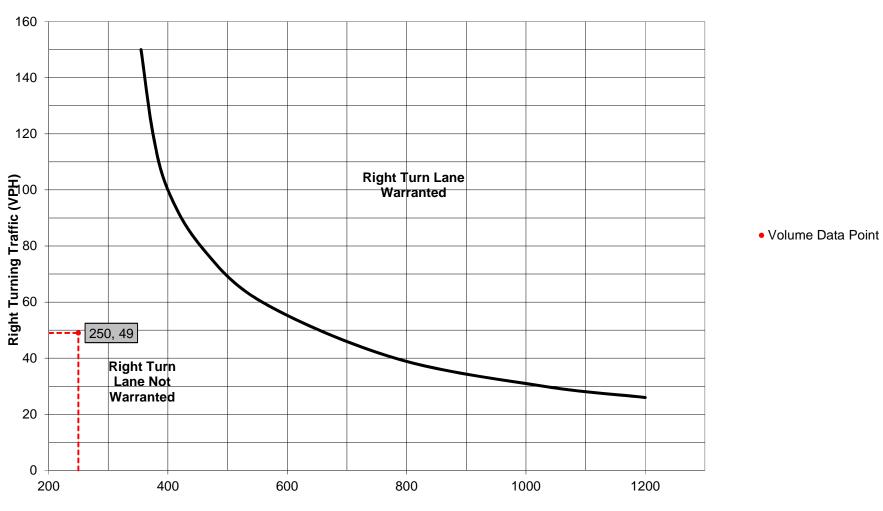
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes 198 1.0% 201 Advancing 0 0.0% 0 **Advancing Volume:** 250 Through Right 47 2.0% 49 **Right Turn Volume:** 49 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 49 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



Advancing Volume including Right Turns (VPH)

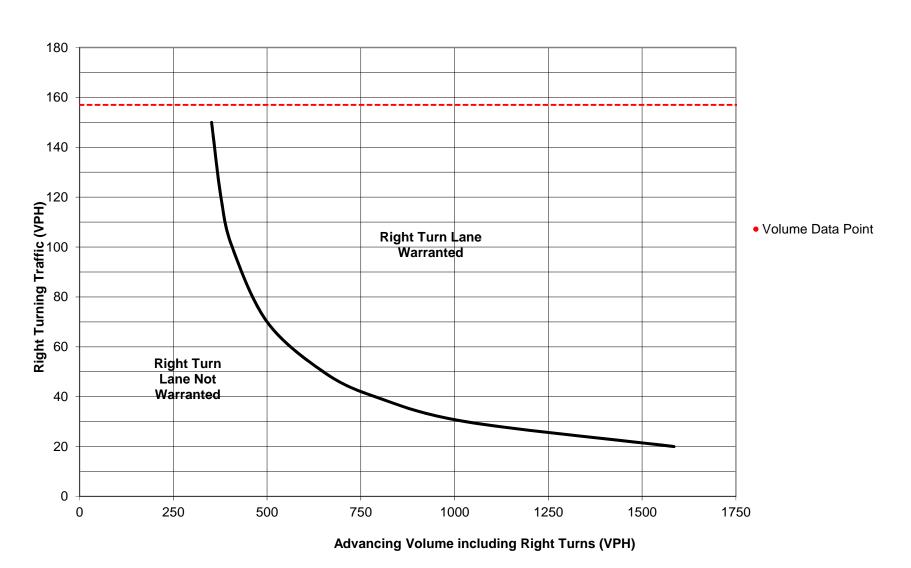
U.S. Route 202 (Wilmington Pike) and W. Pleasant Grove Road

Workbook STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road Southbound U.S. Route 202 Right-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Divided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 37 3.0% N/A Advancing 1753 9.0% 1990 **Advancing Volume:** 2147 Through Right 150 3.0% 157 **Right Turn Volume:** 157 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 12 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 157 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C** 225 Feet 225 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



11/6/2019 Weekday AM

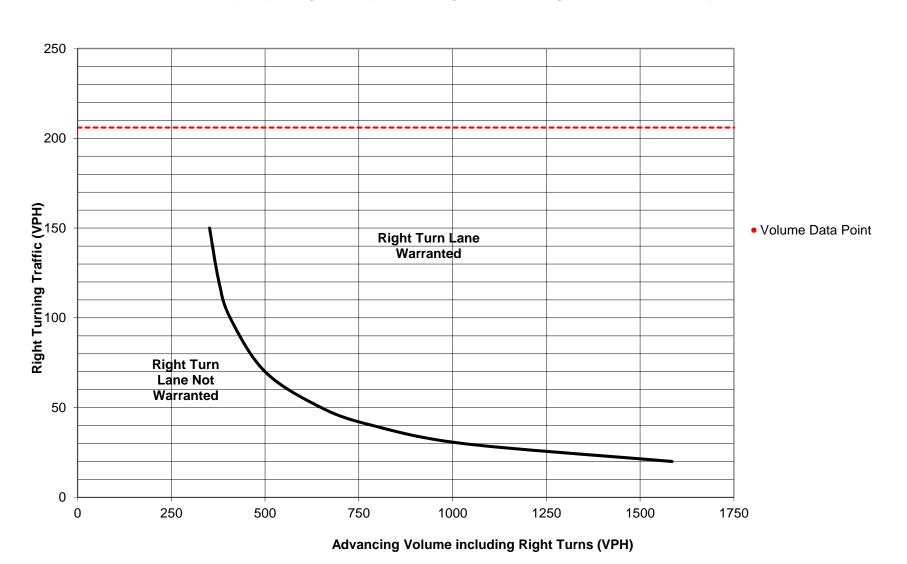
Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



STUDY LOCATION AND ANALYSIS INFORMATION 10/21/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road Southbound U.S. Route 202 Right-Turn Lane 2019 Existing Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Divided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 89 0.0% N/A Advancing 1701 3.0% 1778 **Advancing Volume:** 1984 Through Right 202 1.0% 206 **Right Turn Volume:** 206 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 12 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 206 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C** 225 Feet 225 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)





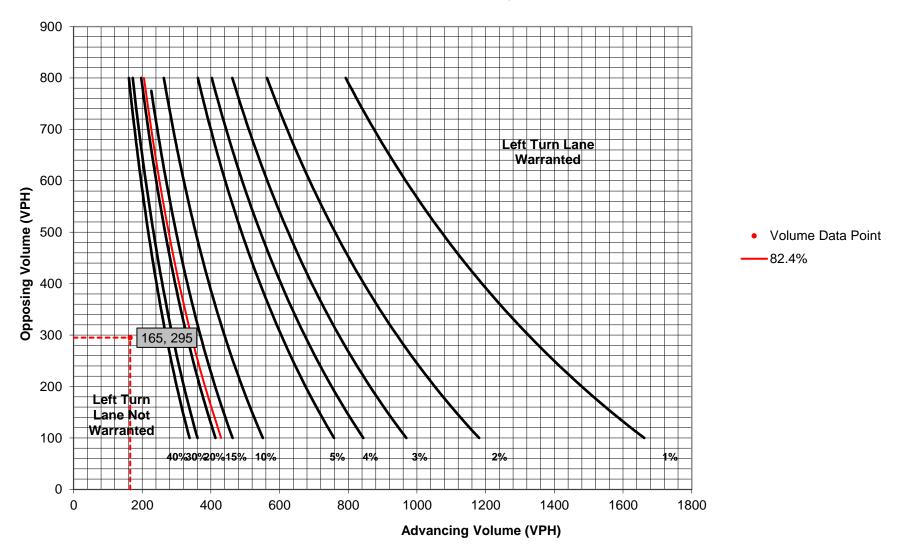


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 1/9/2020 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: West Pleasant Grove Road and Orvis Way Eastbound West Pleasant Grove Left-Turn Lane **Analysis Period:** 2030 Build **Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Level Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Volume % Trucks PCEV Movement Left 134 2.0% 136 165 Yes **Advancing Volume:** 0.0% Through 29 29 295 Advancing **Opposing Volume** 0 Right Yes **Left Turn Volume:** 136 Left Yes 0 Opposing Through 262 3.0% 266 Right Yes 28 2.0% 82.42% 29 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks Yes N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized Intersection Control: **Design Hour Volume of Turning Lane** 136 Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



1/9/2020 EBL AM

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)

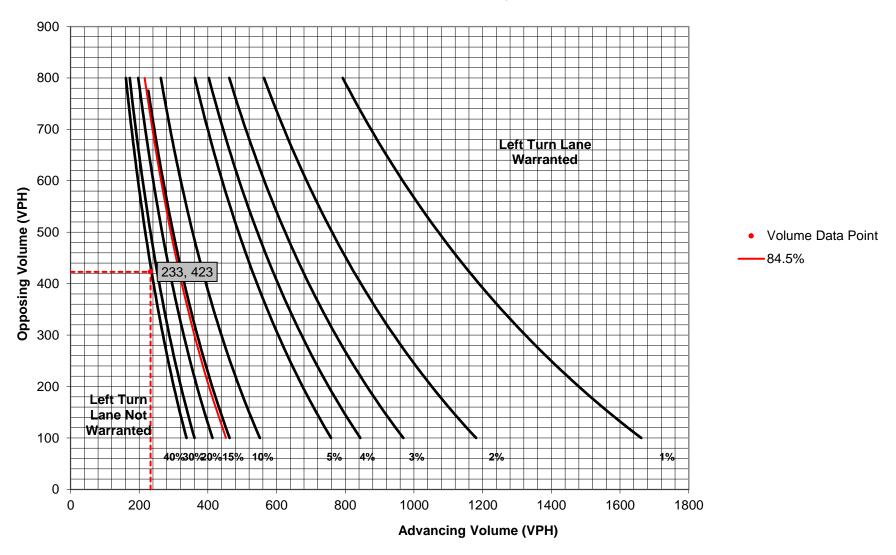


STUDY LOCATION AND ANALYSIS INFORMATION Westtown Township 1/9/2020 Municipality: **Analysis Date: Chester County** Conducted By: BGG County PennDOT Engineering District: Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: West Pleasant Grove Road and Orvis Way Eastbound West Pleasant Grove Left-Turn Lane **Analysis Period:** 2030 Build **Number of Approach Lanes:** AM Peak Hour **Undivided or Divided Highway** Undivided Design Hour Intersection Control: Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Level Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Volume % Trucks PCEV Movement Left 2.0% 197 233 Yes 195 **Advancing Volume:** 0.0% Through 36 36 423 Advancing **Opposing Volume** Right Yes 0 **Left Turn Volume:** 197 Left Yes 0 Opposing Through 399 1.0% 401 84.55% Right Yes 21 2.0% 22 % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Include? Volume **PCEV** Movement % Trucks Yes N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings** N/A **Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** Warrant Met?: No Warrant Met?: N/A **TURN LANE LENGTH CALCULATIONS** Unsignalized Intersection Control: **Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 N/A Cycles Per Hour (If Known): Average # of Vehicles/Cycle: PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 50-60 40-45 Type of Traffic Control **Turn Demand Volume** High Low High High Signalized B or C B or C B or C B or C Unsignalized B or C В N/A Left Turn Lane Storage Length, Condition A: Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Left Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



1/9/2020 EBL PM

Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

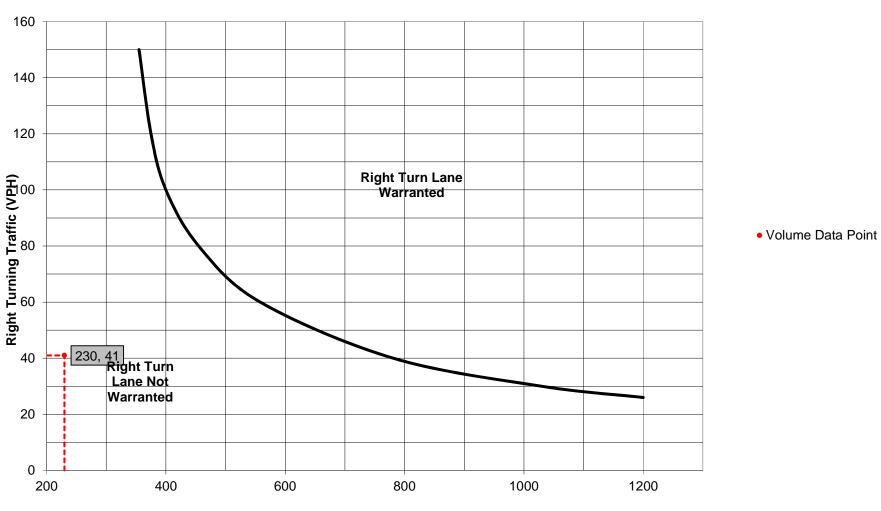


New Street and W. Pleasant Grove Road

STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Northbound New Street Right-Turn Lane 2030 with Dev **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes 0 0.0% 0 Advancing 183 2.0% 189 **Advancing Volume:** 230 Through Right 41 0.0% 41 **Right Turn Volume:** 41 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)

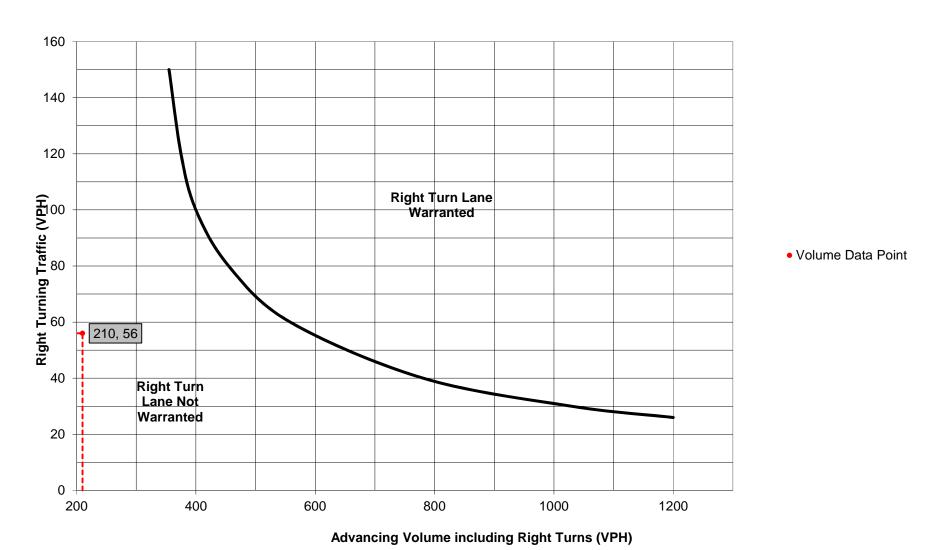


Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Northbound New Street Right-Turn Lane 2030 with Dev Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks PCEV Left Yes 0 0.0% 0 Advancing 151 1.0% 154 **Advancing Volume:** 210 Through Right 56 0.0% 56 **Right Turn Volume:** 56 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 56 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



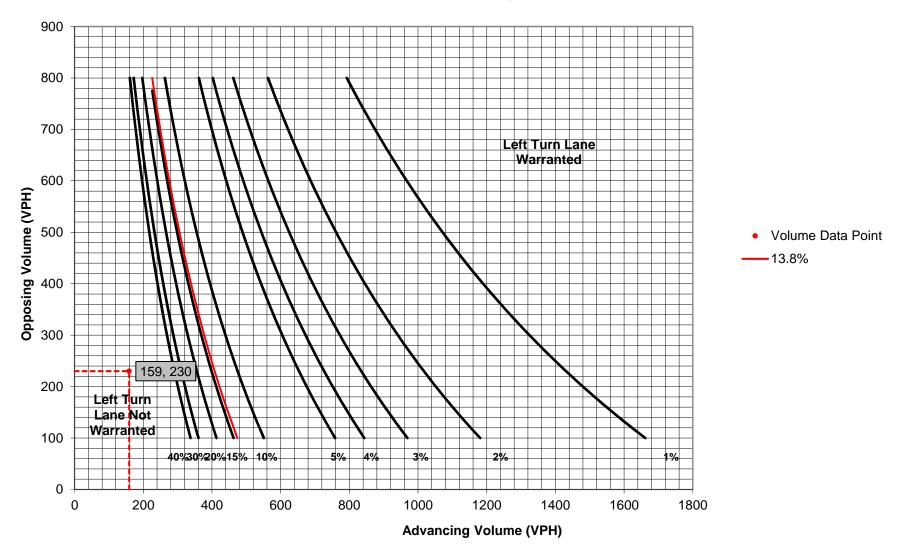
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Southbound New Street Left-Turn Lane 2030 with Dev **Analysis Period:** Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 19 8.0% 22 159 **Advancing Volume:** Advancing Through 134 1.0% 137 230 **Opposing Volume:** 0.0% 0 Right Yes 0 **Left Turn Volume:** 22 Left Yes 0 0.0% 0 Opposing Through 183 2.0% 189 Right Yes 41 0.0% 41 13.84% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 0 0.0% N/A Advancing 0 0.0% N/A **Advancing Volume:** N/A Through Right 0 0.0% N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



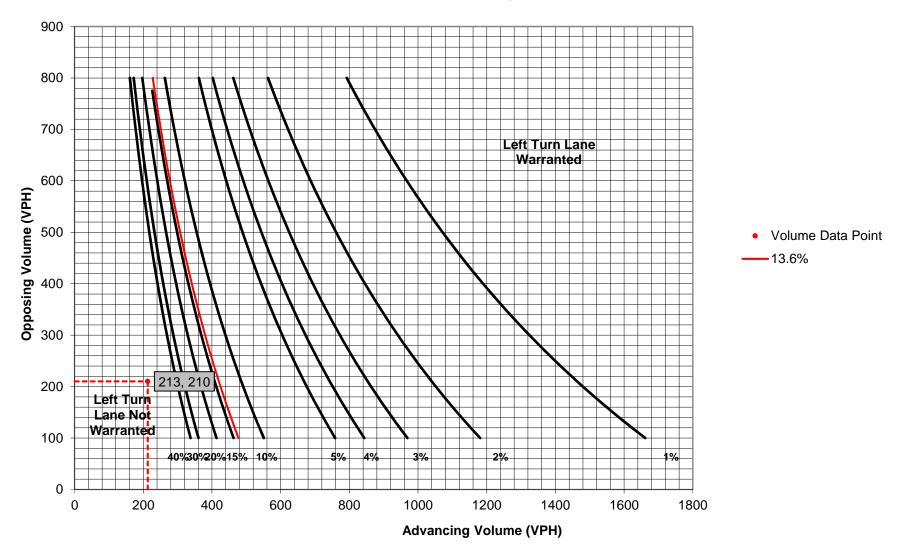
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Southbound New Street Left-Turn Lane 2030 with Dev **Analysis Period:** Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 29 0.0% 29 213 **Advancing Volume:** Advancing Through 178 2.0% 184 210 **Opposing Volume:** 0.0% 0 29 Right Yes 0 **Left Turn Volume:** Left Yes 0 0.0% 0 Opposing Through 151 1.0% 154 Right Yes 56 0.0% 56 13.62% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 0 0.0% N/A Advancing 0 0.0% N/A **Advancing Volume:** N/A Through Right 0 0.0% N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 1 **Applicable Warrant Figure:** N/A Warrant Met?: N/A No Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet **Condition C:** N/A Feet N/A Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



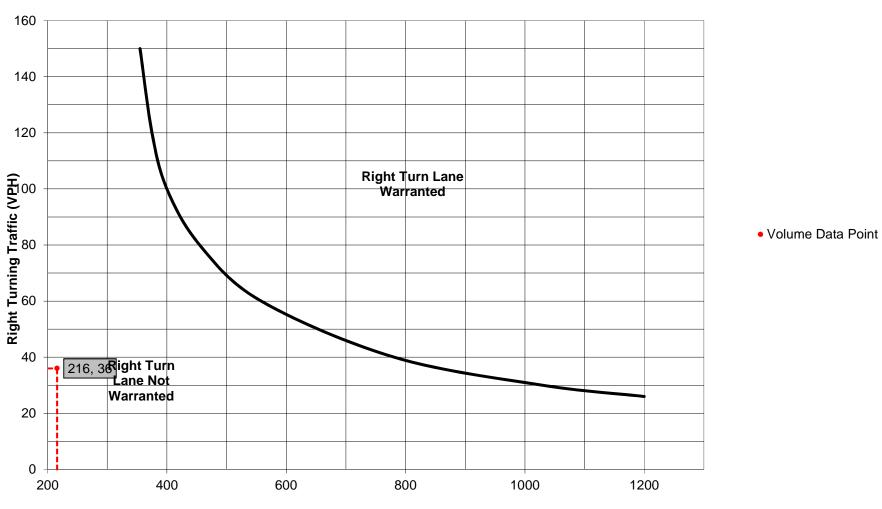
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2030 ith Dev Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 180 Left Yes 174 2.0% Advancing 0 0.0% 0 **Advancing Volume:** 216 Through Right 30 12.0% 36 **Right Turn Volume:** 36 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 36 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)

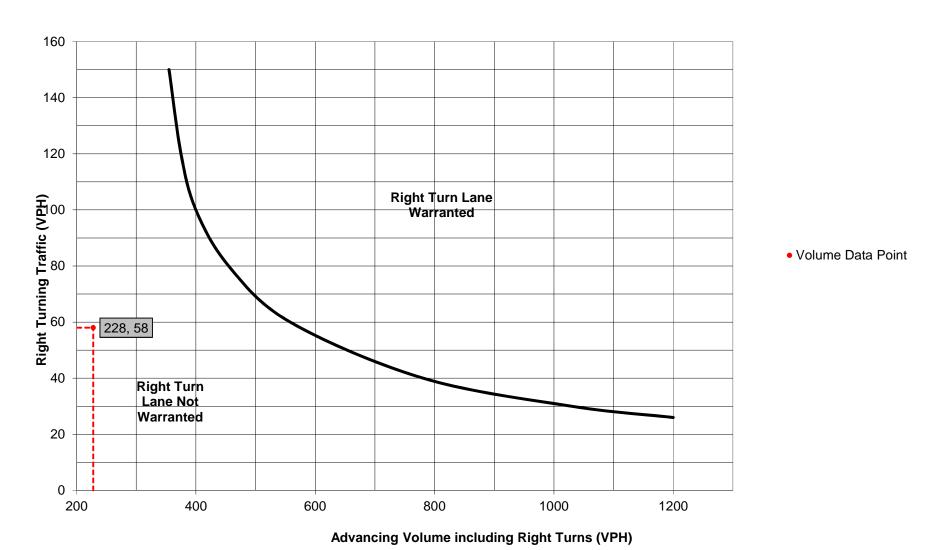


Advancing Volume including Right Turns (VPH)

STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County County: Conducted By: BGG **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: New Street and West Pleasant Grove Road Westbound Street Road (S.R. 0926) Right-Turn Lane 2030 with Dev Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 35 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 170 Left Yes 167 1.0% Advancing 0 0.0% 0 **Advancing Volume:** 228 Through Right 56 2.0% 58 **Right Turn Volume:** 58 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 9 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)

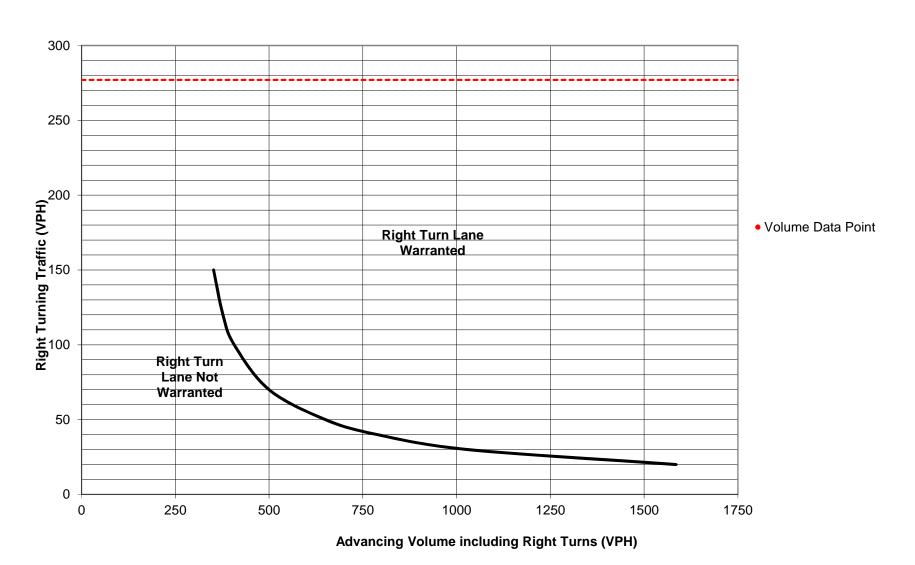


U.S. Route 202 (Wilmington Pike) and W. Pleasant Grove Road

Workbook STUDY LOCATION AND ANALYSIS INFORMATION 11/5/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road Southbound U.S. Route 202 Right-Turn Lane 2030 with Dev Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Divided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 54 3.0% N/A Advancing 1778 9.0% 2019 **Advancing Volume:** 2296 Through Right 265 3.0% 277 **Right Turn Volume:** 277 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 12 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 277 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: 275 Feet 275 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



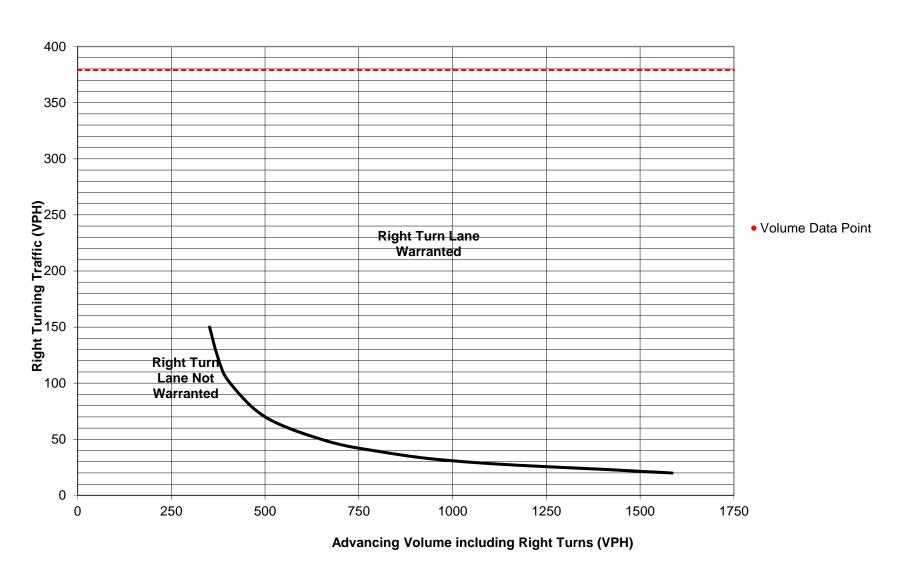
Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



STUDY LOCATION AND ANALYSIS INFORMATION 11/5/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: U.S. Route 202 and West Pleasant Grove Road Southbound U.S. Route 202 Right-Turn Lane 2030 with Dev Number of Approach Lanes: **Analysis Period: Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Divided **Intersection Control:** Unsignalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume **PCEV** % Trucks Left Yes 0.0% N/A N/A 0 **Advancing Volume:** Advancing Through 0 0.0% N/A N/A **Opposing Volume:** 0 0.0% N/A N/A Right Yes **Left Turn Volume:** Left Yes 0 0.0% N/A Opposing Through 0 0.0% N/A Right Yes O 0.0% N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No 110 0.0% N/A Advancing 1506 3.0% 1574 **Advancing Volume:** 1953 Through Right 373 1.0% 379 **Right Turn Volume:** 379 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 12 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Unsignalized **Intersection Control: Design Hour Volume of Turning Lane** 379 Cycles Per Hour (Assumed): 60 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: 325 Feet 325 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 12. Warrant for right turn lanes on four-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



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

STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Left-Turn Lane 2030 with Dev Number of Approach Lanes: **Analysis Period: Design Hour:** AM Peak Hour **Undivided or Divided Highway** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Left Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume PCEV % Trucks Left Yes 84 2.0% 87 795 **Advancing Volume:** Advancing Through 663 4.0% 703 487 **Opposing Volume:** 0.0% 5 Right Yes 5 **Left Turn Volume:** 87 Left Yes 12 0.0% 12 Opposing Through 393 7.0% 435 Right Yes 38 3.0% 40 10.94% % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left No N/A Advancing N/A **Advancing Volume:** N/A Through Right N/A **Right Turn Volume:** N/A **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** Figure 3 **Applicable Warrant Figure:** N/A Warrant Met?: N/A Yes Warrant Met?: **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Left Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet **Condition C:** 175 Feet 175 Feet Required Left Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)

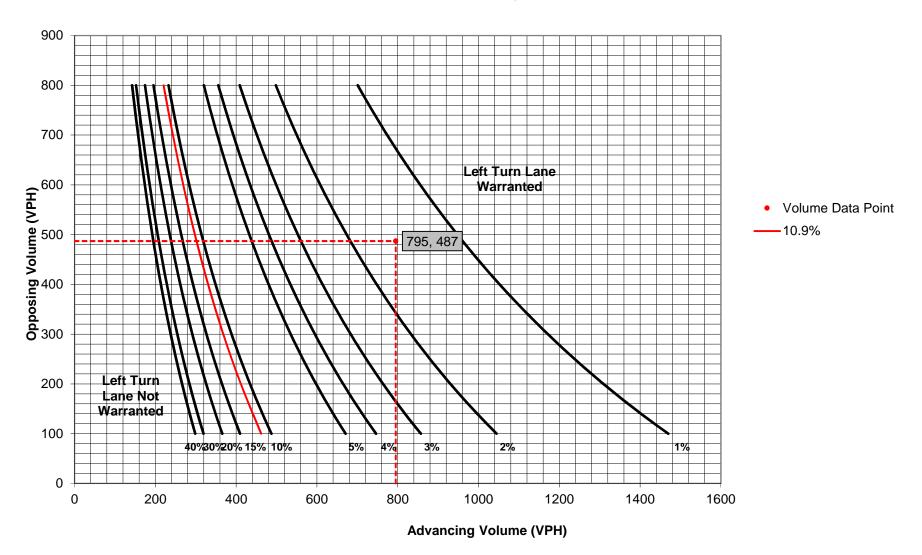
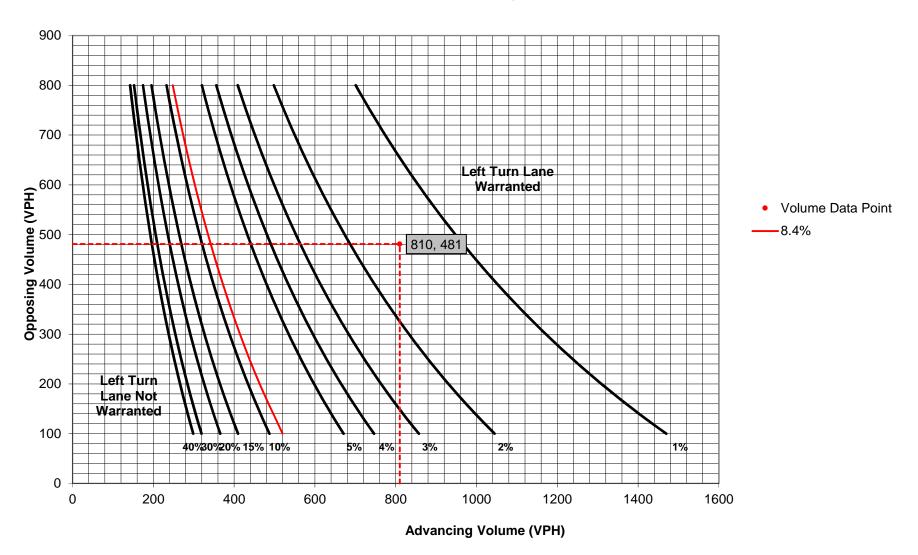


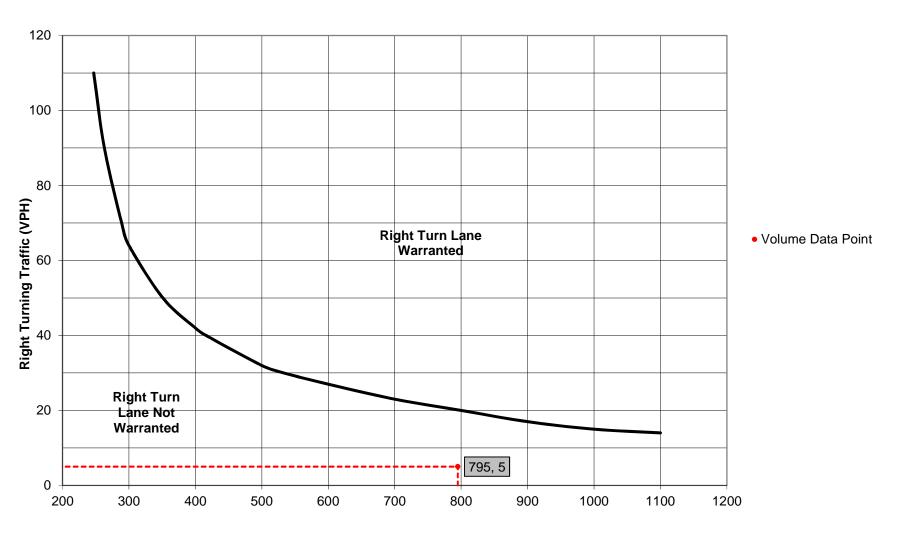
Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Eastbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2030 with Dev Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Include? Movement Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes 84 2.0% 87 Advancing 663 4.0% 703 **Advancing Volume:** 795 Through Right 0.0% 5 **Right Turn Volume: TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: No **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High High Low Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet N/A Condition B: Feet Condition C: N/A Feet N/A Feet Required Right Turn Lane Storage Length: **Additional Findings: Additional Comments / Justifications:**



Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)

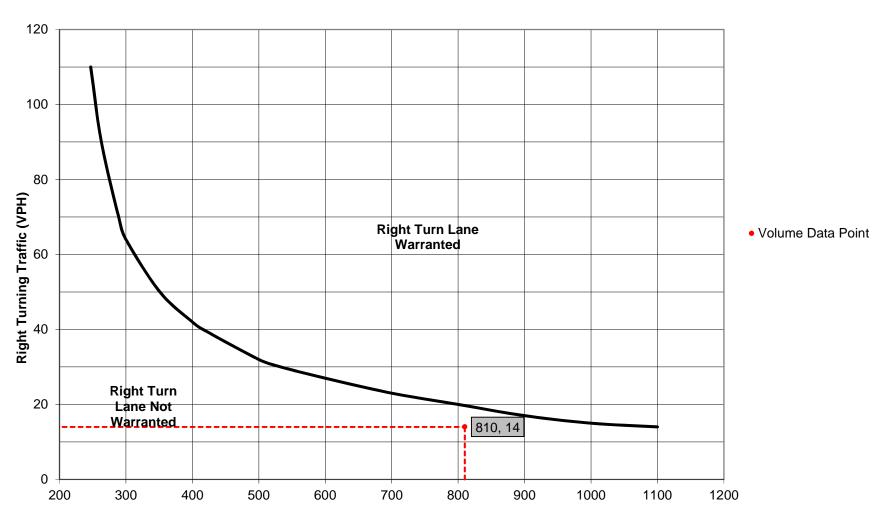


Advancing Volume including Right Turns (VPH)

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Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)

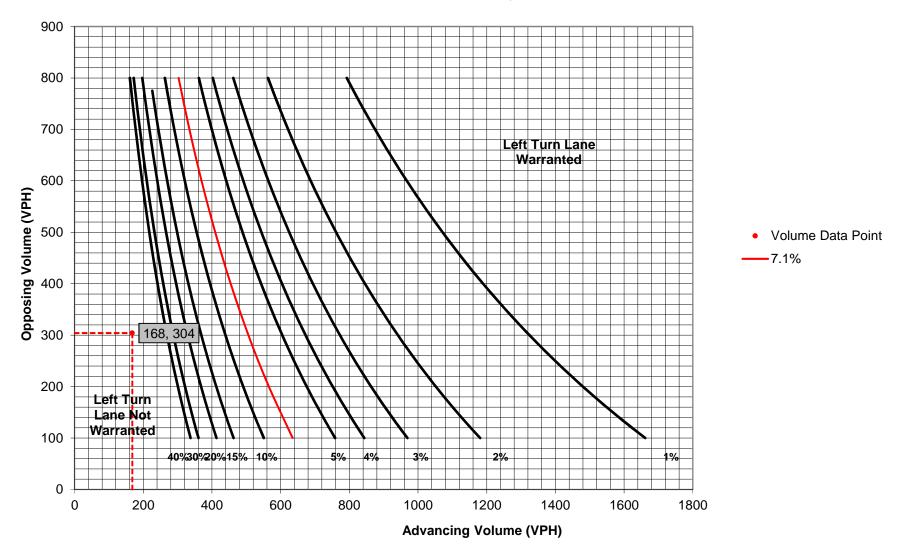


Advancing Volume including Right Turns (VPH)

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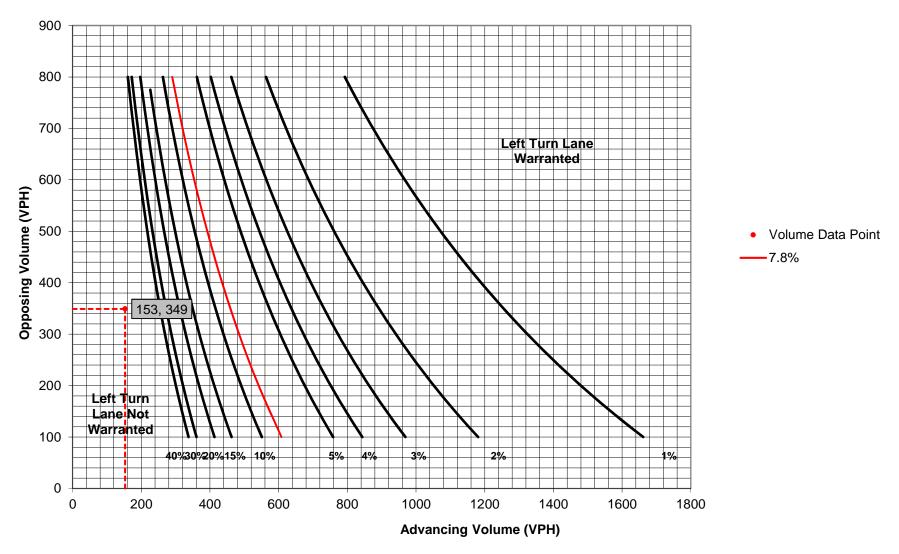
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



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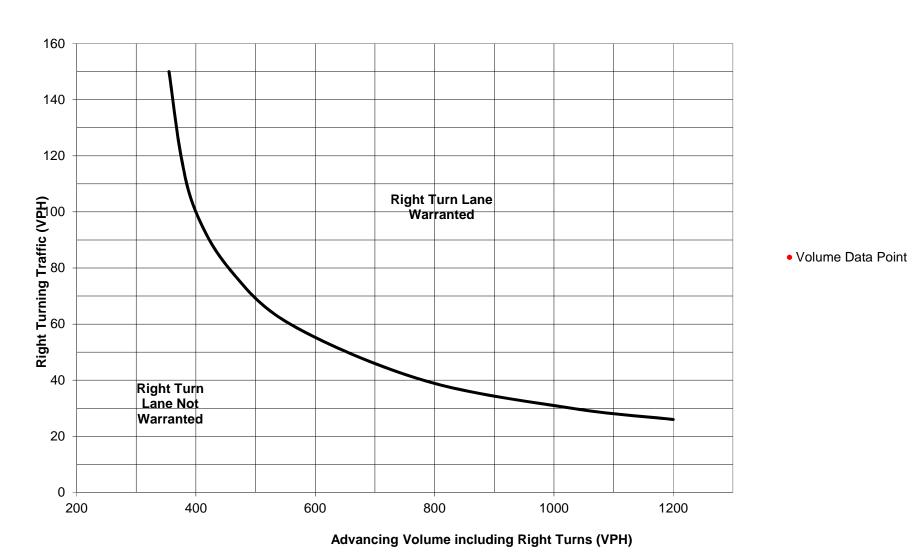
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



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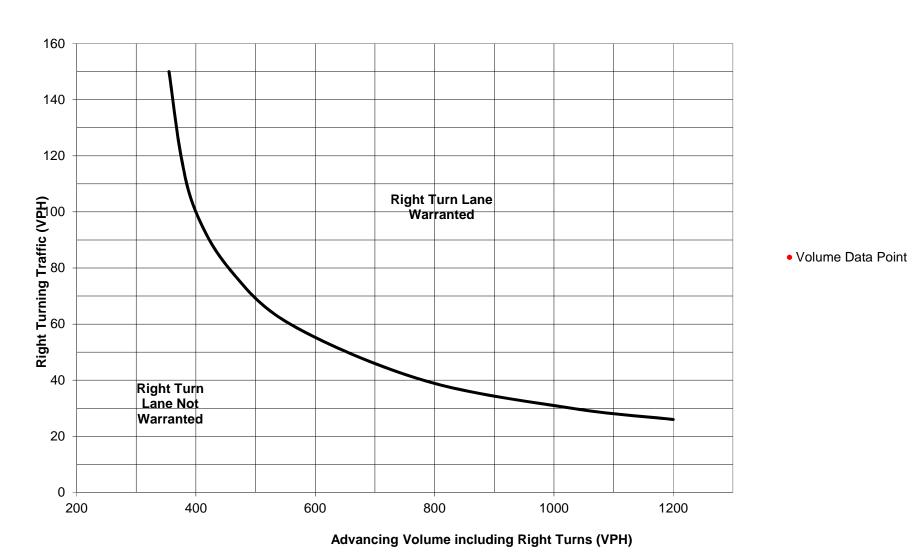
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



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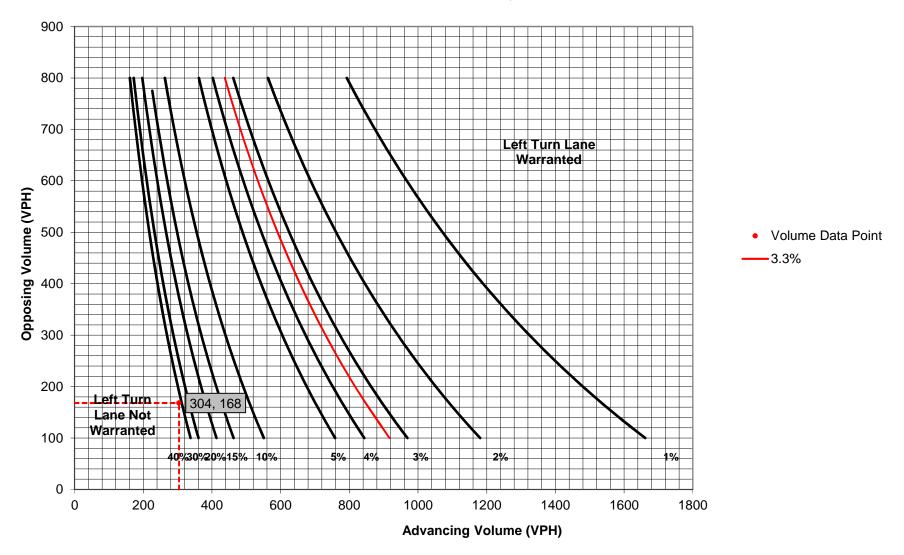
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



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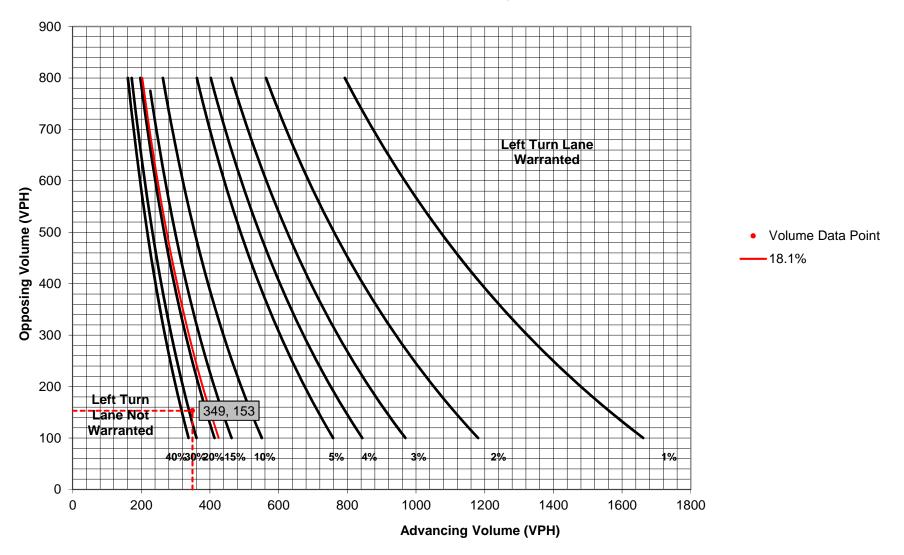
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



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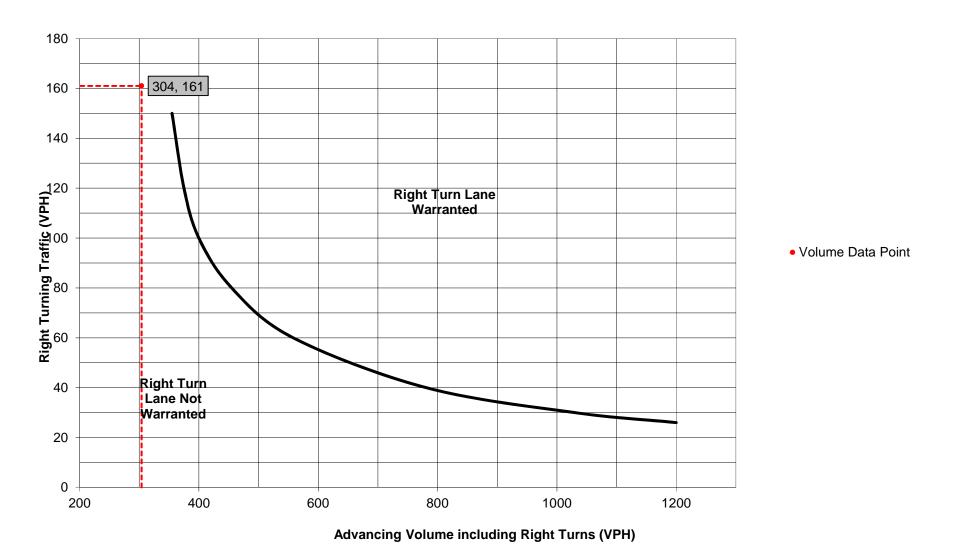
Figure 1. Warrant for left turn lanes on two-lane roadways (speeds to 35 mph, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



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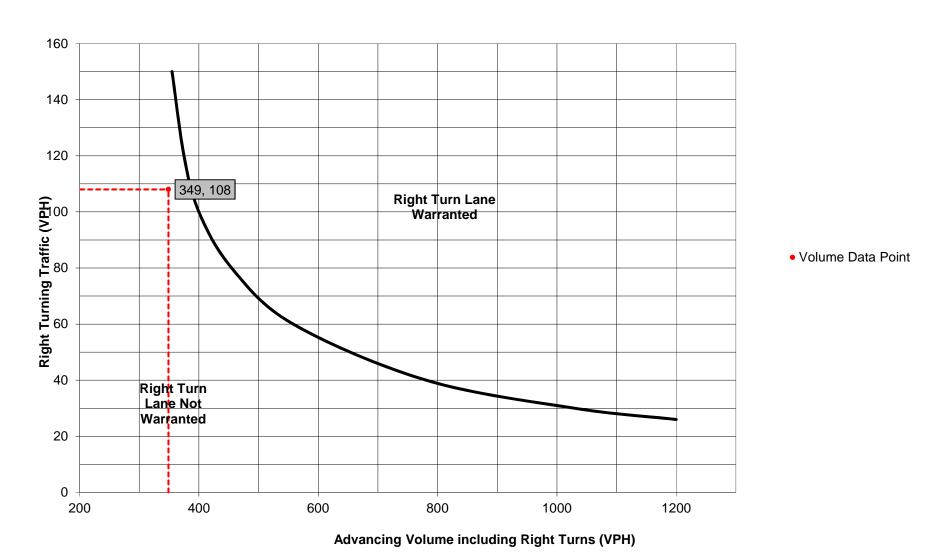
Figure 9. Warrant for right turn lanes on two-lane roadways (40 mph or lower speeds, unsignalized and signalized intersections)



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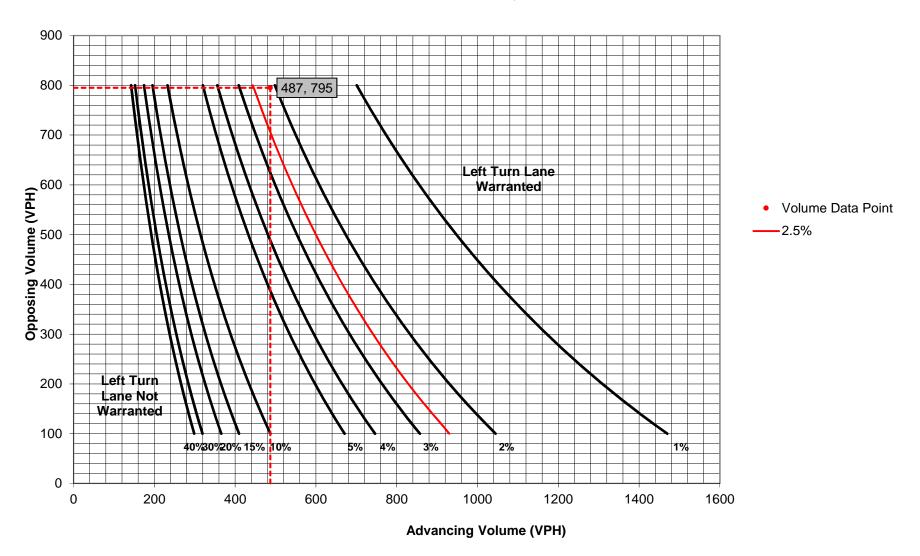
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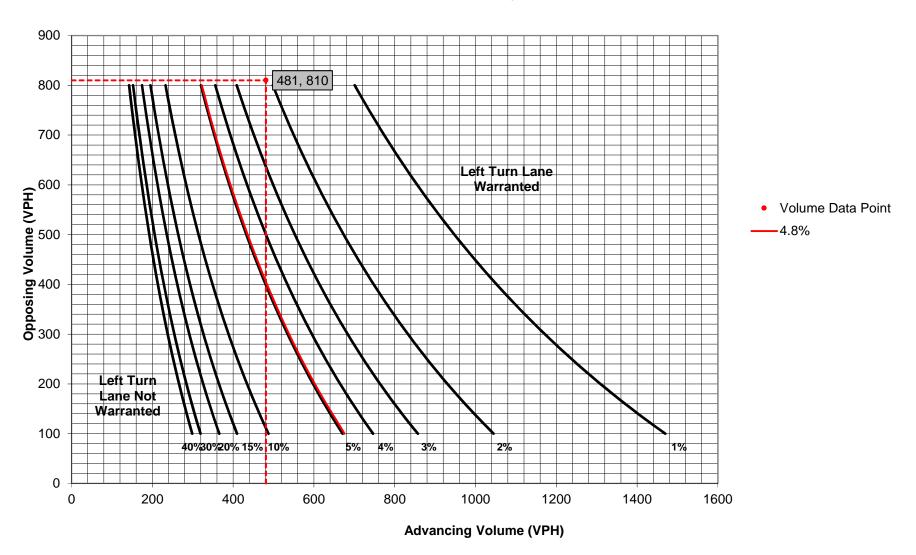
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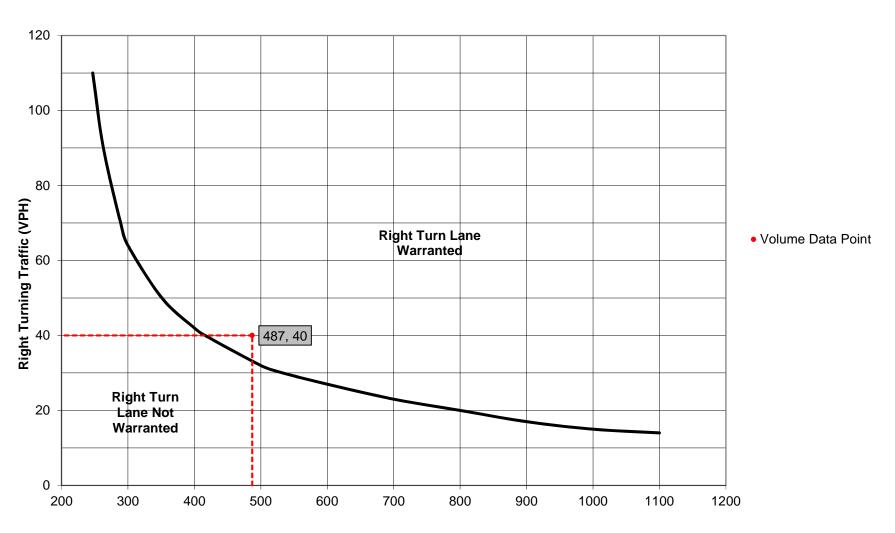
Figure 3. Warrant for left turn lanes on two-lane highways (45 mph speed, unsignalized and signalized intersections)
(L = % Left Turns in Advancing Volume)



STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2030 wth Dev Number of Approach Lanes: **Design Hour:** AM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 0.0% Left Yes 12 12 Advancing 393 7.0% 435 **Advancing Volume:** 487 Through Right 38 3.0% 40 **Right Turn Volume:** 40 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 40 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet Condition C: 150 Feet 150 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)

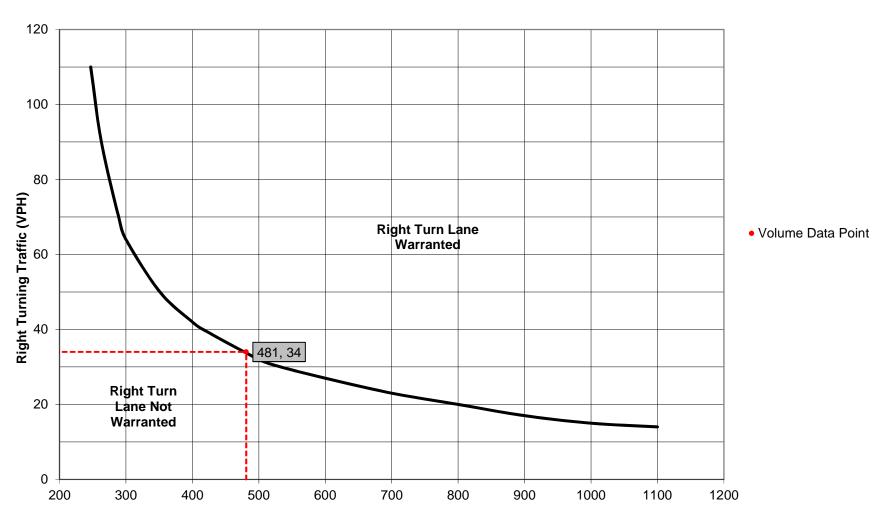


Advancing Volume including Right Turns (VPH)

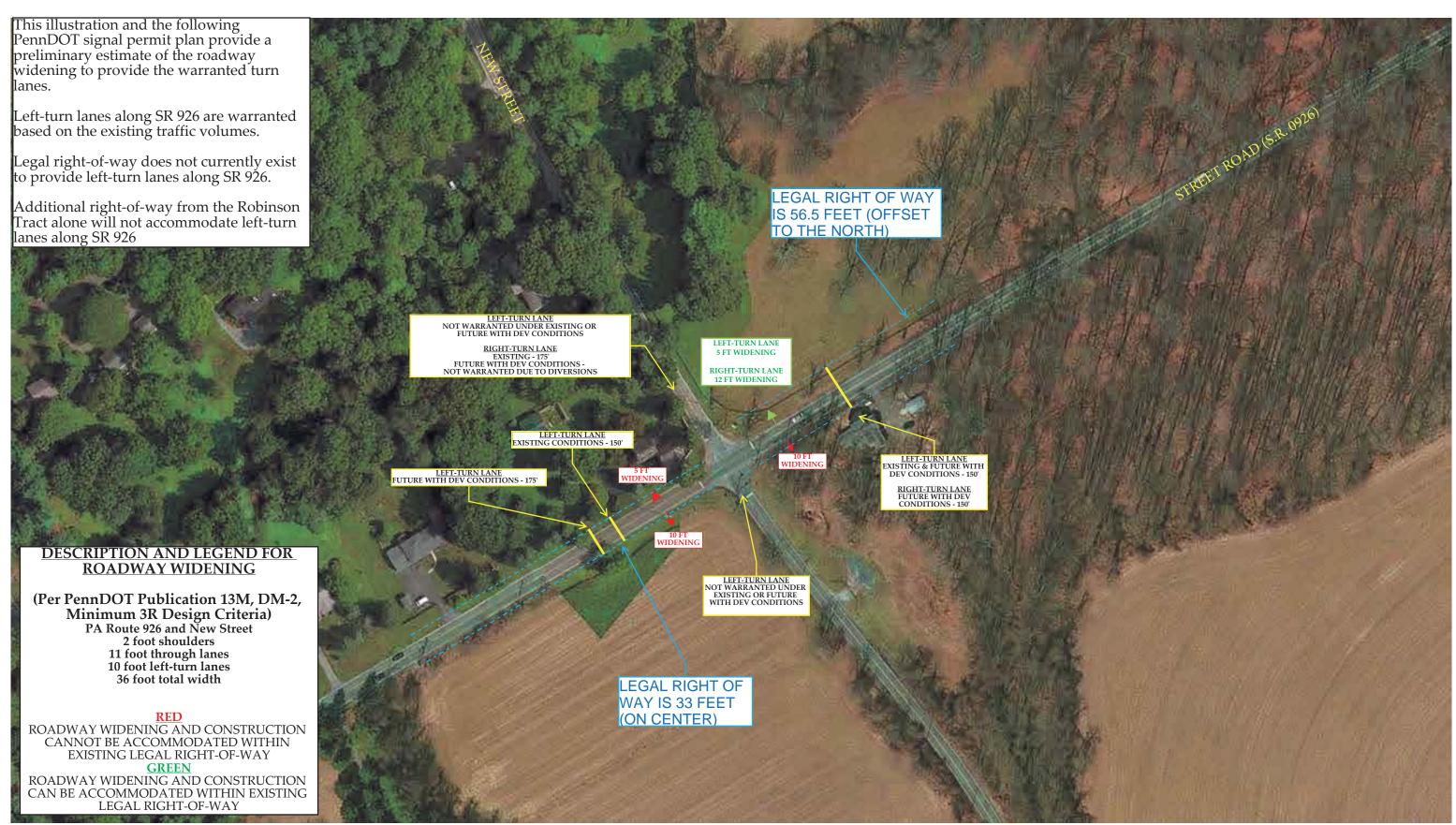
Workbook STUDY LOCATION AND ANALYSIS INFORMATION 10/23/2019 Municipality: Westtown Township **Analysis Date:** Chester County BGG County: Conducted By: **PennDOT Engineering District:** Checked By: JDG Agency/Company Name: McMahon Associates, Inc. Intersection & Approach Description: Street Road (S.R. 0926) and New Street Westbound Street Road (S.R. 0926) Right-Turn Lane **Analysis Period:** 2019 Existing Number of Approach Lanes: **Design Hour:** PM Peak Hour **Undivided or Divided Highway:** Undivided **Intersection Control:** Signalized Posted Speed Limit (MPH): 45 Type of Analysis Type of Terrain: Rolling Left or Right-Turn Lane Analysis?: Right Turn Lane **VOLUME CALCULATIONS Left Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** Left Yes N/A N/A **Advancing Volume:** Advancing Through N/A N/A **Opposing Volume:** N/A N/A Right Yes **Left Turn Volume:** Left Yes N/A Opposing Through N/A Right Yes N/A N/A % Left Turns in Advancing Volume: **Right Turn Lane Volume Calculations** Movement Include? Volume % Trucks **PCEV** 0.0% 23 Left Yes 23 Advancing 383 7.0% 424 **Advancing Volume:** 481 Through Right 32 3.0% 34 **Right Turn Volume:** 34 **TURN LANE WARRANT FINDINGS** Left Turn Lane Warrant Findings **Right Turn Lane Warrant Findings Applicable Warrant Figure:** N/A **Applicable Warrant Figure:** Figure 10 Warrant Met?: N/A Warrant Met?: Yes **TURN LANE LENGTH CALCULATIONS** Signalized **Intersection Control: Design Hour Volume of Turning Lane:** Cycles Per Hour (Assumed): Known 34 Average # of Vehicles/Cycle: Cycles Per Hour (If Known): PennDOT Publication 46, Exhibit 11-6 Speed (MPH) 25-35 40-45 50-60 Type of Traffic Control Turn Demand Volume High Low High Low High Signalized Α Α B or C B or C B or C B or C Unsignalized B or C Α Α В Right Turn Lane Storage Length, Condition A: N/A Feet 125 Condition B: Feet Condition C: 150 Feet 150 Required Right Turn Lane Storage Length: Feet **Additional Findings: Additional Comments / Justifications:**



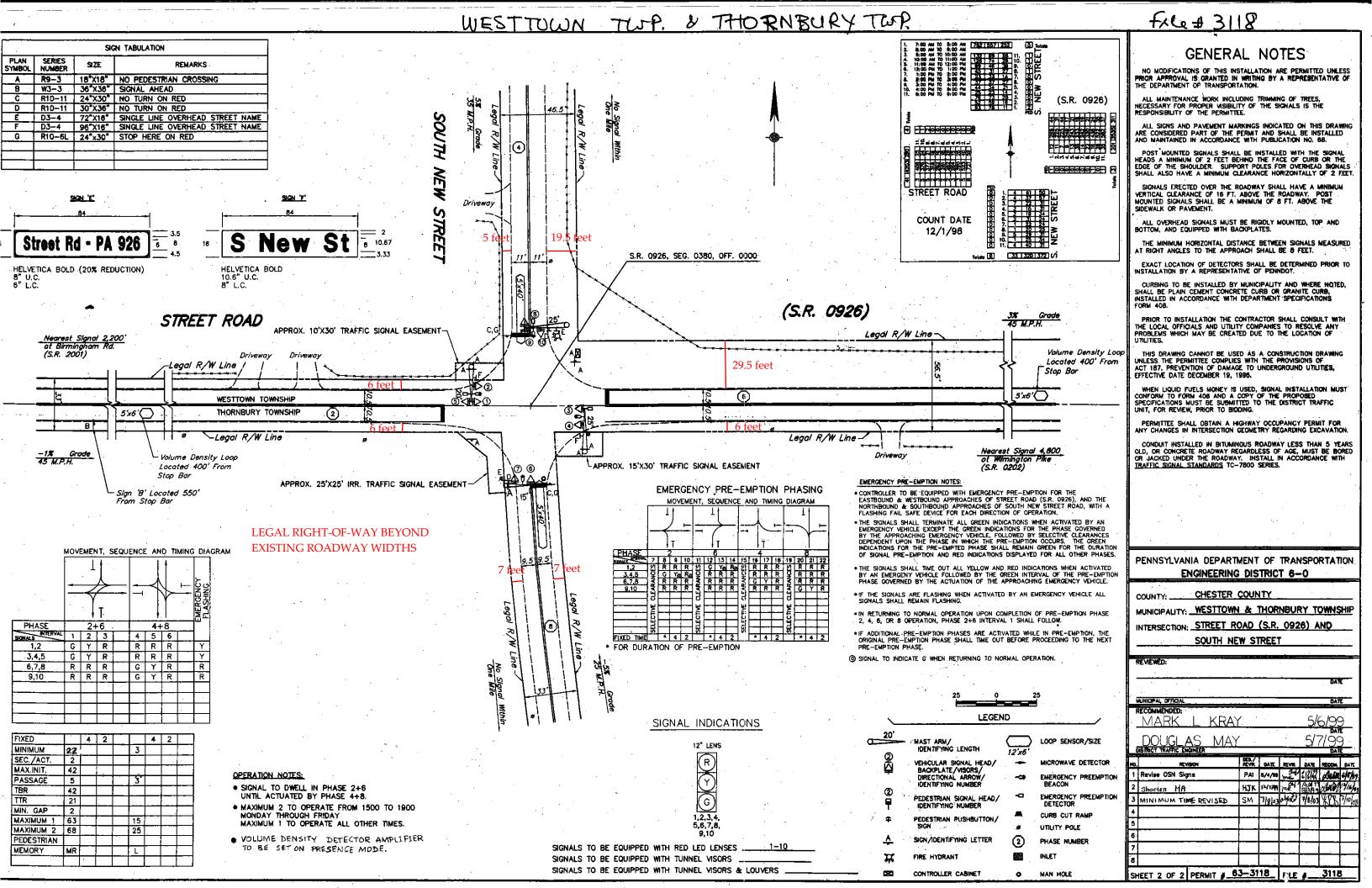
Figure 10. Warrant for right turn lanes on two-lane roadways (45 mph or greater speeds, unsignalized and signalized intersections)



Advancing Volume including Right Turns (VPH)



Preliminary Roadway Widening Impacts for





Appendix J

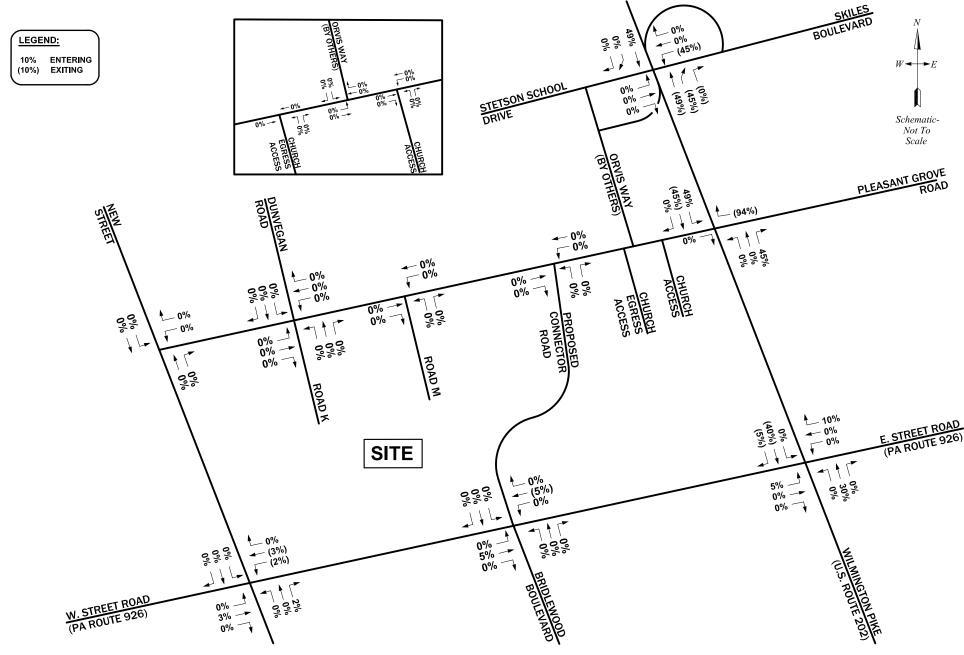
Other Development Trip Generation, Distribution, & Assignment



Project Information					
Project Name:	Robinson Tract Other Development - Malvern School				
McMahon Project No:	816451				
Date:	8/6/2019				
City/Municipality:	Westtown Township				
State:	Pennsylvania				
Client Name:	Toll Brothers, Inc.				
Analyst's Name:	BGG				
ITE Edition:	ITE-TGM 10th Edition				

		Daily	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
Land Use	Size	Total	In	Out	Total	In	Out	Total
565 - Day Care Center		256	31	28	59	28	32	60
Pass-By Trips ⁽¹⁾	5,375 square feet	-87	-14	-12	-26	-12	-14	-26
"New" Trips		169	17	16	33	16	18	34

⁽¹⁾ Pass-by estimated to be 44 percent during the weekday morning and weekday afternoon peak hours and 34 percent (or 10 percent less than the weekday afternoon peak hour) on a daily basis. This pass-by rate is consistent with the data presented in *Trip Generation for Day Care Centers*, provided in the ITE 1990 Compendium of Technical Papers.

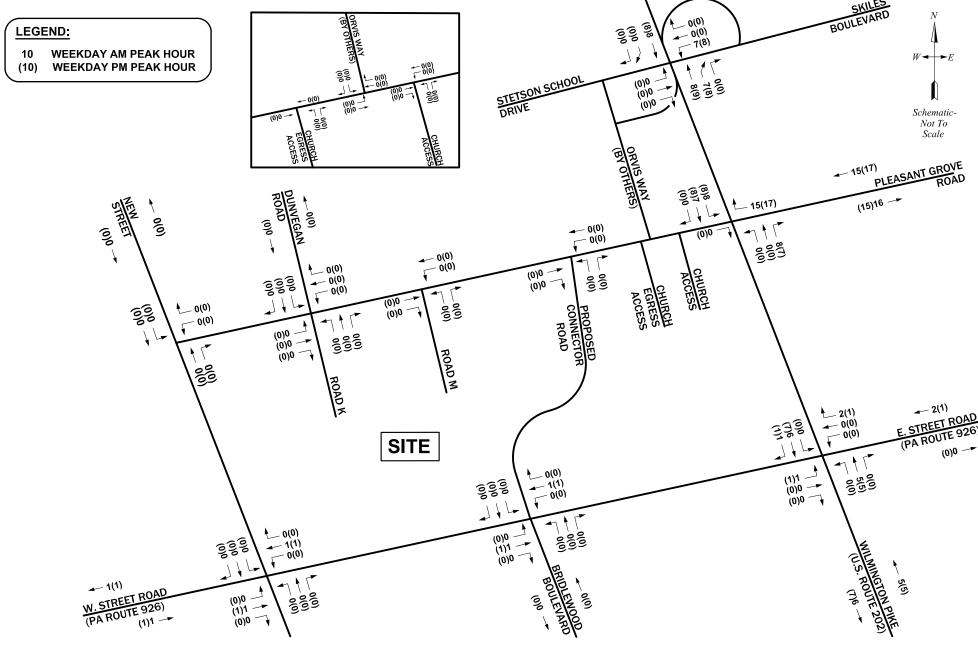


Other Development New Trip Distribution The Malvern School

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

ROBINSON TRACT



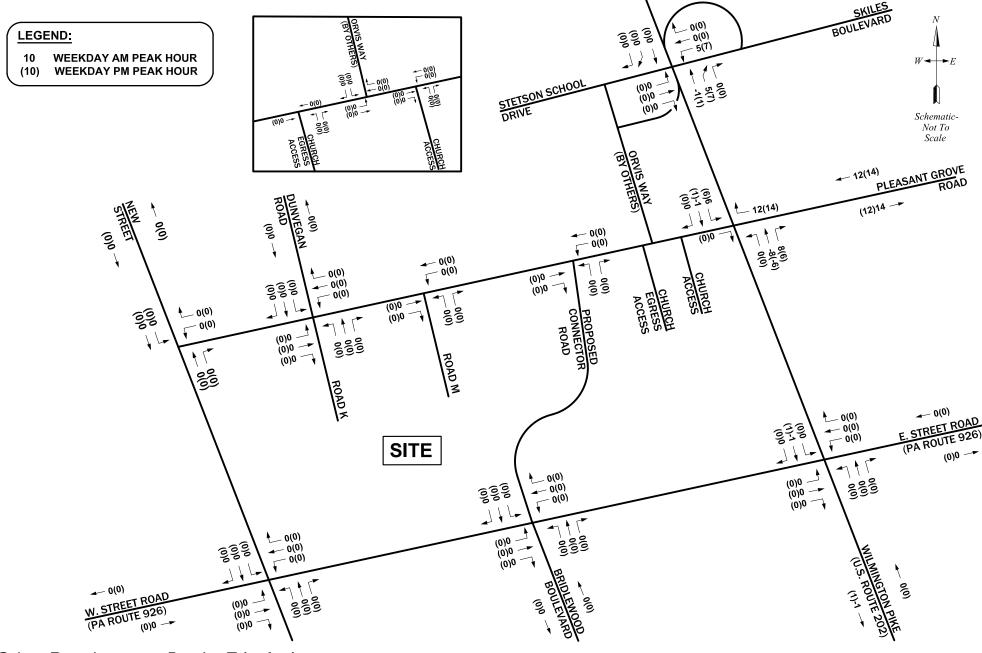


Other Development New Trip Assignment The Malvern School

ROBINSON TRACT







Other Development Passby Trip Assignment The Malvern School

ROBINSON TRACT







ARBORVIEW

TRANSPORTATION IMPACT ASSESSMENT

January 26, 2015 TPD # TAG.A.00003

Westtown Township Chester County, PA



For Submission To:

PennDOT District 6-0

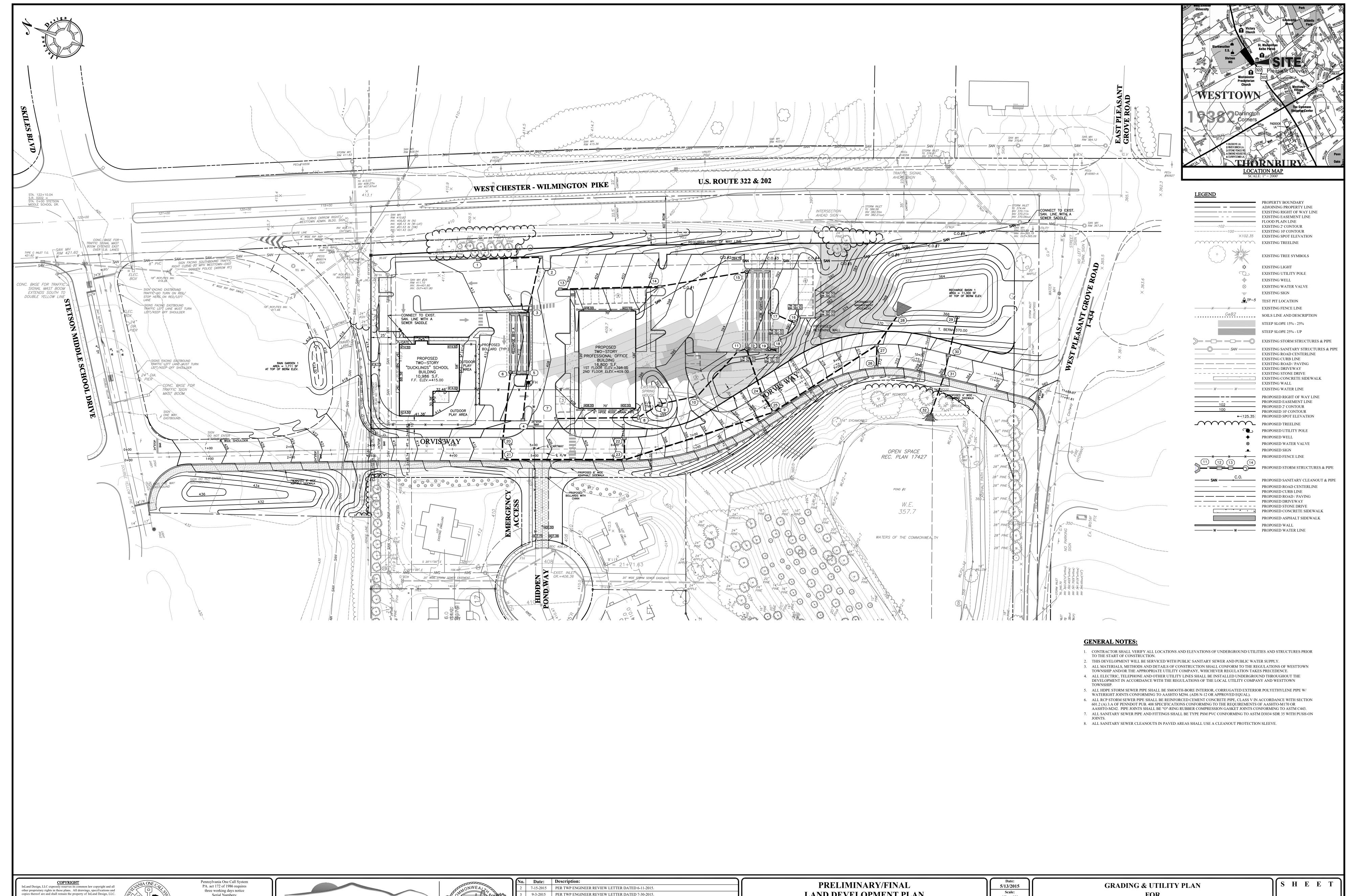
*
Westtown Township

Prepared By:



TPD Services:
Roadway Design
Bridge Design & Inspection
Transportation Planning

Traffic Signal System Design Municipal Services Environmental Services Construction Management & Inspection



They are to be used only in respect to this project and are neither to be used on any other project, nor are they to be assigned to any third party without first obtaining the expressed written permission and consent of InLand Design, LLC. Any re-use without written permission, verification, consent or adaptation by InLand Design, LLC for the specific purpose intended, will be at the third party's sole risk and without liability or legal exposure to InLand Design, LLC the third party shall further indemnify and hold harmless InLand Design, LLC from all claims, damages, losses, and expenses arising thereto or resulting therefrom.

UPI: 67-4-23



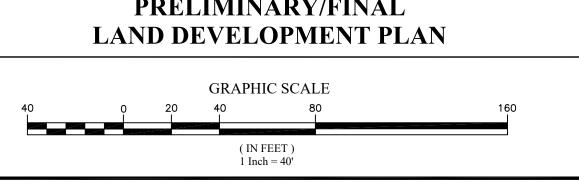
Pennsylvania One Call System
PA. act 172 of 1986 requires
three working days notice
Serial Numbers:
20151101118

PENNSYLVANIA ACT 187 REQUIREMENTS:
InLand Design, LLC does not guarantee the accuracy of the locations for existing subsurface utility structures shown on the plans, nor does InLand Design, LLC guarantee that all subsurface structures are shown. The contractor shall verify the location and elevation of all underground utilities and structures before the start of work.



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	2	7-15-2015	PER TWP ENGINEER REVIEW LETTER DATED 6-11-2015.
	3	9-3-2015	PER TWP ENGINEER REVIEW LETTER DATED 7-30-2015.
	4	9-14-2015	PER TWP SEWER ENGINEER REVIEW LETTER DATED 6-12-2015.
	5	12-4-2015	NPDES SUBMITTAL
	6	03-11-2016	REVISED PER CCCD LETTER DATED 2-10-2016.
	7	07-01-2016	REVISED BASIN MAINTENANCE RESPONSIBILITIES
	8	10-11-2016	REVISED BASIN MAINTENANCE RESPONSIBILITIES
- 1	9	5-18-2018	REVISED SCHOOL BUILDING FOOTPRINT



Date:
5/13/2015

Scale:
1'' = 40'

Drawn by:

TAH

Checked by:
CAD

Project No.

10365

GRADING & UTILITY
FOR

FAIR SHARE PROPER

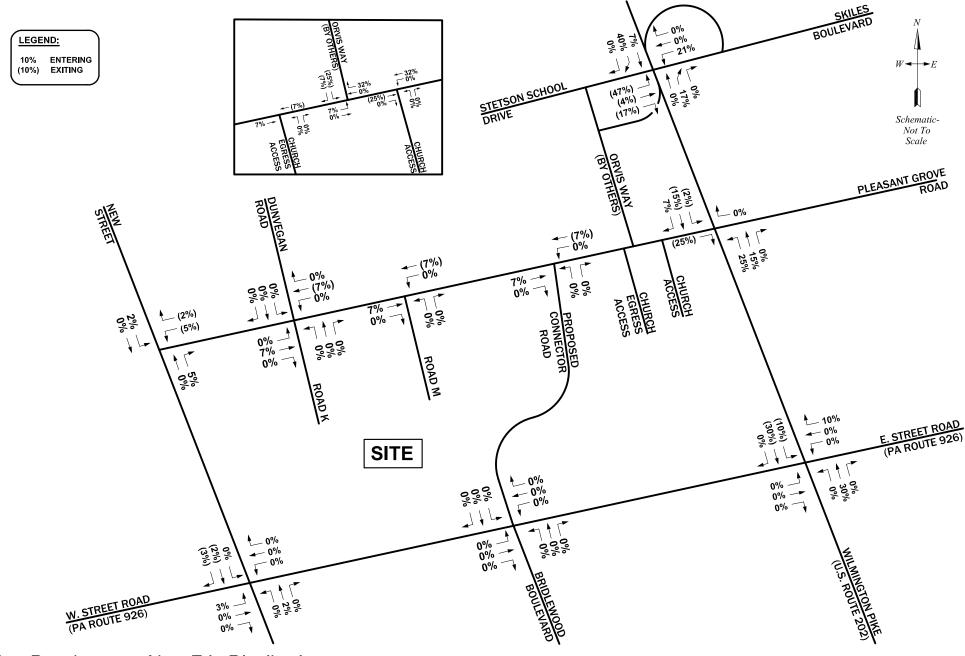
FAIR SHARE PROPERTIES, L.P. ARBORVIEW COMMERCIAL LOT

WESTTOWN TOWNSHIP • CHESTER COUNTY • PENNSYLVANIA

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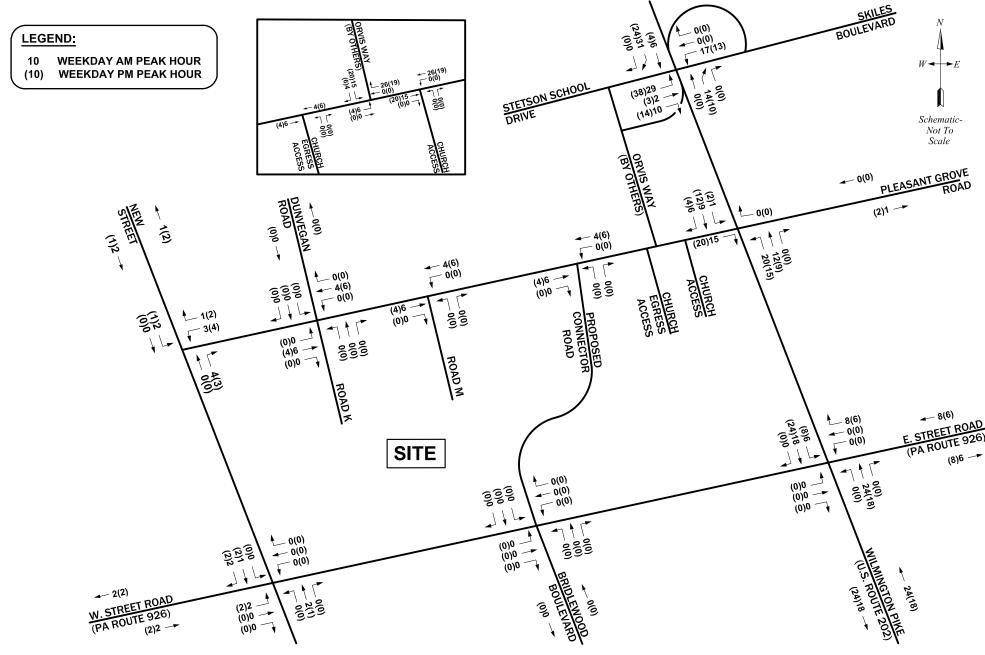
Project Information Robinson Tract Other Development -Project Name: Arborview McMahon Project No: 816451.11 Date: 8/6/2019 City/Municipality: Westtown Township State: Pennsylvania Client Name: Toll Brothers, Inc. Analyst's Name: BGG ITE Edition: ITE-TGM 10th Edition

		Daily	Weekday Morning Peak Hour		Weekday Morning Peak Hour Weekday Afterno		Afternoon F	eak Hour
Land Use	Size	Total	In	Out	Total	In	Out	Total
710 - General Office Building	16,800 SF	164	16	3	19	3	16	19
565 - Day Care Center	10,986 SF	522	64	57	121	57	65	122
Total Trips		686	80	60	140	60	81	141



Other Development New Trip Distribution Arborview





Other Development New Trip Assignment Arborview





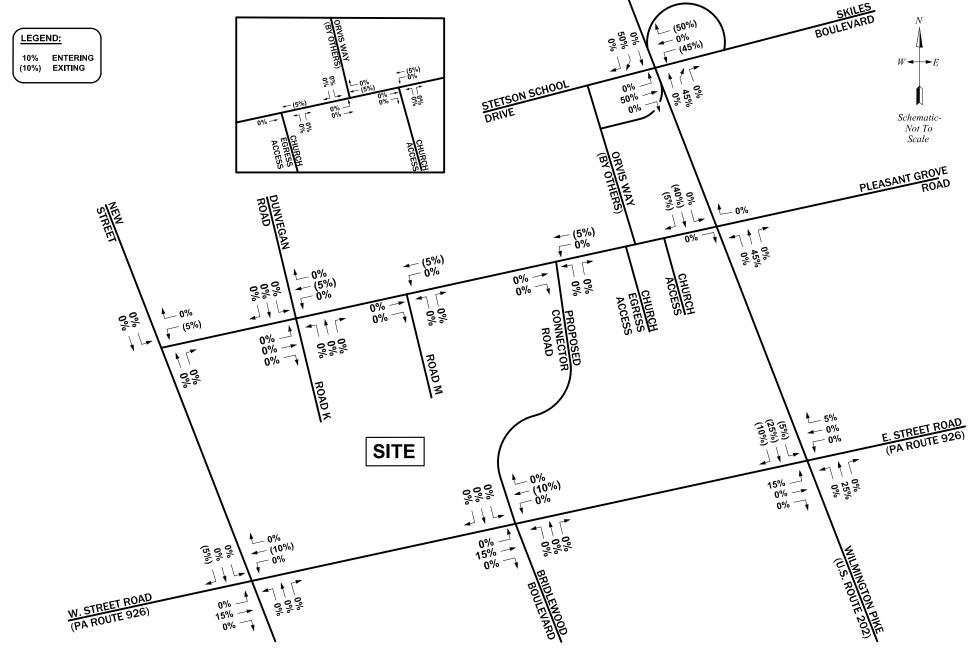


Project Information Robinson Tract Other Development -Project Name: Condominium Development McMahon Project No: 816451 Date: 8/6/2019 City/Municipality: Westtown Township State: Pennsylvania Client Name: Toll Brothers, Inc. Analyst's Name: BGG

ITE-TGM 10th Edition

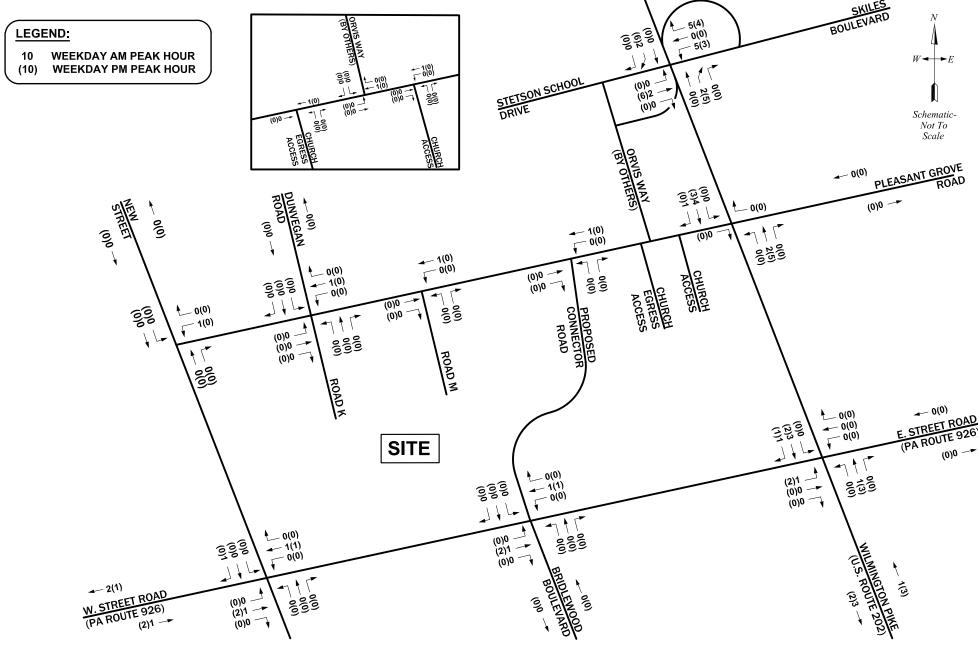
ITE Edition:

		Daily	Weekday Morning Peak Hour		Weekday Afternoon Peak Ho		eak Hour	
Land Use	Size	Total	In	Out	Total	In	Out	Total
221 - Multifamily Housing (Mid Rise)	39 units	211	4	10	14	11	7	18



Other Development New Trip Distribution Condominium Development

WESTTOWN TOWNSHIP, CHESTER COUNTY, PA



Other Development New Trip Assignment Condominium Development





Appendix K

Traffic Diversions

Revised February 21, 2020



February 21, 2020

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

RE: Robinson Tract Residential Development – Traffic Diversions

Westtown Township, Chester County, PA

McMahon Project No. 816451.11

Dear Mr. Federico:

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

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

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

- <u>Diversion A:</u> 5 percent of the eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) will divert via New Street and West Pleasant Grove Road to Orvis Way, per the Arborview study.
- <u>Diversion B:</u> 10 percent of the northbound U.S. Route 202 (Wilmington Pike) jughandle volume onto Stetson School will divert via West Pleasant Grove Road to Orvis Way, per the Arborview study.
- <u>Diversion C:</u> 25 percent of the eastbound right-turns exiting Stetson School to southbound U.S. Route 202 (Wilmington Pike) to eastbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to New Street to eastbound Street Road (S.R. 0926). This diversion was decreased from the approved Arborview

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

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Casey A. Moore, P.E.
Gary R. McNaughton, P.E., PTOE
Christopher J. Williams, P.E.

ASSOCIATES

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Matthew M. Kozsuch, P.E.
Maureen Chlebek, P.E., PTOE
Dean A. Carr, P.E.
Jason T. Adams, P.E., PTOE
Christopher K. Bauer, P.E., PTOE

FOUNDER

Joseph W. McMahon, P.E.

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

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

Table 1. Orvis Way Diverted Traffic Volume Comparison

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

⁽¹⁾ As shown in Figures 9 and 10 of the *Arborview Transportation Impact Assessment*, prepared by Traffic Planning and Design, Inc., and dated January 26, 2015.

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

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

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

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

⁽²⁾ As shown in Appendix K of the Transportation Impact Assessment for the Robinson Tract, prepared by McMahon Associates, Inc., and last revised December 2, 2019.

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

- <u>Diversion D:</u> This diversion further increases Diversion A (above under Orvis Way discussion), by diverting an additional 5 percent of the weekday morning and an additional 25 percent of the weekday afternoon eastbound left-turns from Street Road (S.R. 0926) to northbound U.S. Route 202 (Wilmington Pike) which will divert via the Collector Road to West Pleasant Grove Road to Orvis Way.
- <u>Diversion E:</u> 25 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to West Pleasant Grove Road will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road.
- <u>Diversion F:</u> 66 percent (two-thirds) of the northbound Bridlewood Boulevard right-turns will divert to the Collector Road to West Pleasant Grove to Orvis Way to northbound U.S. Route 202 (Wilmington Pike).
- <u>Diversion G:</u> 50 percent of the southbound U.S. Route 202 (Wilmington Pike) right-turns to westbound Street Road (S.R. 0926) will divert to Orvis Way and utilize West Pleasant Grove Road to the Collector Road to eastbound Street Road (S.R. 0926).
- <u>Diversion H:</u> 250 vehicles (approximately 16 percent) of the southbound U.S. Route 202 (Wilmington Pike) through traffic was diverted to West Pleasant Grove Road to the Collector Road to Bridlewood Boulevard back to U.S. Route 202 (Wilmington Pike) southbound. Based on a travel time comparison (without implementation of PennDOT's US 202/PA 926 intersection improvements), during the weekday afternoon peak hour in the southbound direction when U.S. Route 202 (Wilmington Pike) congestion is highest, the travel time along the Collector Road system may be shorter than staying on U.S. Route 202 (Wilmington Road).

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

Table 2. Approximate Travel Distance

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

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

Sincerely,

Nicole R. Kline-Elsier, P.E., PTOE

Regional Service Leader - Traffic

NRKE

cc: Robert Pingar, P.E., Westtown Township

Will Ethridge, Westtown Township

Nicole R. Kline - Elsier

Andrew Semon, Toll Brothers

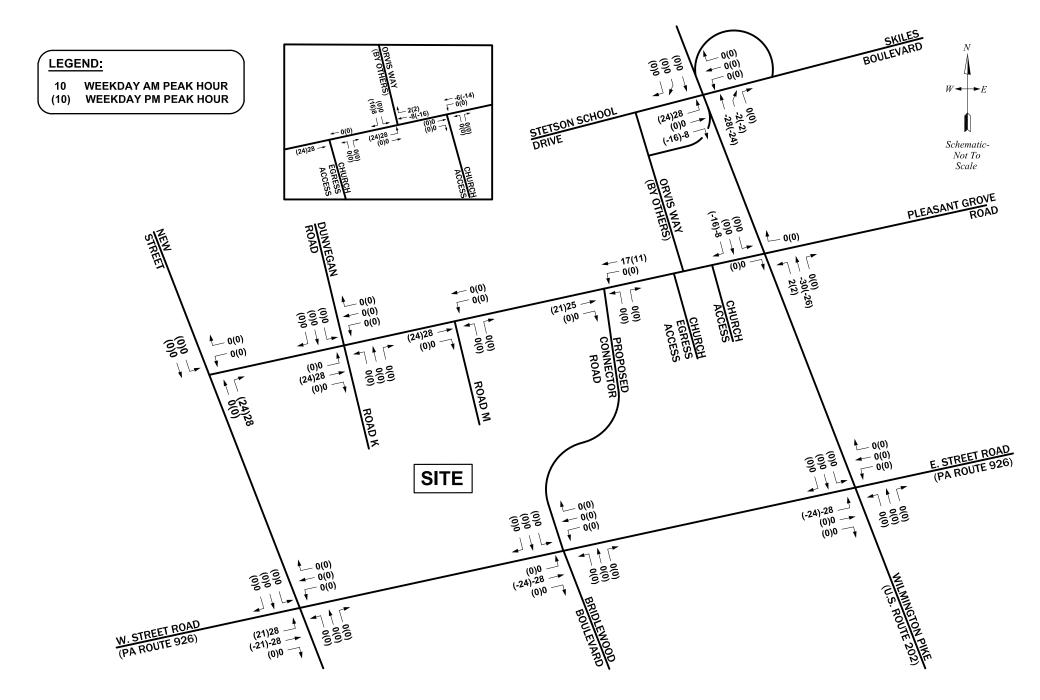
Michael Downs, P.E., Toll Brothers

Gregg Adelman, Esq., Kaplin Stewart

Jeff Madden, Eastern States Engineering

 $I: \verb|\arm| S16451 - Crebilly Farm| Correspondence \verb|\Out| Township| 2020-02-21\ Traffic \ Diversions\ Methodology\ Letter. docx and the substitution of the property of the$



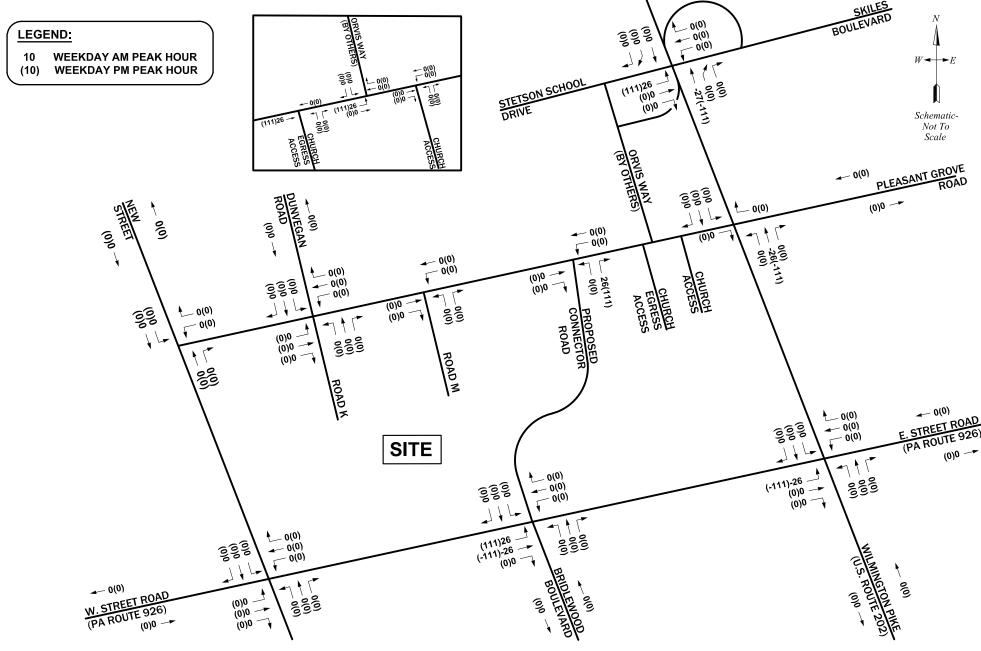


Diversions A, B, and C

ROBINSON TRACT WESTTOWN TOWNSHIP, CHESTER COUNTY, PA

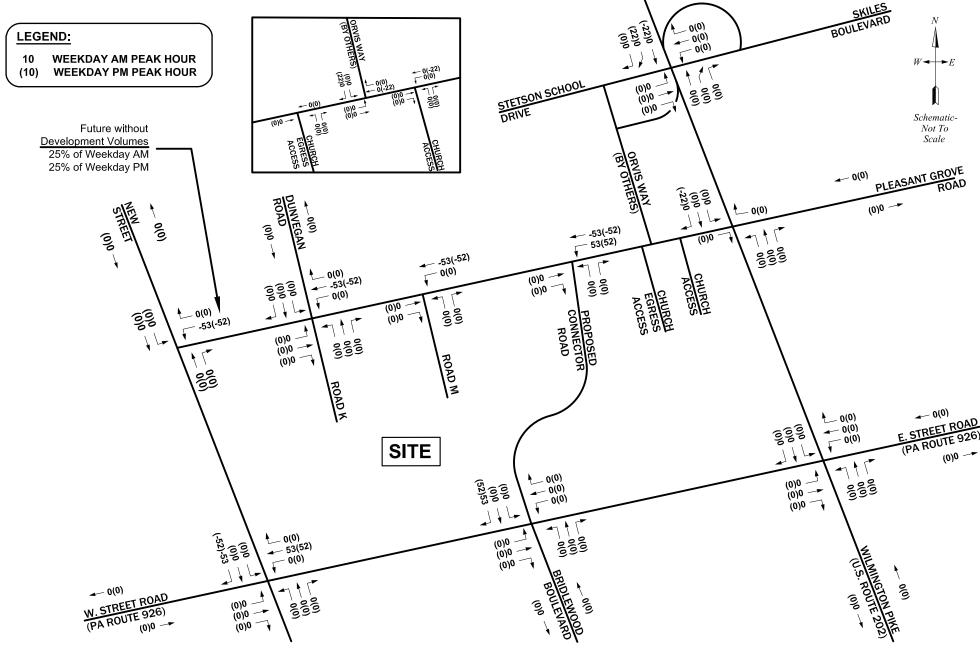






2025 with Development Diversions
Diversion D - SR 926 EBL to NB US 202





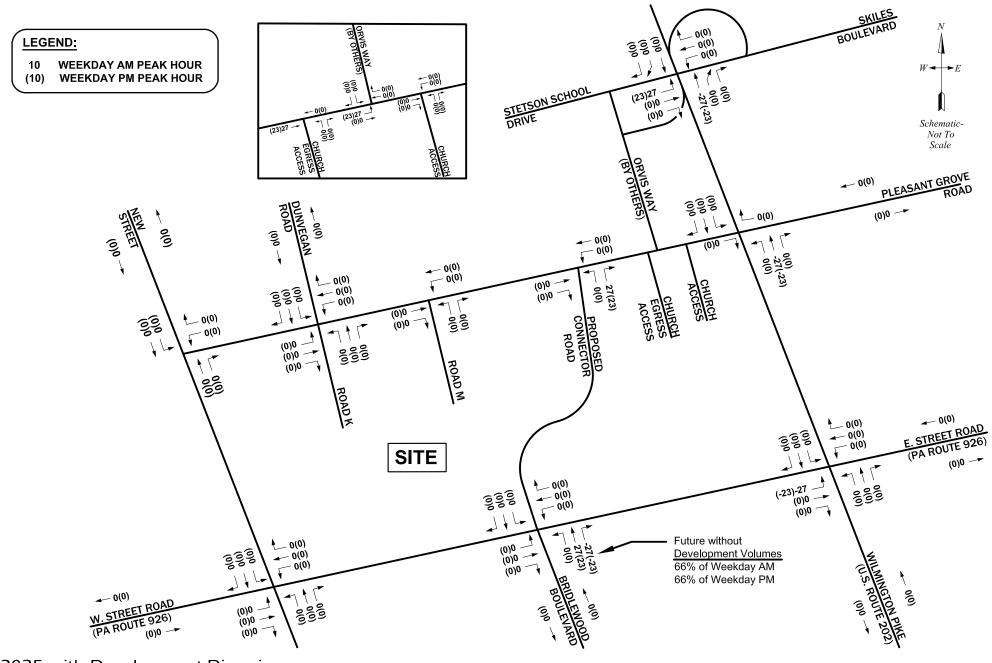
2025 with Development Diversions

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

ROBINSON TRACT

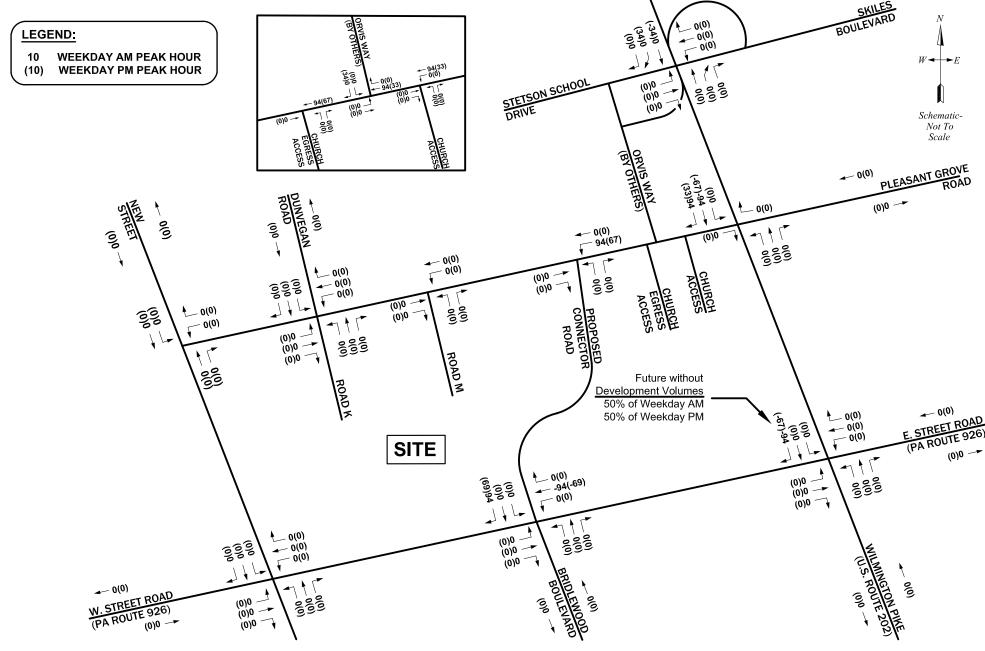
WESTTOWN TOWNSHIP, CHESTER COUNTY, PA





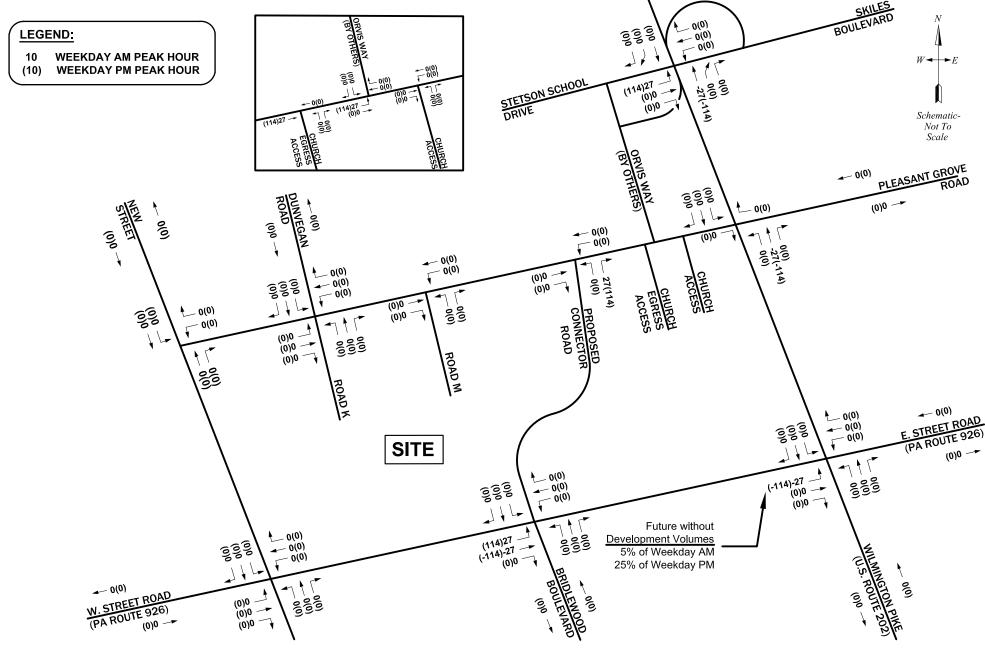
2025 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB





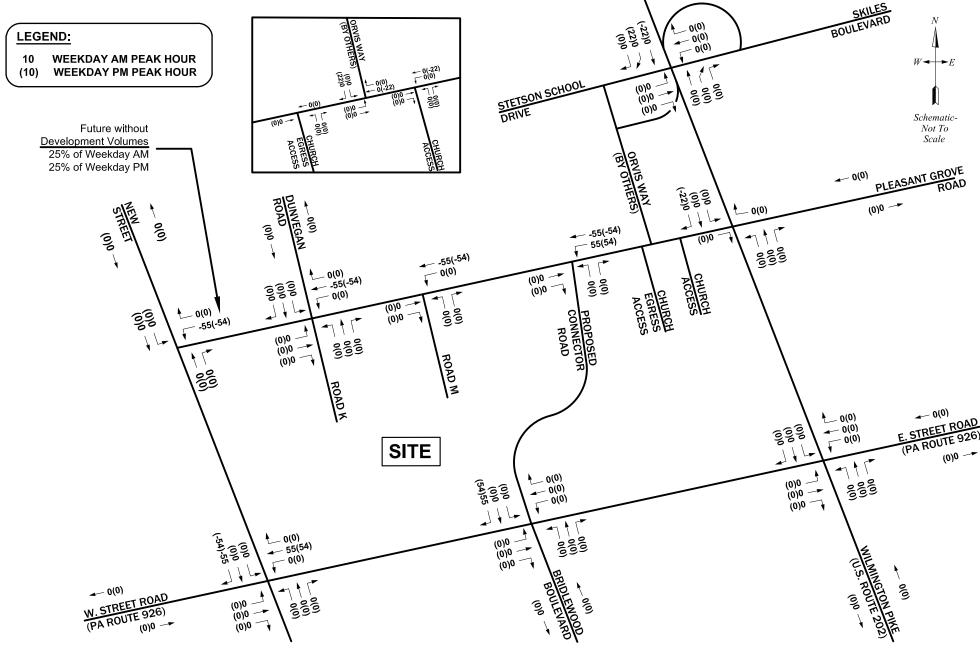
2025 with Development Diversions
Diversion G - SBR US 202 to WB SR 926





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



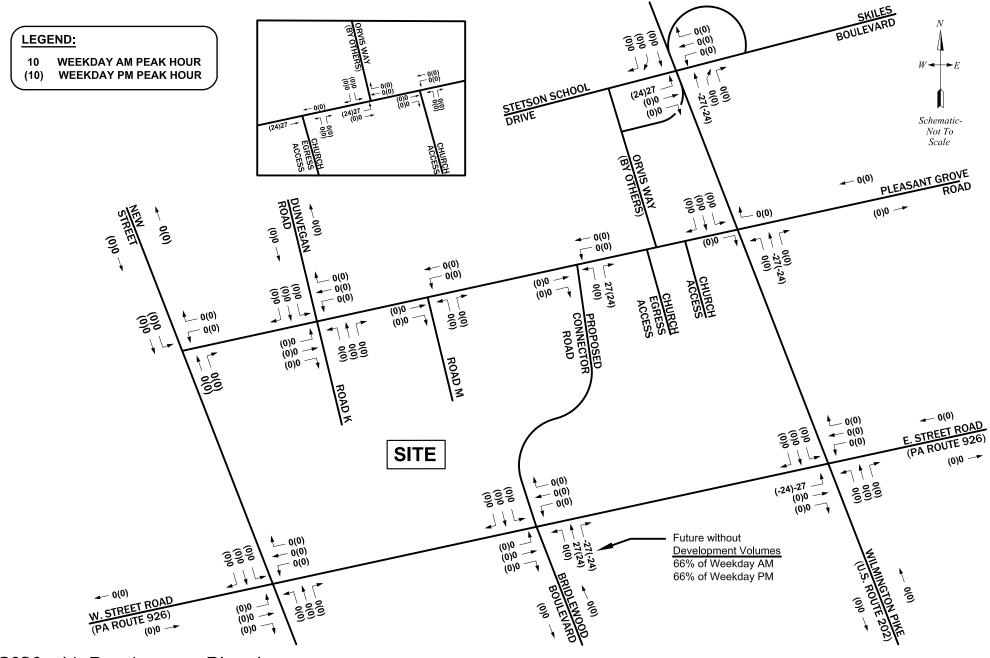


2030 with Development Diversions

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

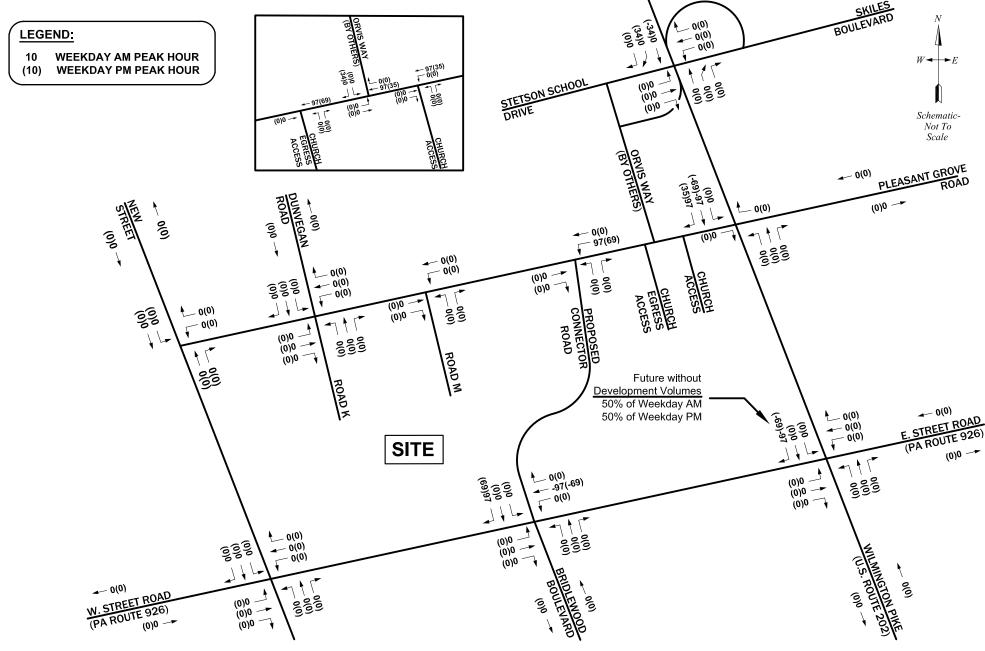






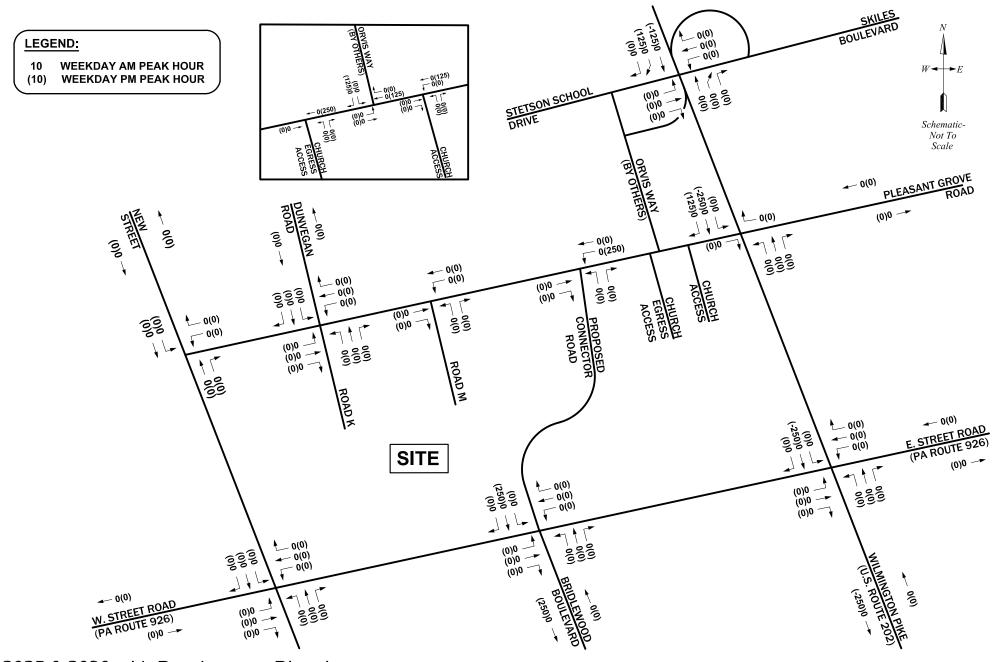
2030 with Development Diversions
Diversion F - NBR Bridlewood Blvd to US 202 NB





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





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





TRAVEL TIME COMPARISON 2030 Future without Development Conditions With ORVIS WAY DIVERSIONS

	DIVERS	SION A							
EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET									
	TO WEST PLEASANT GROVE ROAD TO ORVIS WAY								
	SEGMENT / INTERSECTION DISTANCE TRAVEL SPEED Time AM Time PM								
	SEGMENT / INTERSECTION	(ft)	(mph)	(s)	(s)				
	EBT @ New / PA 926			14.6	15.3				
	PA 926 Newto US 202	4750	45	72	72				
BASE	EBL @ US 202/PA 926			195.4	194.2				
ROUTE	US 202 PA 926 TO SKILES	4300	45	65	65				
	NBT @ US 202 / SKILES			50.3	25.5				
			TOTAL	397.5	372.2				
	EBL @ PA 926 / New			14.6	15.3				
	New PA 926 to Pleasant Grove	3400	35	66	66				
	NBR @ Pleasant Grove / New			0	0				
DIVERTED	Pleasant Grove New to Orvis	4100	35	80	80				
211211122	EBL @ Pleasant Grove / Orvis			8.9	9.1				
ROUTE	Orvis Pleasant Grove to Skiles	1100	25	30	30				
	Skiles Orvis to US 202	200	25	6	6				
	EBL @ US 202 / Skiles			68.9	55				
			TOTAL	274.0	261.0				

	DIVERSION B									
	NB US 202 JUGHANDLE WILL DIVERT TO ORVIS WAY VIA WEST PLEASANT GROVE ROAD									
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)					
	NBT @ US 202 / Pleasant Grove			0.0	0.0					
	US 202 Pleasant Grove to Skiles	1200	45	18.2	18.2					
BASE	NBR @ US 202 / Skiles			7.0	5.8					
ROUTE	Jughandle US 202 to US 202	900	30	20.5	20.5					
ROUTE	WBT @ US 202 / Skiles			44.0	40.8					
	Skiles US 202 to Orvis	200	25	5.5	5.5					
			TOTAL	95.2	90.8					
	NBL @ US 202 / Pleasant Grove			14.5	13.8					
DIVERTED	Pleasant Grove US 202 to Orvis	200	35	3.9	3.9					
ROUTE	WBR @ Pleasant Grove / Orvis			0.0	0.0					
ROUTE	Orvis Pleasant Grove to Skiles	1100	25	30.0	30.0					
			TOTAL	48.4	47.7					

	DIVER	SION C			
EB RIGHT-TUR	N EXITING STETSON SCHOOL DESTINED TO	WEST PLEASAN	T GROVE ROAD WIL	L DIVERT TO	ORVIS WAY
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
	Skiles Orvis to US 202	200	25	5.5	5.5
	EBR @ US 202 / Skiles			37.8	37.6
BASE	US 202 Skiles to Pleasant Grove	1200	45	18.2	18.2
ROUTE	SBR @ US 202 / Pleasant Grove			0.0	0.0
	Pleasant Grove US 202 to Orvis	200	35	3.9	3.9
			TOTAL	65.4	65.2
DIVERTED	Orvis Skiles to Pleasant Grove	1100	25	30.0	30.0
ROUTE	SBR @ Orvis / Pleasant Grove			10.0	10.6
ROUTE			TOTAL	40.0	40.6

TRAVEL TIME COMPARISON

2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITHOUT COLLECTOR ROAD DIVERSIONS

DIVER	SION D							
EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET								
TO WEST PLEASANT GRO	VE ROAD TO OR	/IS WAY						
SEGMENT / INTERSECTION	DISTANCE	TRAVEL SPEED	Time AM	Time PM				
	(ft)	(mph)	(s)	(s)				
EBT @ Collector / PA 926			1.0	0.8				
PA 926 Collector to US 202	2300	45	34.8	34.8				
EBL @ US 202/PA 926			213.4	267.8				
US 202 PA 926 TO SKILES	4300	45	65.2	65.2				
NBT @ US 202 / SKILES			61.7	30.9				
		TOTAL	376.1	399.5				
	EB PA 926 LEFT-TURNS ONTO US 20 TO WEST PLEASANT GRO SEGMENT / INTERSECTION EBT @ Collector / PA 926 PA 926 Collector to US 202 EBL @ US 202/PA 926 US 202 PA 926 TO SKILES	TO WEST PLEASANT GROVE ROAD TO ORN SEGMENT / INTERSECTION (ft) EBT @ Collector / PA 926 PA 926 Collector to US 202 EBL @ US 202/PA 926 US 202 PA 926 TO SKILES 4300	EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY SEGMENT / INTERSECTION	EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET TO WEST PLEASANT GROVE ROAD TO ORVIS WAY SEGMENT / INTERSECTION DISTANCE (ft) (mph) (s) EBT @ Collector / PA 926 1.0 PA 926 Collector to US 202 2300 45 34.8 EBL @ US 202/PA 926 213.4 US 202 PA 926 TO SKILES 4300 45 65.2 NBT @ US 202 / SKILES 61.7				

DIVERSION E								
SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926								
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)			
BASE	Pleasant Grove Collector to New	3700	35	72.1	72.1			
ROUTE	WBL @ New / Pleasant Grove			14.4	15.6			
	New Pleasant Grove to PA 926	3400	35	66.2	66.2			
NO	SBR @ PA 926 / New			37.0	38.9			
DIVERSIONS			TOTAL	189.7	192.8			

DIVERSION F					
NB BRIDLEWOOD RIGHT-TURN TO PA 926 TO NB US 202					
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)
BASE	NBR @ PA 926 / Bridlewood			39.8	45.9
ROUTE	PA 926 Bridlewood to US 202	2300	35	44.8	44.8
KOUTE	EBL @ US 202 / PA 926			213.4	267.8
NO	US 202 PA 926 to Skiles	4300	45	65.2	65.2
DIVERSIONS	NBT @ US 202 / Skiles			61.7	30.9
			TOTAL	424.9	454.6

TRAVEL TIME COMPARISON

2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITHOUT COLLECTOR ROAD DIVERSIONS

SB US ROUTE 202 RIGHT-TURN TO WB PA 926 SEGMENT / INTERSECTION DISTANCE TRAVEL SPEED Time AM (ft) (mph) (s) BASE SBT @ US 202 / Pleasant Grove 0.0	(s)
SEGMENT / INTERSECTION (ft) (mph) (s) SBT @ US 202 / Pleasant Grove 0.0	(s)
SBT @ US 202 / Pleasant Grove 0.0	0.0
	0.0
US 202 Pleasant Grove to PA 926 3100 45 47.0	47.0
ROUTE SBR @ US 202 / PA 926 137.5	459.7
NO PA 926 US 202 to Collector 2300 45 34.8	34.8
WBT @ PA 926 / Collector 2.4	2.1
TOTAL 221.7	543.6

DIVERSION H						
US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202						
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)	
BASE	SBT @ US 202 / Skiles			29.2	20.2	
ROUTE	US 202 PA 926 to Skiles	4320	45	65.5	65.5	
	SBT @ US 202 / PA 926			123.3	472.4	
NO	US 202 Bridlewood to PA 926	2770	45	42.0	42.0	
DIVERSIONS			TOTAL	260	600.1	
	US 202 Bridlewood to PA 926	2770				

TRAVEL TIME COMPARISON

2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITH COLLECTOR ROAD DIVERSIONS

	DIVERS	SION D					
	EB PA 926 LEFT-TURNS ONTO US 20	2 NB WILL DIVE	RT VIA NEW STREE	Γ			
	TO WEST PLEASANT GROVE ROAD TO ORVIS WAY						
	SEGMENT / INTERSECTION	DISTANCE	TRAVEL SPEED	Time AM	Time PM		
	SEGIVIENT / INTERSECTION	(ft)	(mph)	(s)	(s)		
	EBT @ Collector / PA 926			1.8	7.0		
	PA 926 Collector to US 202	2300	45	35	35		
BASE	EBL @ US 202/PA 926			187.2	167.0		
ROUTE	US 202 PA 926 TO SKILES	4300	45	65	65		
	NBT @ US 202 / SKILES			52.2	30.6		
			TOTAL	341.2	304.6		
	EBL @ PA 926 / Collector			0.2	6.1		
	Collector PA 926 to Pleasant Grove	4200	35	82	82		
	NBR @ Pleasant Grove / Collector			9.5	11.2		
DIVERTED	Pleasant Grove Collector to Orvis	400	35	8	8		
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9		
	Orvis Pleasant Grove to Skiles	1100	25	30	30		
	EBL @ US 202 / Skiles			78.5	53.9		
			TOTAL	218.1	201.7		

	DIVERSION E						
9	SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926						
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)		
	Pleasant Grove Collector to New	3700	35	72	72		
BASE	WBL @ New / Pleasant Grove			13	13.8		
ROUTE	New Pleasant Grove to PA 926	3400	35	66	66		
KOUTE	SBR @ PA 926 / New			37.1	39		
			TOTAL	188.4	191.1		
	WBL @ Pleasant Grove / Collector			9.1	11.3		
	Collector Pleasant Grove to PA 926	4200	35	82	82		
DIVERTED	SBR @ PA 926 / Collector			52.1	49.9		
ROUTE	PA 926 Collector to New	2400	45	36	36		
	WBT @ PA 926 / New			2.9	0.9		
			TOTAL	182.3	180.3		

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

2030 Future with Development Conditions | Without PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITH COLLECTOR ROAD DIVERSIONS

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

	DIVERSION H							
US 202	US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202							
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)			
	SBT @ US 202 / Skiles	\·-,	(29.2	20.5			
DAGE	US 202 PA 926 to Skiles	4320	45	66	66			
BASE	SBT @ US 202 / PA 926			98.3	379.4			
ROUTE	US 202 Bridlewood to PA 926	2770	45	42	42			
			TOTAL	235	507.4			
	SBR @ US 202 / Skiles			9.9	10.6			
	Orvis Pleasant to Skiles	1100	25	30	30			
	SBR @ Pleasant Grove / Orvis			14.0	17.6			
DIVERTED	Pleasant Grove Orvis to Collector	400	35	8	7.8			
ROUTE	WBL @ Pleasant Grove / Collector			9.1	11.3			
(PM ONLY)	Collector Pleasant Grove to PA 926	4200	35	82	81.8			
	SBT @ PA 926 / Collector			52.1	49.9			
	Bridlewood US 202 to PA 926	4150	25	113	113.2			
			TOTAL	317.9	322.2			

2030 Future with Development Conditions | With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITH COLLECTOR ROAD DIVERSIONS

	DIVERS	SION D					
	EB PA 926 LEFT-TURNS ONTO US 202 NB WILL DIVERT VIA NEW STREET						
	TO WEST PLEASANT GROVE ROAD TO ORVIS WAY						
	SEGMENT / INTERSECTION	DISTANCE	TRAVEL SPEED	Time AM	Time PM		
	SEGIVIENT / INTERSECTION	(ft)	(mph)	(s)	(s)		
	EBT @ Collector / PA 926			1.8	7.0		
	PA 926 Collector to US 202	2300	45	35	35		
BASE	EBL @ US 202/PA 926			63.6	61.2		
ROUTE	US 202 PA 926 TO SKILES	4300	45	65	65		
	NBT @ US 202 / SKILES			52.2	30.6		
			TOTAL	217.6	198.8		
	EBL @ PA 926 / Collector			0.2	6.1		
	Collector PA 926 to Pleasant Grove	4200	35	82	82		
	NBR @ Pleasant Grove / Collector			9.5	11.2		
DIVERTED	Pleasant Grove Collector to Orvis	400	35	8	8		
ROUTE	EBL @ Pleasant Grove / Orvis			10.3	10.9		
	Orvis Pleasant Grove to Skiles	1100	25	30	30		
	EBL @ US 202 / Skiles			78.5	53.9		
			TOTAL	218.1	201.7		

	DIVERSION E						
9	SB US 202 RIGHT-TURN TO WEST PLEASANT GROVE ROAD TO COLLECTOR ROAD TO PA 926						
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)		
	Pleasant Grove Collector to New	3700	35	72	72		
BASE	WBL @ New / Pleasant Grove			13	13.8		
ROUTE	New Pleasant Grove to PA 926	3400	35	66	66		
KOUTE	SBR @ PA 926 / New			37.1	39		
			TOTAL	188.4	191.1		
	WBL @ Pleasant Grove / Collector			9.1	11.3		
	Collector Pleasant Grove to PA 926	4200	35	82	82		
DIVERTED	SBR @ PA 926 / Collector			52.1	49.9		
ROUTE	PA 926 Collector to New	2400	45	36	36		
	WBT @ PA 926 / New			2.9	0.9		
			TOTAL	182.3	180.3		

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

2030 Future with Development Conditions | With PennDOT Improvements at Wilmington Pike (U.S. Route 202) and Street Road (S.R. 0926) WITH COLLECTOR ROAD DIVERSIONS

	DIVERSION G						
	SB US ROUTE 202 RIGHT-TURN TO WB PA 926						
	SEGMENT / INTERSECTION	DISTANCE (ft)	TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)		
	SBT @ US 202 / Pleasant Grove			0	0		
	US 202 Pleasant Grove to PA 926	3100	45	47	47		
BASE	SBR @ US 202 / PA 926 ⁽¹⁾			56.3	301.8		
ROUTE	PA 926 US 202 to Collector	2300	45	35	35		
	WBT @ PA 926 / Collector			3.0	8.6		
			TOTAL	141.1	392.2		
	SBR @ US 202 / Pleasant Grove			0	0		
	Pleasant Grove US 202 to Collector	600	35	12	12		
DIVERTED	WBL @ Pleasant Grove / Collector			9.1	11.3		
ROUTE	Collector Pleasant Grove to PA 926	4200	35	82	82		
	SBR @ PA 926 / Collector			52.1	49.9		
			TOTAL	154.7	154.7		

(1) US 202 southbound through delay utilized for trave time calculation as HCM methodology does not account for delay caused by blockage of right-turn lane by through queue.

DIVERSION H											
US 202 SBT DIVERTS FROM US 202 AND USES ORVIS, COLLECTOR, AND BRIDLEWOOD BACK TO US 202											
	SEGMENT / INTERSECTION		TRAVEL SPEED (mph)	Time AM (s)	Time PM (s)						
BASE ROUTE	SBT @ US 202 / Skiles	(ft)	` ' '	29.2	20.5						
	US 202 PA 926 to Skiles	4320	45	66	66						
	SBT @ US 202 / PA 926			56.3	301.8						
	US 202 Bridlewood to PA 926	2770	45	42	42						
			TOTAL	193	429.8						
	SBR @ US 202 / Skiles			9.9	10.6						
	Orvis Pleasant to Skiles	1100	25	30	30						
	SBR @ Pleasant Grove / Orvis			14.0	17.6						
DIVERTED	Pleasant Grove Orvis to Collector	400	35	8	7.8						
ROUTE	WBL @ Pleasant Grove / Collector			9.1	11.3						
(PM ONLY)	ONLY) Collector Pleasant Grove to PA 926		35	82	81.8						
	SBT @ PA 926 / Collector			52.1	49.9						
	Bridlewood US 202 to PA 926	4150	25	113	113.2						
			TOTAL	317.9	322.2						



Appendix L

Future 2025 Detailed Traffic Volume Worksheets

INTERSECTION VOLUME SUMMARY New Street/Street Road (PA 926)

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Build-Out Year (2025)

	EASTBOUND NORTHBOUND Street Road (PA 926) New Street			WESTBOUND Street Road (PA 926)			SOUTHBOUND New Street					
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	48 48 0	648 648 0	5 5 0	9 9 0	97 97 0	41 41 0	8 8 0	310 310 0	36 36 0	8 8 0	122 122 0	190 190 0
ADJUSTED EXISTING TRAFFIC	48	648	5	9	97	41	8	310	36	8	122	190
ADJUSTED EXISTING TRAFFIC	0	0.10		Ť	<u> </u>			0.0		_ ŭ		-:00
Background Growth 3.16 % EXISTING W/ BACKGROUND		20 668	0 5	0 9	3 100	1 42	0	10 320	1 37	0 8	4 126	6 196
TOTAL "OTHER" DEVELOPMENTS		-26	0	0	2	0	0	2	0	0	1	3
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 2 0 0 0 0 0 0 28 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0	1 0 2 0 0 0 0 0 0 0 0 0 0
Other Adjustments		0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT		642	5	9	102	42	8	322	37	8	127	199
TOTAL "NEW" SITE TRAFFIC	3	3	0	0	1	1	4	61	0	0	3	-46
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	2 1 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0	5 2 1 0 53 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	5 2 0 0 -53 0 0 0
FUTURE TRAFFIC W/ PROJECT		645	5	9	103	43	12	383	37	8	130	153
"New" Site Traffic % of Total 0.0%		0.5	0.0	0.0	1.0	2.3	33.3	15.9	0.0	0.0	2.3	-30.1

INTERSECTION VOLUME SUMMARY New Street/Street Road (PA 926)

		ASTBOU Road (P.			ORTHBO			ESTBOU Road (P.			UTHBO New Stre	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	30 30 0	659 659 0	13 13 0	9 9 0	83 83 0	37 37 0	19 19 0	305 305 0	30 30 0	49 49 0	164 164 0	143 143 0
ADJUSTED EXISTING TRAFFIC	30	659	13	9	83	37	19	305	30	49	164	143
Background Growth 3.16 % EXISTING W/ BACKGROUND	1 31	21 680	0 13	0 9	3 86	1 38	1 20	10 315	1 31	2 51	5 169	5 148
TOTAL "OTHER" DEVELOPMENTS	26	-21	0	0	1	0	0	2	0	0	2	2
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 2 0 0 0 0 0 0 24 0 0 0	2 1 0 0 0 0 0 0 0 0 -24 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	57	659	13	9	87	38	20	317	31	51	171	150
TOTAL "NEW" SITE TRAFFIC	8	9	0	0	3	4	3	56	0	0	2	-47
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	6 2 0 0 0 0 0 0	6 2 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	3 1 0 0 52 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0	3 1 1 0 -52 0 0 0
FUTURE TRAFFIC W/ PROJECT	65	668	13	9	90	42	23	373	31	51	173	103
"New" Site Traffic % of Total 0.0%	12.3	1.3	0.0	0.0	3.3	9.5	13.0	15.0	0.0	0.0	1.2	-45.6

INTERSECTION VOLUME SUMMARY Bridlewood Blvd/Street Road (PA 926)

		ASTBOU Road (Pa			ORTHBC			ESTBO Road (P			UTHBO llewood	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	0 0 0	682 682 0	31 31 0	25 25 0	0 0 0	39 39 0	13 13 0	325 325 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	682	31	25	0	39	13	325	0	0	0	0
Background Growth 3.16 % EXISTING W/ BACKGROUND	0 0	22 704	1 32	1 26	0	1 40	0 13	10 335	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	-26	0	0	0	0	0	2	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 -28 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	678	32	26	0	40	13	337	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	30	-26	0	0	31	-27	0	-94	14	46	15	159
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	3 1 0 26 0 0 0 0	0 0 0 -26 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 1 0 0 0 27 0 0	0 0 0 0 0 -27 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 -94	10 4 0 0 0 0 0 0 0	31 15 0 0 0 0 0 0	10 5 0 0 0 0 0 0	8 4 0 0 53 0 0 94 0
FUTURE TRAFFIC W/ PROJECT	30	652	32	26	31	13	13	243	14	46	15	159
"New" Site Traffic % of Total ####	100.0	-4.0	0.0	0.0	100.0	-207.7	0.0	-38.7	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Bridlewood Blvd/Street Road (PA 926)

		ASTBOU Road (P.			ORTHBC			ESTBO Road (P			UTHBO	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	692 692 0	37 37 0	16 16 0	0 0 0	34 34 0	20 20 0	357 357 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	692	37	16	0	34	20	357	0	0	0	0
Background Growth 3.16 % EXISTING W/ BACKGROUND	0	22 714	1 38	1 17	0 0	1 35	1 21	11 368	0 0	0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	-21	0	0	0	0	0	2	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0 0 0 -24 0 0	0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0
Other Adjustments	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
FUTURE TRAFFIC W/O PROJECT	0	693	38	17	0	35	21	370	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	124	-111	0	0	40	-23	0	-69	49	29	260	128
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	9 4 0 1111 0 0 0 0	0 0 0 -1111 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0	12 5 0 0 0 23 0 0	0 0 0 0 0 -23 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 -69	35 14 0 0 0 0 0 0	20 9 0 0 0 0 0 0	7 3 0 0 0 0 250 0	5 2 0 0 52 0 0 69
FUTURE TRAFFIC W/ PROJECT	124	582	38	17	40	12	21	301	49	29	260	128
"New" Site Traffic % of Total ####	100.0	-19.1	0.0	0.0	100.0	-191.7	0.0	-22.9	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Street Road (PA 926)

	E	ASTBOU	JND	NC	ORTHBO	UND	W	ESTBO	UND	SO	UTHBO	UND
To Co. Comment											ton Pike	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	531	221	8	12	1551	151	142	158	45	48	1465	181
Seasonal Adjustment Factor 1.000	531	221	8	12	1551	151	142	158	45	48	1465	181
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	531	221	8	12	1551	151	142	158	45	48	1465	181
Background Growth 3.16 %	17	7	0	0	49	5	4	5	1	2	46	6
EXISTING W/ BACKGROUND	548	228	8	12	1600	156	146	163	46	50	1511	187
TOTAL "OTHER" DEVELOPMENTS	-26	0	0	0	30	0	0	0	10	6	26	2
Condominium Development	1	0	0	0	1	0	0	0	0	0	3	1
Malvern School (NEW)	1	0	0	0	5	0	0	0	2	0	6	1
Arborview Development	0	0	0	0	24	0	0	0	8	6	18	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	-1	0
Malvern School (PB PM)	0	0	0	0	0	0 0	0	0	0	0	0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	-28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0 0	0	0	0	0	0	0	0	0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	522	228	8	12	1630	156	146	163	56	56	1537	189
TOTAL "NEW" SITE TRAFFIC	-38	8	23	10	0	0	0	4	0	8	8	-94
Single Family Homes	10	5	15	7	0	0	0	3	0	5	5	0
Carriage Homes	5	2	7	3	0	0	0	1	0	2	2	0
Site Balancing	0 -26	1 0	1 0	0	0	0	0	0	0	1 0	1 0	0
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New	-26 0	0	0	0	0	0	0	0	0	0	0	0 0
Diversion D - NBR Bridlewood to 202	-27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	-94
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	484	236	31	22	1630	156	146	167	56	64	1545	95
"New" Site Traffic % of Total 0.0%	-7.9	3.4	74.2	45.5	0.0	0.0	0.0	2.4	0.0	12.5	0.5	-98.9

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Street Road (PA 926)

		ASTBOU			RTHBO			ESTBO			UTHBC	
The CC's Co.												(US 202
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	451	204	27	29	1551	121	199	221	57	79	1451	128
Seasonal Adjustment Factor 1.000	451	204	27	29	1551	121	199	221	57	79	1451	128
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
Sulanenis riojustinents		-			-	-		-			_	•
ADJUSTED EXISTING TRAFFIC	451	204	27	29	1551	121	199	221	57	79	1451	128
D 1 10 1 040 W	4.4	0			40		•	-	0		40	4
Background Growth 3.16 % EXISTING W/ BACKGROUND	14 465	6 210	1 28	1 30	49 1600	4 125	6 205	7 228	2 59	2 81	46 1497	4 132
EAISTING W/ BACKGROUND	465	210	20	30	1600	125	205	220	59	01	1497	132
TOTAL "OTHER" DEVELOPMENTS	-21	0	0	0	26	0	0	0	7	8	34	2
Condominium Development	2	0	0	0	3	0	0	0	0	0	2	1
Malvern School (NEW)	1	0	0	0	5	0	0	0	1	0	7	1
Arborview Development	0	0	0	0	18	0	0	0	6	8	24	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	1 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Wav Diversion A	-24	0	0	ő	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	U	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	444	210	28	30	1626	125	205	228	66	89	1531	134
TOTAL "NEW" SITE TRAFFIC	-124	4	15	32	0	0	0	17	0	6	-245	-67
Single Family Homes	7	3	10	23	0	0	0	12	0	3	3	0
Carriage Homes	3	1	4	10	0	0	0	5	0	1	1	0
Site Balancing	0	0	1	-1	0	0	0	0	0	2	1	0
Diversion A - EBL 926 to NB 202	-111	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	-23	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	-250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	-67
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	320	214	43	62	1626	125	205	245	66	95	1286	67
"New" Site Traffic % of Total ####	-38.8	1.9	34.9	51.6	0.0	0.0	0.0	6.9	0.0	6.3	-19.1	-100.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Pleasant Grove Road

		ASTBOU			ORTHBO			ESTBO			OUTHBO	
Traffic Component	Pleasa L	ant Grove S	e Road R	Wilming L	ton Pike S	(US 202 R) Pleasa L	nt Grove S	e Road R	Wilming	gton Pike S	(US 202) R
Trame Component	L	S	K	L	S	K	L	S	K	L	S	K
EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Seasonal Adjustment Factor 1.000	0	0	12 0	10 0	2082	52 0	0	0	7 0	37 0	1753	150
Balancing Adjustments	0	U	U	0	0	U	0	U	U	U	0	0
ADJUSTED EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Background Growth 3.16 %	0	0	0	0	66	2	0	0	0	1	55	5
EXISTING W/ BACKGROUND	0	0	12	10	2148	54	0	0	7	38	1808	155
TOTAL "OTHER" DEVELOPMENTS	0	0	15	22	-24	16	0	0	27	15	19	-1
								-				
Condominium Development Malvern School (NEW)	0	0	0	0	2 0	0 8	0	0	0 15	0 8	4 7	1 0
Arborview Development	0	0	15	20	12	0	0	0	0	1	9	6
Malvern School (PB AM)	0	0	0	0	-8	8	0	0	12	6	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-28	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0 0	0	0	0 0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	Ö	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	27	32	2124	70	0	0	34	53	1827	154
TOTAL "NEW" SITE TRAFFIC	0	0	16	0	-38	0	0	0	0	0	-94	104
Single Family Homes	0	0	10	0	10	0	0	0	0	0	0	7
Carriage Homes	0	0	5	0	5	0	0	0	0	0	0	3
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New	0	0	0	0	-26 0	0 0	0	0 0	0	0	0 0	0
Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202	0	0	0	0	-27	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-94	94
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	43	32	2086	70	0	0	34	53	1733	258
"New" Site Traffic % of Total 0.0%	0.0	0.0	37.2	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	-5.4	40.3

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Pleasant Grove Road

		ASTBOU			ORTHBO			ESTBO			UTHBO	
T					ton Pike							
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	24	32	2004	46	0	0	11	89	1701	202
Seasonal Adjustment Factor 1.000	0	0	24	32	2004	46	0	0	11	89	1701	202
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
A DAVIGORED ENVIOUND OF THE C	_	_	•			4.0	_	_			4=04	
ADJUSTED EXISTING TRAFFIC	0	0	24	32	2004	46	0	0	11	89	1701	202
Background Growth 3.16 %	0	0	1	1	63	1	0	0	0	3	54	6
EXISTING W/ BACKGROUND	0	0	25	33	2067	47	0	0	11	92	1755	208
TOTAL "OTHER" DEVELOPMENTS	0	0	20	17	-18	13	0	0	31	16	24	-12
TOTAL OTHER BEVELOTMENTS		· ·		''			Ü	ŭ	٥.			
Condominium Development	0	0	0	0	5	0	0	0	0	0	3	0
Malvern School (NEW)	0	0	0	0	0	7	0	0	17	8	8	0
Arborview Development Malvern School (PB AM)	0	0	20 0	15 0	9 0	0	0 0	0 0	0 0	2	12 0	4 0
Malvern School (PB AM) Malvern School (PB PM)	0	0	0	0	-6	6	0	0	14	6	1	0
Marvern School (FB FWI)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	Ö	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-16
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	45	50	2049	60	0	0	42	108	1779	196
TOTAL "NEW" SITE TRAFFIC	0	0	11	0	-124	0	0	0	0	0	-317	169
Single Family Homes	0	0	7	0	7	0	0	0	0	0	0	23
Carriage Homes	0	0	3	0	3	0	0	0	0	0	0	10
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	-111	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	-22
Diversion D - NBR Bridlewood to 202	0	0	0	0	-23	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	-250	125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-67	33
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	56	50	1925	60	0	0	42	108	1462	365
"New" Site Traffic % of Total ####	0.0	0.0	19.6	0.0	-6.4	0.0	0.0	0.0	0.0	0.0	-21.7	46.3

INTERSECTION VOLUME SUMMARY Church Full-Movement/W. Pleasant Grove Road

	Е	ASTBOU	ND	NO	RTHBC	UND	W	ESTBOU	JND	SO	UTHBO	UND
T. CC. C		asant Gro										
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Seasonal Adjustment Factor 1.000	0	12	1	1	0	0	8	152	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Background Growth 3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND	0	12	1	1	0	0	8	157	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	15	0	0	0	0	0	21	0	0	0	0
		_										
Condominium Development Malvern School (NEW)	0	0 0	0	0	0	0	0	1 0	0 0	0	0	0
Arborview Development	0	15	0	0	0	0	0	26	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0 0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	Ö	0	0	Ö	0	0	2	0	0	Ö	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0 0	0	0	0 0	0 0	0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	Ő	0	0	0	0	0	Ö	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	27	1	1	0	0	8	178	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	16	0	0	0	0	0	104	0	0	0	0
Single Family Homes	0	10	0	0	0	0	0	7	0	0	0	0
Carriage Homes	0	5	0	0	0	0	0	3	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0 0	0	0	0 0	0 0	0	0	0
Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	94	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	43	1	1	0	0	8	282	0	0	0	0
"New" Site Traffic % of Total ####	0.0	37.2	0.0	0.0	0.0	0.0	0.0	36.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Church Full-Movement/W. Pleasant Grove Road

	Е	ASTBOL	IND	NC	RTHBC	UND	W	ESTBOU	ND	SO	UTHBO	UND
								sant Grov				
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	20	0	1	0	4	5	229	0	0	0	0
Seasonal Adjustment Factor 1.000	0	20	0	1	0	4	5	229	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	Ö	0
ADJUSTED EXISTING TRAFFIC	0	20	0	1	0	4	5	229	0	0	0	0
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	1	0	4	5	236	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	20	0	0	0	0	0	5	0	0	0	0
TOTAL OTHER DEVELOPMENTS	0	20	U	U	U	U	U	5	U	U	U	U
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	20	0	0	0	0	0	19	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0 0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Wav Diversion A	0	0	0	0	Ö	Ö	Ö	0	Ö	0	0	Ö
Orvis Way Diversion B	0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-16	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0 0	0	0	0	0 0	0	0	0	0 0	0
Other A.P. of second												
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	41	0	1	0	4	5	241	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	11	0	0	0	0	0	169	0	0	0	0
Single Family Homes	0	7	0	0	0	0	0	23	0	0	0	0
Carriage Homes	0	3	0	0	0	0	0	10	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	Ō	0	Ō	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-22	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	125	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	33	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	52	0	1	0	4	5	410	0	0	0	0
"New" Site Traffic % of Total ####	0.0	21.2	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Orvis Way/W. Pleasant Grove Road

		ASTBOU			RTHBC			ESTBOU			UTHBOU	
Traffic Component	W. Plea	sant Gro	ve Road R	L	Orvis Wa S	ıy R	W. Plea	sant Gro	ve Road R	L	Orvis Way S	R
	î									_		
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000	0	12 12	0 0	0 0	0	0 0	0	153 153	0 0	0 0	0 0	0 0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	12	0	0	0	0	0	153	0	0	0	0
Background Growth 3.16 %	0	0	0	0	0	0	0	5	0	0	0	0
EXISTING W/ BACKGROUND	0	12	0	0	0	0	0	158	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	34	0	0	0	0	0	0	-7	28	15	0	12
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW) Arborview Development	0 6	0	0	0	0	0 0	0	0	0 26	0 15	0 0	0 4
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0 0	0	0	0	0	0	0 0
Orvis Way Diversion A	28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8	0	0	0	8
	0	0 0	0 0	0	0	0 0	0	0	0	0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	34	12	0	0	0	0	0	151	28	15	0	12
TOTAL "NEW" SITE TRAFFIC	99	16	0	0	0	0	0	104	0	0	0	10
Single Family Homes	31	10	0	0	0	0	0	7	0	0	0	7
Carriage Homes	15	5	0	0	0	0	0	3	0	0	0	3
Site Balancing Diversion A - EBL 926 to NB 202	0 26	1 0	0	0	0	0 0	0	0	0	0	0	0 0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	27	0	Ö	0	0	Ö	0	0	Ö	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	94	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	133	28	0	0	0	0	0	255	28	15	0	22
"New" Site Traffic % of Total ####	74.4	57.1	0.0	0.0	0.0	0.0	0.0	40.8	0.0	0.0	0.0	45.5

INTERSECTION VOLUME SUMMARY Orvis Way/W. Pleasant Grove Road

	EASTBOUND W. Pleasant Grove Road				RTHBO	UND	W	ESTBOU	JND	SOU	JTHBOU	JND
	W. Plea		ve Road		Orvis Wa	y	W. Plea	sant Gro	ve Road		Drvis Wa	ıy
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EVICTING TO A FEIG	0	24	0	0	0	0	0	220	0	0	0	0
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000	0	24 24	0	0	0	0	0	230 230	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
Balaneing Adjustments	U	U	U	U	U	U	U	U	O	U	O	U
ADJUSTED EXISTING TRAFFIC	0	24	0	0	0	0	0	230	0	0	0	0
B 1 10 1 0400							_	_	•		•	
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	25	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	28	0	0	0	0	0	0	-16	21	20	0	22
TOTAL OTHER DEVELORMENTS		ŭ	ŭ	Ü	ŭ	ŭ				_0	ŭ	
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	4	0	0	0	0	0	0	0	19	20	0	6
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0 0	0 0	0 0	0	0	0	0 0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	Ö	-16	0	0	0	16
0.1.00 11.00, 0.0000000	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	28	25	0	0	0	0	0	221	21	20	0	22
TOTAL "NEW" SITE TRAFFIC	163	11	0	0	0	0	0	169	0	0	0	213
Single Family Homes	20	7	0	0	0	0	0	23	0	0	0	23
Carriage Homes	9	3	0	0	0	0	0	10	0	0	0	10
Site Balancing	0	1	0	0	0	0	0	0	0	Ō	0	-1
Diversion A - EBL 926 to NB 202	111	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-22	0	0	0	22
Diversion D - NBR Bridlewood to 202	23	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	125	0	0	0	125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	33	0	0	0	34
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	191	36	0	0	0	0	0	390	21	20	0	235
"New" Site Traffic % of Total ####	85.3	30.6	0.0	0.0	0.0	0.0	0.0	43.3	0.0	0.0	0.0	90.6

INTERSECTION VOLUME SUMMARY Church Egress Only /W. Pleasant Grove Road

		ASTBOU			RTHBC			ESTBOU			UTHBO	
Traffic Component	W. Plea	asant Gro	ve Road R	Churc L	h Egress S	Only R	W. Plea	sant Gro	ve Road R	Churc L	ch Egress S	Only R
EXISTING TRAFFIC	0	13	0	0	0	0	0	153	0	0	0	0
Seasonal Adjustment Factor 1.000 Balancing Adjustments	0	13 0	0 0	0 0	0	0 0	0	153 0	0 0	0 0	0	0 0
ADJUSTED EXISTING TRAFFIC	0	13	0	0	0	0	0	153	0	0	0	0
Background Growth 3.16 % EXISTING W/ BACKGROUND	0	0 13	0 0	0 0	0 0	0	0	5 158	0 0	0 0	0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1 0	0	0	0	0
Malvern School (NEW) Arborview Development	0	6	0	0	0	0	0	4	0	0	0	0 0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0 0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B Orvis Way Diversion C	0	0	0	0 0	0 0	0 0	0	0	0 0	0 0	0 0	0
Olvis way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0 0	0 0	0 0	0	0	0 0	0 0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	47	0	0	0	0	0	163	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	115	0	0	0	0	0	114	0	0	0	0
Single Family Homes	0	41	0	0	0	0	0	13	0	0	0	0
Carriage Homes	0	20	0	0	0	0	0	6	0	0	0	0
Site Balancing Diversion A - EBL 926 to NB 202	0	1 26	0	0	0	0	0	1 0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	27	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0 94	0	0	0	0
		U	U	U	-	U	0	•	U	U	U	U
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	162	0	0	0	0	0	277	0	0	0	0
"New" Site Traffic % of Total ####	0.0	71.0	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Church Egress Only /W. Pleasant Grove Road

	EASTBOUND NORTHBOUND W. Pleasant Grove Road Church Egress Only					W	ESTBOU	JND	SO	UTHBO	UND	
					h Egress			sant Gro			h Egress	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	ő	4	Ö	Ő	Ö	Ö	ő	6	Ö	Ő	Ö	Ő
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0 0	0	0	0	0 0	0	0	0	0
Orvis Wav Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	ő	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0 0	0	0	0	0	0	0	0	0
		ŭ	ŭ	ŭ	ŭ	ŭ		ŭ	ŭ	Ü	ŭ	ŭ
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	49	0	0	0	0	0	243	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	174	0	0	0	0	0	382	0	0	0	0
Single Family Homes	0	27	0	0	0	0	0	46	0	0	0	0
Carriage Homes	0	12	0	0	0	0	0	19	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	111	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	23 0	0	0 0	0 0	0	0	0 250	0	0 0	0	0
Diversion G - US 202 SB1 Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	250 67	0	0	0	0
Diversion L - DDIV 202 € 720		3	5	J	0	5		01	5	5	5	5
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	223	0	0	0	0	0	625	0	0	0	0
"New" Site Traffic % of Total ####	0.0	78.0	0.0	0.0	0.0	0.0	0.0	61.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Collector Road/W. Pleasant Grove Road

		ASTBOU	JND ve Road		RTHB(lector R			ESTBOU sant Gro			UTHBO	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	13 13 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	152 152 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	13	0	0	0	0	0	152	0	0	0	0
Background Growth 3.16 % EXISTING W/ BACKGROUND	0	0 13	0 0	0	0 0	0 0	0 0	5 157	0 0	0 0	0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0 28 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	47	0	0	0	0	0	162	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	23	1	4	0	92	160	-46	0	0	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	15 7 1 0 0 0 0 0	1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	26 12 1 26 0 27 0 0	8 4 1 0 53 0 0 94	5 2 0 0 -53 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	70	1	4	0	92	160	116	0	0	0	0
"New" Site Traffic % of Total ####	0.0	32.9	100.0	100.0	0.0	100.0	100.0	-39.7	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Collector Road/W. Pleasant Grove Road

		ASTBOU			RTHBO			ESTBOU			UTHBO	
Tueff - Comment			ve Road	Col L	lector R		W. Plea	sant Gro			llector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000	0	20	0	0	0	0	0	230	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	0	0	0	0	237	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	U	28	U	U	U	U	0	ь	U	U	U	U
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM) Malvern School (PB PM)	0	0 0	0	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0
Marvern School (FB FM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	49	0	0	0	0	0	243	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	16	4	3	0	158	410	-28	0	0	0	0
Single Family Homes	0	10	3	2	0	17	29	17	0	0	0	0
Carriage Homes	0	4	1	1	0	7	12	7	0	0	0	0
Site Balancing	0	2	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	111	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	52	-52	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	23	0	0	0	0	0	0
Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0	0	0	0	0	0 0	250 67	0	0	0 0	0	0
Diversion E - SDK 202 @ 920	U	U	U	J	U	U	07	U	U	U	U	U
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	65	4	3	0	158	410	215	0	0	0	0
"New" Site Traffic % of Total ####	0.0	24.6	100.0	100.0	0.0	100.0	100.0	-13.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road M (Site Access)/W. Pleasant Grove Road

	EASTBOUND NORTHBOU W. Pleasant Grove Road Road M (Site Ac-						ESTBOU			UTHBO		
True CC - Common of								sant Gro			M (Site A	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	24	0	0	0	0	0	225	0	0	0	0
Seasonal Adjustment Factor 1.000	0	24	0	0	0	0	0	225	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	24	0	0	0	0	0	225	0	0	0	0
ADJUSTED EXISTING TRAFFIC	-	24	<u> </u>	U			-	223	U			
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	25	0	Ü	U	Ü	0	232	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0 0	0 0	0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0 0	0	0	0 0	0	0	0 0	0 0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	59	0	0	0	0	0	237	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	10	0	1	0	13	4	-46	0	0	0	0
Single Family Homes	0	7	0	1	0	9	3	5	0	0	0	0
Carriage Homes	0	3	0	0	0	4	1	2	0	0	0	0
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-53	0	0	0	0
Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	0	0 0	0	0	0 0	0	0	0 0	0 0	0	0 0
Diversion G - US 202 SB1 Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
		-										
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	69	0	1	0	13	4	191	0	0	0	0
"New" Site Traffic % of Total #####	0.0	14.5	0.0	100.0	0.0	100.0	100.0	-24.1	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road M (Site Access)/W. Pleasant Grove Road

	EASTBOUND NORTHBOUND W. Pleasant Grove Road Road M (Site Access) V				W	ESTBOU	IND	SO	UTHBO	UND		
												Access)
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	33	0	0	0	0	0	254	0	0	0	0
Seasonal Adjustment Factor 1.000	0	33	0	0	0	0	0	254	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	33	0	0	0	0	0	254	0	0	0	0
Background Growth 3.16 %	0	1	0	0	0	0	0	8	0	0	0	0
EXISTING W/ BACKGROUND	0	34	0	0	0	0	0	262	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	U	U	U	U	0	ь	U	U	U	U
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM) Malvern School (PB PM)	0	0	0 0	0	0 0	0 0	0	0	0 0	0	0 0	0 0
Marvern School (FB FWI)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0 0	0 0	0	0	0 0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	62	0	0	0	0	0	268	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	11	2	1	0	9	14	-39	0	0	0	0
Single Family Homes	0	7	1	1	0	6	10	9	0	0	0	0
Carriage Homes	0	3	0	0	0	3	4	4	0	0	0	0
Site Balancing	0	1	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-52	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0	0	0	0	0	0 0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	U	U	U	U	U	U	U	U	0	U	U
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	73	2	1	0	9	14	229	0	0	0	0
"New" Site Traffic % of Total 0.0%	0.0	15.1	100.0	100.0	0.0	100.0	100.0	-17.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

		ASTBO			RTHBC			ESTBOU			UTHBO	
Traffic Component	W. Plea	sant Gro	ove RoRanda R	ld K (Site L	Access S	s) / Dunve R	e∰wan Plea L	sant Grov S	ve RoRanda R	nd K (Site L	Access)	/ Dunve R
EXISTING TRAFFIC	0	19	0	0	0	0	0	222	3	5	0	2
Seasonal Adjustment Factor 1.000 Balancing Adjustments	0	19 0	0	0	0 0	0	0	222 0	3 0	5 0	0	2
Darancing Adjustments		U	U		U	U		U	U		U	U
ADJUSTED EXISTING TRAFFIC	0	19	0	0	0	0	0	222	3	5	0	2
Background Growth 3.16 %	0	1	0	0	0	0	0	7	0	0	0	0
EXISTING W/ BACKGROUND	0	20	0	0	0	0	0	229	3	5	0	2
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	6	0	0	0	Ö	Ö	4	Ö	0	Ö	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	54	0	0	0	0	0	234	3	5	0	2
TOTAL "NEW" SITE TRAFFIC	0	2	4	12	0	9	3	-48	0	0	0	0
Single Family Homes	0	1	3	8	0	6	2	4	0	0	0	0
Carriage Homes	0	1	1	4	0	3	1	2	0	0	0	0
Site Balancing	0	0	0	0	0	0	0	-1	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-53	0	0	0	0
Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	56	4	12	0	9	3	186	3	5	0	2
"New" Site Traffic % of Total ####	0.0	3.6	100.0	100.0	0.0	100.0	100.0	-25.8	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Build-Out Year (2025)

n

		EASTBO				OUND		ESTBOU			UTHBO	
Traffic Component	W. Ple L	asant Gro	ove RBand R	nd K (Site L	e Acces	s) / Dunv R	e X ánPlea │ L	sant Gro S	ve RBand R	hd K (Sit L	e Access)	/ Dunv
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	3 3 0	32 32 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	243 243 0	11 11 0	1 1 0	0 0 0	2 2 0
ADJUSTED EXISTING TRAFFIC	3	32	0	0	0	0	0	243	11	1	0	2
Background Growth 3.16 % EXISTING W/ BACKGROUND TOTAL "OTHER" DEVELOPMENTS	6 0 3	1 33 28	0 0	0 0	0 0	0 0	0 0	8 251 6	0 11 0	0 1	0 0	0 2 0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0	0 0 4 0 0 0 0 0 0 0 24 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT	3	61	0	0	0	0	0	257	11	1	0	2
TOTAL "NEW" SITE TRAFFIC	0	7	13	7	0	6	10	-48	0	0	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0 0 0 0 0 0	5 2 0 0 0 0 0	9 4 0 0 0 0 0	5 2 0 0 0 0 0	0 0 0 0 0 0	4 2 0 0 0 0 0 0	7 3 0 0 0 0 0	3 1 0 0 -52 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	3	68	13	7	0	6	10	209	11	1	0	2
"New" Site Traffic % of Total 0.0%	0.0	10.3	100.0	100.0	0.0	100.0	100.0	-23.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY New Street/W. Pleasant Grove Road

		ASTBOU			RTHBO			ESTBO			UTHBOU	
Traffic Component	W. Plea	sant Gro S	ve Road R	L	New Stree S	R R	W. Pleas	sant Gro S	ove Road R	L	New Stree	t R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	173 173 0	6 6 0	203 203 0	0 0 0	21 21 0	13 13 0	127 127 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	173	6	203	0	21	13	127	0
Background Growth 3.16 % EXISTING W/ BACKGROUND	0	0 0	0 0	0 0	5 178	0 6	6 209	0 0	1 22	0 13	4 131	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	32	4	0	1	2	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 4 0 0 0 0 0 0 28 0 0 0 0	1 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT	0	0	0	0	178	38	213	0	23	15	131	0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	0	3	-43	0	7	3	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	7 3 0 0 -53 0 0 0	0 0 0 0 0 0 0 0	5 2 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	178	41	170	0	30	18	131	0
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	0.0	7.3	-25.3	0.0	23.3	16.7	0.0	0.0

INTERSECTION VOLUME SUMMARY New Street/W. Pleasant Grove Road

	EASTBOUND W. Pleasant Grove Road				ORTHBO	UND	WI	ESTBO	UND	SO	UTHBO	UND
					New Stree				ve Road		New Stree	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	143	17	198	0	47	18	168	0
Seasonal Adjustment Factor 1.000	0	0	0	0	143	17	198	0	47	18	168	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	143	17	198	0	47	18	168	0
Background Growth 3.16 %	0	0	0	0	5	1	6	0	1	1	5	0
EXISTING W/ BACKGROUND	0	0	0	0	148	18	204	0	48	19	173	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	27	4	0	2	1	0	0
		•	6	•	•	^		•		6		6
Condominium Development	0	0	0	0	0	0	0	0	0	0 0	0	0
Malvern School (NEW) Arborview Development	0	0	0	0	0	0 3	4	0 0	0 2	0 1	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
Walvern School (1 B 1 W1)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	24	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	148	45	208	0	50	20	173	0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	0	11	-45	0	4	9	0	0
Single Family Homes	0	0	0	0	0	8	5	0	3	6	0	0
Carriage Homes	0	0	0	0	0	3	2	0	1	2	0	0
Site Balancing	ő	Ö	Ö	0	0	0	0	0	0	1	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	-52	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	148	56	163	0	54	29	173	0
"New" Site Traffic % of Total 0.0%	0.0	0.0	0.0	0.0	0.0	19.6	-27.6	0.0	7.4	31.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

		ASTBOU			ORTHBO			ESTBO			OUTHBO	
Traffic Component	Stetson 1	Blvd / Sk S	iles Blvd R	Wilming L	gton Pike S	(US 202 R	Stetson	Blvd / Sk S	iles Blvd R	Wilming L	gton Pike S	(US 202) R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	81 81 0	141 141 0	31 31 0	0 0 0	2036 2036 0	29 29 0	50 50 0	134 134 0	54 54 0	0 0 0	1874 1874 0	256 256 0
ADJUSTED EXISTING TRAFFIC	81	141	31	0	2036	29	50	134	54	0	1874	256
Background Growth 3.16 % EXISTING W/ BACKGROUND	3 84	4 145	1 32	0 0	64 2100	1 30	2 52	4 138	2 56	0	59 1933	8 264
TOTAL "OTHER" DEVELOPMENTS	57	4	2	0	-21	26	34	0	5	0	14	33
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 29 0 0 0 0 0 0 28 0 0 0 0 0	2 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 8 0 -1 0 0 0 0 -28 0 0 0 0 0	2 7 14 5 0 0 0 0 0 -2 0 0 0 0	5 7 17 5 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 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 0 0	0 8 6 0 0 0 0 0 0 0 0 0	2 0 31 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	141	149	34	0	2079	56	86	138	61	0	1947	297
TOTAL "NEW" SITE TRAFFIC	99	0	0	0	-39	0	0	0	0	0	10	10
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	31 15 0 26 0 27 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	10 5 0 -27 0 -27 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 3 0 0 0 0 0 0 0	7 3 0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	240	149	34	0	2040	56	86	138	61	0	1957	307
"New" Site Traffic % of Total 0.0%	41.3	0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.5	3.3

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

		EASTBOU			ORTHBO			ESTBO			UTHBO	
Traffic Component	Stetson I.	Blvd / Ski	les Blvd R	Wilming L	gton Pike S	(US 202 R	Stetson l	Blvd / Sk S	ciles Blvč R	Wilming L	ton Pike S	(US 202 R
Tranic Component	ப	ט	K	L	Ŋ.		L	ט	K	ட	Ŋ.	K
EXISTING TRAFFIC	120	129	61	0	1993	46	27	43	59	0	1925	131
Seasonal Adjustment Factor 1.000	120	129	61	0	1993	46	27	43	59	0	1925	131
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	120	129	61	0	1993	46	27	43	59	0	1925	131
Background Growth 3.16 %	4	4	2	0	63	1	1	1	2	0	61	4
EXISTING W/ BACKGROUND	124	133	63	0	2056	47	28	44	61	0	1986	135
TOTAL "OTHER" DEVELOPMENTS	62	9	-2	0	-14	28	31	0	4	0	12	30
Condominium Development	0	6	0	0	0	5	3	0	4	0	0	6
Malvern School (NEW)	0	0	0	0	9	8	8	0	0	0	8	0
Arborview Development	38	3	14	Ö	0	10	13	Ö	Ö	0	4	24
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	1	7	7	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	24	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	-2	0	0	0	0	0	0
Orvis Way Diversion C	0	0	-16	0	0	0	0	0	0	0	0	0
	0 0	0 0	0 0	0	0	0	0	0 0	0 0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	186	142	61	0	2042	75	59	44	65	0	1998	165
TOTAL "NEW" SITE TRAFFIC	163	0	0	0	-124	0	0	0	0	0	-148	213
Single Family Homes	20	0	0	0	7	0	0	0	0	0	23	23
Carriage Homes	9	0	0	0	3	0	0	0	0	0	10	10
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202	111	0	0	0	-111	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	-22	22
Diversion D - NBR Bridlewood to 202	23	0	0	0	-23	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	-125	125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-34	34
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	349	142	61	0	1918	75	59	44	65	0	1850	378
"New" Site Traffic % of Total 0.0%	46.7	0.0	0.0	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-8.0	56.3



Appendix M

Future 2030 Detailed Traffic Volume Worksheets

INTERSECTION VOLUME SUMMARY New Street/Street Road (PA 926)

		ASTBOU Road (P.			ORTHBO			ESTBOU Road (P.			OUTHBO New Stre	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	48 48 0	648 648 0	5 5 0	9 9 0	97 97 0	41 41 0	8 8 0	310 310 0	36 36 0	8 8 0	122 122 0	190 190 0
ADJUSTED EXISTING TRAFFIC	48	648	5	9	97	41	8	310	36	8	122	190
TIPO CO TEP ENTO THE TAKEN THE			-									
Background Growth 5.87 % EXISTING W/ BACKGROUND	3 51	38 686	0 5	1 10	6 103	2 43	0	18 328	2 38	0 8	7 129	11 201
TOTAL "OTHER" DEVELOPMENTS	30	-26	0	0	2	0	0	2	0	0	1	3
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 2 0 0 0 0 0 0 28 0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0 0	1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	81	660	5	10	105	43	8	330	38	8	130	204
TOTAL "NEW" SITE TRAFFIC	3	3	0	0	1	1	4	63	0	0	3	-48
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	2 1 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0	5 2 1 0 55 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 1 0 0 0 0 0 0	5 2 0 0 -55 0 0 0
FUTURE TRAFFIC W/ PROJECT	84	663	5	10	106	44	12	393	38	8	133	156
"New" Site Traffic % of Total 0.0%	3.6	0.5	0.0	0.0	0.9	2.3	33.3	16.0	0.0	0.0	2.3	-30.8

INTERSECTION VOLUME SUMMARY New Street/Street Road (PA 926)

	EASTBOUND Street Road (PA 926) L S R			RTHBO			ESTBOU Road (P.			UTHBO New Stre		
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	30 30 0	659 659 0	13 13 0	9 9 0	83 83 0	37 37 0	19 19 0	305 305 0	30 30 0	49 49 0	164 164 0	143 143 0
ADJUSTED EXISTING TRAFFIC	30	659	13	9	83	37	19	305	30	49	164	143
1120000122 2111011011111111111111111111												
Background Growth 5.87 % EXISTING W/ BACKGROUND	2 32	39 698	1 14	1 10	5 88	2 39	1 20	18 323	2 32	3 52	10 174	8 151
TOTAL "OTHER" DEVELOPMENTS	26	-21	0	0	1	0	0	2	0	0	2	2
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 2 0 0 0 0 0 0 24 0 0 0	2 1 0 0 0 0 0 0 0 -24 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 1 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0 0	0 0 2 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	58	677	14	10	89	39	20	325	32	52	176	153
TOTAL "NEW" SITE TRAFFIC	8	9	0	0	3	4	3	58	0	0	2	-49
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	6 2 0 0 0 0 0 0 0	6 2 1 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0	3 1 0 0 54 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0	3 1 1 0 -54 0 0 0
FUTURE TRAFFIC W/ PROJECT	66	686	14	10	92	43	23	383	32	52	178	104
"New" Site Traffic % of Total 0.0%	12.1	1.3	0.0	0.0	3.3	9.3	13.0	15.1	0.0	0.0	1.1	-47.1

INTERSECTION VOLUME SUMMARY Bridlewood Blvd/Street Road (PA 926)

		ASTBOU Road (Pa			ORTHBC			ESTBO Road (P			UTHBO llewood	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	0 0 0	682 682 0	31 31 0	25 25 0	0 0 0	39 39 0	13 13 0	325 325 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	682	31	25	0	39	13	325	0	0	0	0
Background Growth 5.87 % EXISTING W/ BACKGROUND	0 0	40 722	2 33	1 26	0	2 41	1 14	19 344	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	-26	0	0	0	0	0	2	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 -28 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	696	33	26	0	41	14	346	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	31	-27	0	0	31	-27	0	-97	14	46	15	164
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	3 1 0 27 0 0 0 0	0 0 0 -27 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 1 0 0 0 27 0 0	0 0 0 0 0 -27 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 -97	10 4 0 0 0 0 0 0 0	31 15 0 0 0 0 0 0	10 5 0 0 0 0 0 0	8 4 0 0 55 0 0 97
FUTURE TRAFFIC W/ PROJECT	31	669	33	26	31	14	14	249	14	46	15	164
"New" Site Traffic % of Total ####	100.0	-4.0	0.0	0.0	100.0	-192.9	0.0	-39.0	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Bridlewood Blvd/Street Road (PA 926)

		ASTBOU Road (P.			ORTHBC			ESTBO Road (P			UTHBO	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	692 692 0	37 37 0	16 16 0	0 0 0	34 34 0	20 20 0	357 357 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	692	37	16	0	34	20	357	0	0	0	0
Background Growth 5.87 % EXISTING W/ BACKGROUND	0 0	41 733	2 39	1 17	0 0	2 36	1 21	21 378	0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	-21	0	0	0	0	0	2	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0	2 1 0 0 0 0 0 0 0 -24 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	712	39	17	0	36	21	380	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	127	-114	0	0	41	-24	0	-69	49	29	260	130
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	9 4 0 114 0 0 0	0 0 0 -114 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	12 5 0 0 0 24 0 0	0 0 0 0 0 -24 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 -69	35 14 0 0 0 0 0 0 0	20 9 0 0 0 0 0	7 3 0 0 0 0 0 250 0	5 2 0 0 54 0 0 69 0
FUTURE TRAFFIC W/ PROJECT	127	598	39	17	41	12	21	311	49	29	260	130
"New" Site Traffic % of Total ####	100.0	-19.1	0.0	0.0	100.0	-200.0	0.0	-22.2	100.0	100.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Street Road (PA 926)

		ASTBOU			ORTHBO ton Pike			ESTBO Road (P			UTHBO	UND (US 202)
Traffic Component	L	S S	A 920)		S	R	L	Koau (P.	A 920) R		S S	R R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	531 531 0	221 221 0	8 8 0	12 12 0	1551 1551 0	151 151 0	142 142 0	158 158 0	45 45 0	48 48 0	1465 1465 0	181 181 0
ADJUSTED EXISTING TRAFFIC	531	221	8	12	1551	151	142	158	45	48	1465	181
ADJUSTED EXISTING TRAFFIC	331	221		12	1331	131	142	136	45	40	1403	101
Background Growth 5.87 % EXISTING W/ BACKGROUND	31 562	13 234	0 8	1 13	91 1642	9 160	8 150	9 167	3 48	3 51	86 1551	11 192
TOTAL "OTHER" DEVELOPMENTS	-26	0	0	0	30	0	0	0	10	6	26	2
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	1 5 24 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 2 8 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0	3 6 18 -1 0 0 0 0 0 0 0	1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	536	234	8	13	1672	160	150	167	58	57	1577	194
TOTAL "NEW" SITE TRAFFIC	-39	8	23	10	0	0	0	4	0	8	8	-97
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic	10 5 0 -27 0 -27 0 0	5 2 1 0 0 0 0 0	15 7 1 0 0 0 0 0	7 3 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 1 0 0 0 0 0 0	0 0 0 0 0 0 0	5 2 1 0 0 0 0 0	5 2 1 0 0 0 0 0	0 0 0 0 0 0 0 0 -97
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	497	242	31	23	1672	160	150	171	58	65	1585	97
"New" Site Traffic % of Total 0.0%	-7.8	3.3	74.2	43.5	0.0	0.0	0.0	2.3	0.0	12.3	0.5	-100.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Street Road (PA 926)

		ASTBOU			RTHBO			ESTBO			UTHBO	
Traffic Component	Street	Road (P S	A 926) R	Wilming I	ton Pike	(US 202 R	Street L.	Road (P.	A 926) R	Wilming I	ton Pike S	(US 202)
Traffic Component	L	<u>s</u>	К	L	<u>s</u>	Х	L	<u>s</u>	К	L	ა	K
EXISTING TRAFFIC	451	204	27	29	1551	121	199	221	57	79	1451	128
Seasonal Adjustment Factor 1.000	451	204	27	29	1551	121	199	221	57	79	1451	128
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	451	204	27	29	1551	121	199	221	57	79	1451	128
ADJUSTED EXISTING TRAFFIC	431	204	21	23	1331	121	133	221	31	13	1431	120
Background Growth 5.87 %	26	12	2	2	91	7	12	13	3	5	85	8
EXISTING W/ BACKGROUND	477	216	29	31	1642	128	211	234	60	84	1536	136
TOTAL "OTHER" DEVELOPMENTS	-21	0	0	0	26	0	0	0	7	8	34	2
Condominium Development	2	0	0	0	3	0	0	0	0	0	2	1
Malvern School (NEW) Arborview Development	1 0	0	0	0	5 18	0	0	0	1 6	0 8	7 24	1 0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	1	0
Warvern School (1 B 1 W)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	-24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0	0 0	0	0 0	0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	456	216	29	31	1668	128	211	234	67	92	1570	138
TOTAL "NEW" SITE TRAFFIC	-128	4	15	32	0	0	0	17	0	6	-245	-69
Single Family Homes	7	3	10	23	0	0	0	12	0	3	3	0
Carriage Homes	3	ა 1	4	10	0	0	0	5	0	1	3 1	0
Site Balancing	0	0	1	-1	0	0	0	0	0	2	1	0
Diversion A - EBL 926 to NB 202	-114	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	Ö	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	-24	0	Ō	0	0	0	Ō	0	Ō	0	Ō	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	-250	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	-69
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	328	220	44	63	1668	128	211	251	67	98	1325	69
"New" Site Traffic % of Total ####	-39.0	1.8	34.1	50.8	0.0	0.0	0.0	6.8	0.0	6.1	-18.5	-100.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Pleasant Grove Road

		ASTBOU			ORTHBO			ESTBO			UTHBO	
Traffic Component	Pleasa I.	nt Grove S	e Koad R	Wilming	gton Pike S	(US 202 R) Pieasa L	ınt Grove S	Road R	Wilming	ton Pike	(US 202) R
EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Seasonal Adjustment Factor 1.000	0	0	12 0	10 0	2082 0	52 0	0	0	7 0	37 0	1753 0	150 0
Balancing Adjustments	U	U	U	U	U	U	U	U	U	U	U	U
ADJUSTED EXISTING TRAFFIC	0	0	12	10	2082	52	0	0	7	37	1753	150
Background Growth 5.87 %	0	0	1	1	122	3	0	0	0	2	103	9
EXISTING W/ BACKGROUND	0	0	13	11	2204	55	0	0	7	39	1856	159
TOTAL "OTHER" DEVELOPMENTS	0	0	15	22	-24	16	0	0	27	15	19	-1
Condominium Development	0	0	0	0	2	0	0	0	0	0	4	1
Malvern School (NEW)	0	0	0	0	0	8	0	0	15	8	7	0
Arborview Development	0	0	15	20	12	0	0	0	0	1	9	6
Malvern School (PB AM)	0	0	0	0	-8	8	0	0	12	6	-1	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-28	Ö	Ō	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-8
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0 0	0 0	0 0	0	0 0	0	0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	28	33	2180	71	0	0	34	54	1875	158
TOTAL "NEW" SITE TRAFFIC	0	0	16	0	-39	0	0	0	0	0	-97	107
Single Family Homes	0	0	10	0	10	0	0	0	0	0	0	7
Carriage Homes	0	0	5	0	5	0	0	0	0	0	0	3
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	-27	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion C - NBR Bridlewood to 202	0	0 0	0	0	-27	0	0 0	0	0	0	0 0	0
Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0	0	0	0	0 0	0 0	0	0	0 0	0	-97	0 97
		-	_			,			-			
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	44	33	2141	71	0	0	34	54	1778	265
"New" Site Traffic % of Total 0.0%	0.0	0.0	36.4	0.0	-1.8	0.0	0.0	0.0	0.0	0.0	-5.5	40.4

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Pleasant Grove Road

		ASTBO			ORTHBO			ESTBO			UTHBO	
Traffic Component	Pleasa I	int Grove S	e Road R	Wilming L	ton Pike S	(US 202 R) Pleasa	int Grove S	e Road R	Wilming I I	ton Pike S	(US 202) R
Trame Component	L	ა	N	L	S	K	L	ა	K	L	S	K
EXISTING TRAFFIC	0	0	24	32	2004	46	0	0	11	89	1701	202
Seasonal Adjustment Factor 1.000	0	0	24 0	32 0	2004 0	46 0	0	0	11 0	89 0	1701 0	202 0
Balancing Adjustments	U	U	U	0	U	U	U	U	U	0	U	U
ADJUSTED EXISTING TRAFFIC	0	0	24	32	2004	46	0	0	11	89	1701	202
Background Growth 5.87 %	0	0	1	2	118	3	0	0	1	5	100	12
EXISTING W/ BACKGROUND	0	0	25	34	2122	49	0	0	12	94	1801	214
TOTAL "OTHER" DEVELOPMENTS	0	0	20	17	-18	13	0	0	31	16	24	-12
Contract of the Decition of	0	0	0	0	5	0	0	0	0	0	3	0
Condominium Development Malvern School (NEW)	0	0	0	0	0	7	0	0	17	8	8	0
Arborview Development	Ö	Ö	20	15	9	0	Ő	Ö	0	2	12	4
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	-6	6	0	0	14	6	1	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0 0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	-24	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	2	-2	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	-16
"	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	45	51	2104	62	0	0	43	110	1825	202
TOTAL "NEW" SITE TRAFFIC	0	0	11	0	-128	0	0	0	0	0	-319	171
Single Family Homes	0	0	7	0	7	0	0	0	0	0	0	23
Carriage Homes	0	0	3	0	3	0	0	0	0	0	0	10
Site Balancing	0	0	1	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	-114	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	-22
Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	0 0	0 0	0	-24 0	0	0	0 0	0 0	0	0 -250	0 125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	-250 -69	35
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	56	51	1976	62	0	0	43	110	1506	373
"New" Site Traffic % of Total ####	0.0	0.0	19.6	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-21.2	45.8

INTERSECTION VOLUME SUMMARY Church Full-Movement/W. Pleasant Grove Road

	Е	ASTBOU	IND	NC	RTHBC	UND	W	ESTBOU	JND	SO	UTHBO	UND
Traffic Component	W. Ple			Church L			W. Plea	asant Grov S	ve Road R	Church L		vement R
Trame Component	L	S	R	L	S	R	L	S	K	L	S	K
EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Seasonal Adjustment Factor 1.000 Balancing Adjustments	0	12 0	1 0	1 0	0	0	8	152 0	0	0	0	0
Barancing Adjustments	0	U	U	U	U	U	0	U	U	0	U	U
ADJUSTED EXISTING TRAFFIC	0	12	1	1	0	0	8	152	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND	0	13	1	1	0	0	8	161	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	15	0	0	0	0	0	21	0	0	0	0
TOTAL OTHER DEVELOTMENTS		13	O		O	O		21	U		U	O
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0 15	0 0	0	0	0 0	0	0 26	0 0	0	0	0
Arborview Development Malvern School (PB AM)	0	15 0	0	0	0	0	0	26	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
Warvern School (LB 11VI)	ő	0	Ö	0	0	Ö	ő	0	Ö	Ö	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-8 0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	Ö	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	28	1	1	0	0	8	182	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	16	0	0	0	0	0	107	0	0	0	0
Single Family Homes	0	10	0	0	0	0	0	7	0	0	0	0
Carriage Homes	0	5	0	0	0	0	0	3	0	0	0	0
Site Balancing	0	1	Ö	Ö	Ö	Ö	0	0	Ö	0	Ö	Ö
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	0	0	0	0	0 0	0	0	0 97	0 0	0	0	0
Diversion E - SBR 202 @ 926	0	U	U	U	U	U	0	97	U	0	U	U
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	44	1	1	0	0	8	289	0	0	0	0
"New" Site Traffic % of Total ####	0.0	36.4	0.0	0.0	0.0	0.0	0.0	37.0	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Church Full-Movement/W. Pleasant Grove Road

	Е	ASTBOU	JND	NC	RTHBC	UND	W	ESTBOU	IND	SO	UTHBO	UND
The CC CC								asant Grov				_
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	20	0	1	0	4	5	229	0	0	0	0
Seasonal Adjustment Factor 1.000	0	20	0	1	0	4	5	229	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	20	0	1	0	4	5	229	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	13	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	1	0	4	5	242	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	20	0	0	0	0	0	5	0	0	0	0
			•		-	-			-			
Condominium Development	0	0	0 0	0	0	0	0	0	0	0	0	0 0
Malvern School (NEW) Arborview Development	0	20	0	0	0	0	0	19	0	0	0	0
Malvern School (PB AM)	0	0	Ö	0	0	0	0	0	Ö	0	Ö	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0 0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	2	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-16	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	41	0	1	0	4	5	247	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	11	0	0	0	0	0	171	0	0	0	0
Single Family Homes	0	7	0	0	0	0	0	23	0	0	0	0
Carriage Homes	0	3	0	0	0	0	0	10	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New	0	0	0 0	0	0	0 0	0	0 -22	0 0	0	0	0
Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	-22 0	0	0	0	0
Diversion G - US 202 SBT	0	0	Ö	Ö	Ö	Ö	Ö	125	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	35	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	52	0	1	0	4	5	418	0	0	0	0
"New" Site Traffic % of Total ####	0.0	21.2	0.0	0.0	0.0	0.0	0.0	40.9	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Orvis Way/W. Pleasant Grove Road

		ASTBOU			RTHBC			ESTBOU			UTHBOU	
Traffic Component	W. Plea	sant Gro	ve Road R	L	Orvis Wa S	ıy R	W. Plea	sant Gro	ve Road R	L	Orvis Way S	R
										_		
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000	0	12 12	0	0	0 0	0 0	0	153 153	0 0	0 0	0 0	0 0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	12	0	0	0	0	0	153	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	9	0	0	0	0
EXISTING W/ BACKGROUND	0	13	0	0	0	0	0	162	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	34	0	0	0	0	0	0	-7	28	15	0	12
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	6	0	0	0	0	0	0	0	26	15	0	4
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0 0	0	0	0	0	0 0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	28	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B Orvis Way Diversion C	0	0 0	0 0	0	0 0	0 0	0	0 -8	2 0	0 0	0 0	0 8
Olvis way Diversion C	0	0	0	0	0	0	0	-0 0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
												0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	34	13	0	0	0	0	0	155	28	15	0	12
TOTAL "NEW" SITE TRAFFIC	100	16	0	0	0	0	0	107	0	0	0	10
Single Family Homes	31	10	0	0	0	0	0	7	0	0	0	7
Carriage Homes	15	5	0	0	0	0	0	3	0	0	0	3
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New	27 0	0	0	0	0 0	0 0	0	0	0	0	0 0	0 0
Diversion D - NBR Bridlewood to 202	27	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	97	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	134	29	0	0	0	0	0	262	28	15	0	22
"New" Site Traffic % of Total ####	74.6	55.2	0.0	0.0	0.0	0.0	0.0	40.8	0.0	0.0	0.0	45.5

INTERSECTION VOLUME SUMMARY Orvis Way/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBOU			ORTHBO	UND		ESTBOU			UTHBOU	IND
Tracffin Common and		sant Gro			Orvis Wa			asant Gro			Orvis Wa	,
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	24	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000	0	24 0	0	0	0	0	0	230 0	0	0	0	0
Balancing Adjustments	0	U	U	U	U	U	U	U	U	U	U	0
ADJUSTED EXISTING TRAFFIC	0	24	0	0	0	0	0	230	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND	0	25	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	28	0	0	0	0	0	0	-16	21	20	0	22
			-									
Condominium Development Malvern School (NEW)	0	0	0	0	0 0	0	0	0	0	0	0	0 0
Arborview Development	4	0	0	0	0	0	0	0	0 19	20	0	6
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0 0	0 0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	24	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	2	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	-16	0	0	0	16
	0	0 0	0	0	0 0	0	0	0	0 0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	Ö	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	28	25	0	0	0	0	0	228	21	20	0	22
TOTAL "NEW" SITE TRAFFIC	167	11	0	0	0	0	0	171	0	0	0	213
Single Family Homes	20	7	0	0	0	0	0	23	0	0	0	23
Carriage Homes	9	3	0	0	0	0	0	10	0	0	0	10
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	-1
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New	114 0	0	0	0	0 0	0	0	0 -22	0	0	0	0 22
Diversion D - NBR Bridlewood to 202	24	0	0	0	0	0	0	-22 0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	125	0	0	0	125
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	35	0	0	0	34
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	195	36	0	0	0	0	0	399	21	20	0	235
"New" Site Traffic % of Total ####	85.6	30.6	0.0	0.0	0.0	0.0	0.0	42.9	0.0	0.0	0.0	90.6

INTERSECTION VOLUME SUMMARY Church Egress Only /W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBOU			RTHBO			ESTBOU			UTHBO	
Traffic Component	W. Piea L	asant Grov S	ve Road R	Cnurc L	h Egress S	R	W. Piea L	sant Grov S	ve Road R	L	h Egress S	Only R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	0 0 0	13 13 0	0 0	0 0 0	0 0 0	0 0 0	0 0 0	153 153 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	13	0	0	0	0	0	153	0	0	0	0
Background Growth 5.87 % EXISTING W/ BACKGROUND	0	1 14	0 0	0 0	0 0	0	0	9 162	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0 28 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	1 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	48	0	0	0	0	0	167	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	116	0	0	0	0	0	117	0	0	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0 0	41 20 1 27 0 27 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	13 6 1 0 0 0 0 97	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	164	0	0	0	0	0	284	0	0	0	0
"New" Site Traffic % of Total ####	0.0	70.7	0.0	0.0	0.0	0.0	0.0	41.2	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Church Egress Only /W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBOU			RTHBC			ESTBOU			UTHBO	
Traffic Component	W. Plea	sant Gro	ve Road R	Churc L	h Egress S	Only R	W. Plea	sant Gro	ve Road R	Churc L	h Egress S	Only R
Trame Component	L	<u> </u>	Λ	L	S	N	L	S	Λ	L	ა	K
EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000 Balancing Adjustments	0	20 0	0	0	0	0	0	230 0	0	0	0	0
Barancing Adjustments	U	U	U	U	U	U	U	U	U	U	U	U
ADJUSTED EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
TOTAL OTHER DEVELOPMENTS	0	20	U	U	U	U	U	U	O	U	U	U
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development Malvern School (PB AM)	0	4 0	0 0	0 0	0 0	0 0	0	6 0	0	0 0	0	0 0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
Walvelli School (I B I W)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0 0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	49	0	0	0	0	0	250	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	178	0	0	0	0	0	384	0	0	0	0
Single Family Homes	0	27	0	0	0	0	0	46	0	0	0	0
Carriage Homes	0	12	0	0	0	0	0	19	0	0	0	0
Site Balancing	0	1	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	114	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0 0	0	0	0	0	0	0 0	0	0 0
Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	24 0	0	0	0	0	0	250	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	69	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	227	0	0	0	0	0	634	0	0	0	0
"New" Site Traffic % of Total ####	0.0	78.4	0.0	0.0	0.0	0.0	0.0	60.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Collector Road/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBOU	JND ve Road		RTHB(lector R			ESTBOU sant Gro			UTHBO	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	13 13 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	152 152 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	13	0	0	0	0	0	152	0	0	0	0
Background Growth 5.87 % EXISTING W/ BACKGROUND	0	1 14	0 0	0	0 0	0 0	0 0	9 161	0 0	0 0	0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0 28 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	48	0	0	0	0	0	166	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	23	1	4	0	93	165	-48	0	0	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0	15 7 1 0 0 0 0 0	1 0 0 0 0 0 0 0	3 1 0 0 0 0 0 0	0 0 0 0 0 0 0	26 12 1 27 0 27 0 0	8 4 1 0 55 0 0 97	5 2 0 0 -55 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	71	1	4	0	93	165	118	0	0	0	0
"New" Site Traffic % of Total ####	0.0	32.4	100.0	100.0	0.0	100.0	100.0	-40.7	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Collector Road/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBOU			RTHBO			ESTBOU			UTHBO	
Traffic Component	W. Plea	sant Gro S	ve Road R	Col L	lector R S	load R	W. Plea	sant Gro	ve Road R	Co L	llector R S	oad R
Tranic Component	L	3	K	L	3	K	L	<u>s</u>	К	L	<u>s</u>	К
EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Seasonal Adjustment Factor 1.000	0	20 0	0	0	0	0 0	0	230 0	0	0	0	0
Balancing Adjustments	U	U	U	U	U	U	0	U	U	"	U	U
ADJUSTED EXISTING TRAFFIC	0	20	0	0	0	0	0	230	0	0	0	0
Background Growth 5.87 %	0	1	0	0	0	0	0	14	0	0	0	0
EXISTING W/ BACKGROUND	0	21	0	0	0	0	0	244	0	0	0	0
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
TOTAL OTHER DEVELOTMENTS		20	Ü	Ů	Ū	Ü		Ü	Ü		Ü	ŭ
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW) Arborview Development	0	0 4	0	0	0	0 0	0	0 6	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	Ö	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0 24	0	0	0 0	0 0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	Ö	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0 0	0 0	0	0 0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	49	0	0	0	0	0	250	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	16	4	3	0	162	414	-30	0	0	0	0
Single Family Homes	0	10	3	2	0	17	29	17	0	0	0	0
Carriage Homes	0	4	1	1	0	7	12	7	0	0	0	0
Site Balancing	0	2	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	114	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202	0	0 0	0	0	0 0	0 24	54 0	-54 0	0	0	0	0
Diversion G - NBR Bridlewood to 202 Diversion G - US 202 SBT	0	0	0	0	0	0	250	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	69	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	65	4	3	0	162	414	220	0	0	0	0
"New" Site Traffic % of Total ####	0.0	24.6	100.0	100.0	0.0	100.0	100.0	-13.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBOU			RTHBO			ESTBOU			UTHBO	
The Control of the Co		asant Grov				Access)		sant Gro			M (Site A	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	24 24 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	225 225 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	24	0	0	0	0	0	225	0	0	0	0
ADJUSTED EXISTING TRAFFIC	-	24		-			-	223		-		
Background Growth 5.87 % EXISTING W/ BACKGROUND	0	1 25	0	0 0	0 0	0 0	0 0	13 238	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 0 0 0 0 0 0 0	0 0 6 0 0 0 0 0 28 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	1 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	59	0	0	0	0	0	243	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	10	0	1	0	13	4	-48	0	0	0	0
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic	0 0 0 0 0 0 0 0 0	7 3 0 0 0 0 0 0	0 0 0 0 0 0 0	1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	9 4 0 0 0 0 0 0	3 1 0 0 0 0 0 0	5 2 0 0 -55 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	69	0	1	0	13	4	195	0	0	0	0
"New" Site Traffic % of Total ####	0.0	14.5	0.0	100.0	0.0	100.0	100.0	-24.6	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road M (Site Access)/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	E.	ASTBOU	JND	NO	RTHBO	DUND	W	ESTBOU	JND	SO	UTHBO	UND
	W. Plea	sant Gro	ve Road	Road N		Access)	W. Plea	sant Grov	ve Road	Road I	M (Site A	Access)
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EVICTING TO A FEIG	0	20	0	0	0	0	0	254	0	0	0	0
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000	0	33 33	0	0	0	0	0	254 254	0	0	0	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
Datanenig Adjustments	0	O	O	O	Ü	O	O	O	O	U	O	· ·
ADJUSTED EXISTING TRAFFIC	0	33	0	0	0	0	0	254	0	0	0	0
Background Growth 5.87 %	0	2	0	0	0	0	0	15	0	0	0	0
Background Growth 5.87 % EXISTING W/ BACKGROUND	0	35	0	0	0	0	0	269	0	0	0	0
LAISTING W/ BACKGROUND	U	55	U	U	U	U	U	203	O	U	U	U
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development Malvern School (PB AM)	0	4 0	0	0	0	0 0	0	6 0	0	0	0 0	0
Malvern School (PB AM) Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
Marvern School (FB FWI)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0	0 0	0	0	0 0	0	0	0
		O	O	O	Ū	Ü	· ·	Ū	O	o o	O	O
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	63	0	0	0	0	0	275	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	11	2	1	0	9	14	-41	0	0	0	0
Single Family Homes	0	7	1	1	0	6	10	9	0	0	0	0
Carriage Homes	0	3	0	0	0	3	4	4	0	0	0	0
Site Balancing	0	1	1	0	Ō	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-54	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	74	2	1	0	9	14	234	0	0	0	0
"New" Site Traffic % of Total 0.0%	0.0	14.9	100.0	100.0	0.0	100.0	100.0	-17.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBO			RTHBC			ESTBOU			UTHBO	
Traffic Component	W. Plea	sant Gro	ove RoRanda R	ld K (Site L	Access S	s) / Dunve R	e∰wan Plea L	sant Grov S	ve RoRanda R	nd K (Site L	Access)	/ Dunve R
Tranic Component	L		K	L	ъ	IX	L	ט	IX			I
EXISTING TRAFFIC	0	19	0	0	0	0	0	222	3	5	0	2
Seasonal Adjustment Factor 1.000	0	19 0	0	0	0 0	0	0	222 0	3 0	5 0	0	2
Balancing Adjustments	0	U	U	0	U	U	U	U	U	0	U	U
ADJUSTED EXISTING TRAFFIC	0	19	0	0	0	0	0	222	3	5	0	2
Background Growth 5.87 %	0	1	0	0	0	0	0	13	0	0	0	0
EXISTING W/ BACKGROUND	0	20	0	0	0	0	0	235	3	5	0	2
TOTAL "OTHER" DEVELOPMENTS	0	34	0	0	0	0	0	5	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	1	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	6	0	0	0	0	0	4	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0	0	0 0	0	0	0	0 0	0	0	0
Orvis Wav Diversion A	0	28	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
*	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	54	0	0	0	0	0	240	3	5	0	2
TOTAL "NEW" SITE TRAFFIC	0	2	4	12	0	9	3	-50	0	0	0	0
Single Family Homes	0	1	3	8	0	6	2	4	0	0	0	0
Carriage Homes	0	1	1	4	0	3	1	2	0	0	0	0
Site Balancing	0	0	0	0	0	0	Ö	-1	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-55	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	56	4	12	0	9	3	190	3	5	0	2
"New" Site Traffic % of Total ####	0.0	3.6	100.0	100.0	0.0	100.0	100.0	-26.3	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Road K (Site Access) / Dunvegan/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBOU		NO	RTHBC	OUND	W	ESTBOU	JND		UTHBO	
T C C				d K (Site								
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	3	32	0	0	0	0	0	243	11	1	0	2
Seasonal Adjustment Factor 1.000	3	32	0	0	0	0	0	243	11	1	0	2
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	3	32	0	0	0	0	0	243	11	1	0	2
Background Growth 5.87 %	0	2	0	0	0	0	0	14	1	0	0	0
EXISTING W/ BACKGROUND	3	34	0	0	0	0	0	257	12	1	0	2
TOTAL "OTHER" DEVELOPMENTS	0	28	0	0	0	0	0	6	0	0	0	0
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	4	0	0	0	0	0	6	0	0	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	24	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0 0	0 0	0	0 0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT	3	62	0	0	0	0	0	263	12	1	0	2
TOTAL "NEW" SITE TRAFFIC	0	7	13	7	0	6	10	-50	0	0	0	0
Single Family Homes	0	5	9	5	0	4	7	3	0	0	0	0
Carriage Homes	0	2	4	2	0	2	3	1	0	0	0	0
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	0	-54	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	3	69	13	7	0	6	10	213	12	1	0	2
"New" Site Traffic % of Total 0.0%	0.0	10.1	100.0	100.0	0.0	100.0	100.0	-23.5	0.0	0.0	0.0	0.0

INTERSECTION VOLUME SUMMARY New Street/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBOU			RTHBO			ESTBO			UTHBO	
Traffic Component	W. Piea	sant Gro S	ve Koaa	I.	New Stree	et R	W. Pieas	sant Gro S	ove Road R	I.	New Stree	et R
Traine Component			I								D	
EXISTING TRAFFIC	0	0	0	0	173	6	203	0	21	13	127	0
Seasonal Adjustment Factor 1.000	0	0	0	0	173	6	203	0	21	13	127	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	173	6	203	0	21	13	127	0
Background Growth 5.87 %	0	0	0	0	10	0	12	0	1	1	7	0
EXISTING W/ BACKGROUND	0	0	0	0	183	6	215	0	22	14	134	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	32	4	0	1	2	0	0
TOTAL OTTLER BEVELOTIVELYIS												
Condominium Development	0	0	0	0	0	0	1	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	0	0	0	0	4	3	0	1	2	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0 0	0	0	0 0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	ő	0	0	0	0	28	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/OUT PROJECT	0	0	0	0	183	38	219	0	23	16	134	0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	0	3	-45	0	7	3	0	0
Single Family Homes	0	0	0	0	0	2	7	0	5	2	0	0
Carriage Homes	0	0	0	0	0	1	3	0	2	1	0	0
Site Balancing	0	0	0	0	0	0	0	0	0	0	0	0
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	-55	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	183	41	174	0	30	19	134	0
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	0.0	7.3	-25.9	0.0	23.3	15.8	0.0	0.0

INTERSECTION VOLUME SUMMARY New Street/W. Pleasant Grove Road

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBOU			ORTHBO			ESTBO			UTHBO	
	I		ve Road		New Stree		l l		ve Road		New Stre	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC	0	0	0	0	143	17	198	0	47	18	168	0
Seasonal Adjustment Factor 1.000	0	0	0	0	143	17	198	0	47	18	168	0
Balancing Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
Butuneing Aujustments		Ü	Ü	Ü	Ü	Ü		Ü	ŭ	Ü	Ü	Ü
ADJUSTED EXISTING TRAFFIC	0	0	0	0	143	17	198	0	47	18	168	0
D 1 10 1 5070		•	•		•		4.0				4.0	
Background Growth 5.87 %	0	0	0	0	8	1	12	0	3 50	1	10	0
EXISTING W/ BACKGROUND	U	U	U	U	151	18	210	0	50	19	178	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	27	4	0	2	1	0	0
TOTAL OTHER DEVELOTMENTS			-	-			-	_	_	-		
Condominium Development	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (NEW)	0	0	0	0	0	0	0	0	0	0	0	0
Arborview Development	0	0	0	0	0	3	4	0	2	1	0	0
Malvern School (PB AM)	0	0	0	0	0	0	0	0	0	0	0	0
Malvern School (PB PM)	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0 0	0	0	0 0	0	0 0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion A	0	0	0	0	0	24	0	0	0	0	0	0
Orvis Way Diversion B	0	0	0	0	0	0	0	0	0	0	0	0
Orvis Way Diversion C	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	151	45	214	0	52	20	178	0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	0	11	-47	0	4	9	0	0
Single Family Homes	0	0	0	0	0	8	5	0	3	6	0	0
Carriage Homes	0	0	0	0	0	3	2	0	1	2	0	0
Site Balancing	Ö	Ö	Ö	Ö	0	0	0	Ö	0	1	Ö	Ö
Diversion A - EBL 926 to NB 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion B - SBR 202 to WPG/New	0	0	0	0	0	0	-54	0	0	0	0	0
Diversion D - NBR Bridlewood to 202	0	0	0	0	0	0	0	0	0	0	0	0
Diversion G - US 202 SBT	0	0	0	0	0	0	0	0	0	0	0	0
Diversion E - SBR 202 @ 926	0	0	0	0	0	0	0	0	0	0	0	0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	151	56	167	0	56	29	178	0
"New" Site Traffic % of Total 0.0%	0.0	0.0	0.0	0.0	0.0	19.6	-28.1	0.0	7.1	31.0	0.0	0.0

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBOU			ORTHBO			ESTBO			OUTHBO	
Traffic Component	Stetson 1	Blvd / Sk S	iles Blvd R	Wilming L	gton Pike S	(US 202 R	Stetson	Blvd / Sk S	iles Blvd R	Wilming L	gton Pike S	(US 202) R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	81 81 0	141 141 0	31 31 0	0 0 0	2036 2036 0	29 29 0	50 50 0	134 134 0	54 54 0	0 0 0	1874 1874 0	256 256 0
ADJUSTED EXISTING TRAFFIC	81	141	31	0	2036	29	50	134	54	0	1874	256
Background Growth 5.87 % EXISTING W/ BACKGROUND	5 86	8 149	2 33	0 0	120 2156	2 31	3 53	8 142	3 57	0	110 1984	15 271
TOTAL "OTHER" DEVELOPMENTS	57	4	2	0	-21	26	34	0	5	0	14	33
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM) Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 0 29 0 0 0 0 0 0 28 0 0 0 0	2 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 8 0 -1 0 0 0 0 -28 0 0 0 0	2 7 14 5 0 0 0 0 0 -2 0 0 0 0	5 7 17 5 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 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 0 0 0 0 0 0 0 0	0 8 6 0 0 0 0 0 0 0 0 0 0	2 0 31 0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	143	153	35	0	2135	57	87	142	62	0	1998	304
TOTAL "NEW" SITE TRAFFIC	100	0	0	0	-39	0	0	0	0	0	10	10
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	31 15 0 27 0 27 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	10 5 0 -27 0 -27 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7 3 0 0 0 0 0 0	7 3 0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	243	153	35	0	2096	57	87	142	62	0	2008	314
"New" Site Traffic % of Total 0.0%	41.2	0.0	0.0	0.0	-1.9	0.0	0.0	0.0	0.0	0.0	0.5	3.2

INTERSECTION VOLUME SUMMARY Wilmington Pike (US 202)/Stetson Blvd / Skiles Blvd

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\SDS\ Weekday 4-6 PM Design Year (2030)

		EASTBOU			ORTHBO			ESTBO			OUTHBO	
Traffic Component	Stetson	Blvd / Ski S	les Blvd R	Wilming	gton Pike S	(US 202 R	Stetson L	Blvd / Sl S	kiles Blvo R	Wilming L	gton Pike S	(US 202 R
EXISTING TRAFFIC	120	129	61	0	1993	46	27	43	59	0	1925	131
Seasonal Adjustment Factor 1.000 Balancing Adjustments	120 0	129 0	61 0	0	1993 0	46 0	27 0	43 0	59 0	0	1925 0	131 0
ADJUSTED EXISTING TRAFFIC	120	129	61	0	1993	46	27	43	59	0	1925	131
Background Growth 5.87 % EXISTING W/ BACKGROUND	7 127	8 137	4 65	0	117 2110	3 49	2 29	3 46	3 62	0 0	113 2038	8 139
TOTAL "OTHER" DEVELOPMENTS	62	9	-2	0	-14	28	31	0	4	0	12	30
Condominium Development Malvern School (NEW) Arborview Development Malvern School (PB AM) Malvern School (PB PM)	0 0 38 0 0	6 0 3 0 0	0 0 14 0 0 0	0 0 0 0 0	0 9 0 0 1 0	5 8 10 0 7 0	3 8 13 0 7 0	0 0 0 0 0	4 0 0 0 0 0	0 0 0 0 0	0 8 4 0 0	6 0 24 0 0 0
Orvis Way Diversion A Orvis Way Diversion B Orvis Way Diversion C	0 24 0 0 0 0 0	0 0 0 0 0 0	0 0 0 -16 0 0 0	0 0 0 0 0 0 0	0 -24 0 0 0 0 0	0 0 -2 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	189	146	63	0	2096	77	60	46	66	0	2050	169
TOTAL "NEW" SITE TRAFFIC	167	0	0	0	-128	0	0	0	0	0	-148	213
Single Family Homes Carriage Homes Site Balancing Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion G - US 202 SBT Diversion E - SBR 202 @ 926	20 9 0 114 0 24 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	7 3 0 -114 0 -24 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	23 10 0 0 -22 0 -125 -34	23 10 -1 0 22 0 125 34
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	356	146	63	0	1968	77	60	46	66	0	1902	382
"New" Site Traffic % of Total 0.0%	46.9	0.0	0.0	0.0	-6.5	0.0	0.0	0.0	0.0	0.0	-7.8	55.8



Appendix N

Capacity/Level-of-Service Methodology

CAPACITY/LEVEL-OF-SERVICE ANALYSIS METHODOLOGY

The detailed capacity/level-of-service analysis contained in this transportation impact study was performed in accordance with the standard techniques contained in the *Highway Capacity Manual 6th Edition*. By definition, capacity represents "the maximum sustainable hourly flow rate at which persons or vehicles reasonably can be expected to traverse a point or a uniform section of a lane or roadway during a given time period under prevailing roadway, environmental, traffic, and control conditions." The level at which an intersection or a uniform section of a lane or roadway function can be expressed in terms of a level of service. Level of service (LOS) is defined as "a quantitative stratification of a performance measure or measures that represent quality of service, measured on an A-F scale, with LOS A representing the best operating conditions from the traveler's perspective and LOS F the worst."

Stop-Controlled Intersections

At unsignalized stop-controlled intersections, such as two-way stop-controlled (TWSC) or all-way stop-controlled (AWSC), a methodology for evaluating the relative functioning of these intersections is based upon the control delay. For these types of unsignalized intersections, the analysis of the control delay is based upon the following data:

- Number and configuration of lanes on each approach;
- Percentage of heavy vehicles on each approach;
- Demand flow rate for each entering vehicular movement and pedestrian crossing movement;
- Unique geometric factors such as, channelization aspects; two-way left-turn lanes, raised or striped median storage; approach grades, flared approaches on the minor street; and upstream signals within 0.25 miles.

At TWSC intersections, only drivers on the minor street approaches are required to stop before proceeding into the intersection and left-turning drivers from the major street may have to yield to on-coming major street through or right-turning traffic, but are not required to stop in the absence of on-coming traffic. The capacity at stop-controlled legs is based primarily on three factors: the distribution of gaps in the major stream, driver judgment in selecting the gaps, and the follow-up headways required by each driver in a queue.

At AWSC intersections, every vehicle is required to stop at the intersection before proceeding, and as a result, the decision to proceed is a function of the traffic conditions on the other approaches. Each driver proceeds only after determining that no vehicles are currently in the intersection and that it is the driver's turn to proceed. Capacity at an AWSC intersection is described by the saturation headway or time between departures of successive vehicles on a given approach for a particular case assuming a continuous queue; departure headway or the average time between departures of successive vehicles on a given approach accounting for the probability of each possible case; and service time or the average time sent by a vehicle in first position waiting to depart.

At both TWSC and AWSC intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. For TWSC intersections, the level of service is not calculated for major-street approaches or for the intersection as a whole; however, the intersection-wide level of service is calculated for AWSC intersections. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for TWSC and AWSC intersections.

Control Delay	LOS by Volume-to-Capacity Ratio							
(Sec/Veh)	v/c ≤ 1.0	v/c > 1.0						
≤10	A	F						
> 10 – 15	В	F						
> 15 – 25	С	F						
> 25 – 35	D	F						
> 35 – 50	Е	F						
> 50	F	F						

Signalized Intersections

At three or four-legged signalized intersections, a methodology for evaluating the capacity and quality of service provided to road users traveling through the signalized intersection. For signalized intersections, the level of service can be characterized for the entire intersection, each approach, and each lane group. The level of service is based upon the control delay and volume-to-capacity ratio. The delay quantifies the increase in travel time due to the traffic signal control and is a surrogate measure of driver discomfort and fuel consumption, while the volume-to-capacity ratio quantifies the degree to which a phase's capacity is utilized by a lane group. Input data in determining the delay and volume-to-capacity ratio include:

- Demand flow rate for each entering vehicular movement and pedestrian crossing movement, including right-turn on red volumes and percent of heavy vehicles;
- Initial queue for each lane group;
- Number and configuration of lanes on each approach;
- Type of signal control and phase sequence;
- Allocation of minimum/maximum green times and clearance intervals (Yellow plus All Red phases); and
- Phase recall.

At signalized intersections, the level of service is based upon the control delay, as well as the corresponding volume-to-capacity ratio for each movement/lane group. The following table provides a summary of the relationship between the level of service, control delay, and volume-to-capacity ratio for signalized intersections.

Control Delay	LOS by Volume-to-Capacity Ratio							
(Sec/Veh)	v/c ≤ 1.0	v/c > 1.0						
≤10	A	F						
> 10 – 20	В	F						
> 20 – 35	С	F						
> 35 – 55	D	F						
> 55 – 80	Е	F						
> 80	F	F						



Appendix O

Existing Capacity/Level-of-Service Analysis Worksheets

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract Existing Weekday Morning Peak Hour

	۶	→	•	•	+	•	1	†	~	/	↓	-√
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- €			43-			4			- €	
Traffic Volume (vph)	48	648	5	8	310	36	9	97	41	8	122	190
Future Volume (vph)	48	648	5	8	310	36	9	97	41	8	122	190
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.962			0.920	
Flt Protected		0.997			0.999			0.997			0.999	
Satd. Flow (prot)	0	1628	0	0	1547	0	0	1585	0	0	1514	0
Flt Permitted /		0.955			0.986			0.897			0.991	
Satd. Flow (perm)	0	1559	0	0	1527	0	0	1426	0	0	1501	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			16							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	49	668	5	8	320	37	9	100	42	8	126	196
Shared Lane Traffic (%)			-	-								
Lane Group Flow (vph)	0	722	0	0	365	0	0	151	0	0	330	0
Number of Detectors	1	1	*	1	1	*	1	1	-	1	1	-
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
	76.7%	76.7%			76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag		- · ·									- · ·	
Lead-Lag Optimize?												

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract
Existing Weekday Morning Peak Hour

¥ 1	_	•	1	T		-	¥	*
BR WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
5.0	5.0		3.0	3.0		3.0	3.0	
2.0	2.0		3.0	3.0		3.0	3.0	
42.0	42.0		0.0	0.0		0.0	0.0	
21.0	21.0		0.0	0.0		0.0	0.0	
Max	Max		None	None		None	None	
	5.0 2.0 42.0 21.0	5.0 5.0 2.0 2.0 42.0 42.0 21.0 21.0	5.0 5.0 2.0 2.0 42.0 42.0 21.0 21.0	5.0 5.0 3.0 2.0 2.0 3.0 42.0 42.0 0.0 21.0 21.0 0.0	5.0 5.0 3.0 3.0 2.0 2.0 3.0 3.0 42.0 42.0 0.0 0.0 21.0 21.0 0.0 0.0	5.0 5.0 3.0 3.0 2.0 2.0 3.0 3.0 42.0 42.0 0.0 0.0 21.0 21.0 0.0 0.0	5.0 5.0 3.0 3.0 3.0 2.0 2.0 3.0 3.0 3.0 42.0 42.0 0.0 0.0 0.0 21.0 21.0 0.0 0.0 0.0	5.0 5.0 3.0 3.0 3.0 3.0 2.0 2.0 3.0 3.0 3.0 3.0 42.0 42.0 0.0 0.0 0.0 0.0 21.0 21.0 0.0 0.0 0.0 0.0

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

402	ø4	
69 s	21 s	
₩ ø6	↑ †ø8	
69 s	21 s	

Lanes, Volumes, Timings
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing Wekday Morning Peak Hour

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract
Existing Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	48	648	5	8	310	36	9	97	41	8	122	190
Future Volume (veh/h)	48	648	5	8	310	36	9	97	41	8	122	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	49	668	5	8	320	37	9	100	42	8	126	196
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	97	1188	9	48	1048	119	50	220	88	44	114	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	77	1670	12	11	1474	167	45	1238	494	16	640	959
Grp Volume(v), veh/h	722	0	0	365	0	0	151	0	0	330	0	0
Grp Sat Flow(s), veh/h/ln	1759	0	0	1652	0	0	1776	0	0	1615	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(q c), s	17.4	0.0	0.0	7.4	0.0	0.0	7.0	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.07		0.01	0.02		0.10	0.06		0.28	0.02		0.59
Lane Grp Cap(c), veh/h	1274	0	0	1197	0	0	338	0	0	310	0	0
V/C Ratio(X)	0.57	0.00	0.00	0.30	0.00	0.00	0.45	0.00	0.00	1.06	0.00	0.00
Avail Cap(c_a), veh/h	1274	0	0	1197	0	0	338	0	0	310	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	0.0	0.0	4.8	0.0	0.0	33.4	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.7	0.0	0.0	0.9	0.0	0.0	69.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.	/ln 9.2	0.0	0.0	3.7	0.0	0.0	5.6	0.0	0.0	19.2	0.0	0.0
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	8.1	0.0	0.0	5.5	0.0	0.0	34.4	0.0	0.0	106.9	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	Α
Approach Vol, veh/h		722			365			151			330	
Approach Delay, s/veh		8.1			5.5			34.4			106.9	
Approach LOS		A			A			C			F	
			_		, ,	^	_			_		
Timer - Assigned Phs Phs Duration (G+Y+Rc),		69.0	_	21.0	_	69.0	_	21.0	_	_	_	
								6.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		15.0				
Max Green Setting (Gma		63.0		15.0								
Max Q Clear Time (g_c+	11), S	19.4		17.0		9.4		9.0				
Green Ext Time (p_c), s		6.8		0.0		2.8		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary Existing Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Syisting\Weekday AM.syn

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract
Existing Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	4		ሻ	†	7	Ĭ	^	7	Ĭ	↑ ↑	
Traffic Volume (vph)	531	221	8	142	158	45	12	1551	151	48	1465	181
Future Volume (vph)	531	221	8	142	158	45	12	1551	151	48	1465	181
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.983	
Flt Protected	0.950	0.980		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1733	0	1565	1765	1556	1491	3291	1635	1487	3084	0
Flt Permitted	0.950	0.980		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1733	0	1565	1765	1556	1491	3291	1635	1487	3084	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									112		10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	547	228	8	146	163	46	12	1599	156	49	1510	187
Shared Lane Traffic (%)	29%											
Lane Group Flow (vph)	388	395	0	146	163	46	12	1599	156	49	1697	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	43.0	43.0		10.0	10.0	10.0	9.0	29.0	29.0	9.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	13.0	76.0	76.0	13.0	76.0	
Total Split (%)	23.0%	23.0%		23.0%	23.0%	23.0%	7.9%	46.1%	46.1%	7.9%	46.1%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	7.0	70.0	70.0	7.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract Existing Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	
Walk Time (s)	13.0	13.0						8.0	8.0		8.0	
Flash Dont Walk (s)	23.0	23.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary Area Type: Other

Cycle Length: 165
Actuated Cycle Length: 151.1
Natural Cycle: 115
Control Type: Actuated-Uncoordinated



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract Existing Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ቆ		ሻ		7	ሻ	^	7	ሻ	∱ î≽	
Traffic Volume (veh/h)	531	221	8	142	158	45	12	1551	151	48	1465	181
Future Volume (veh/h)	531	221	8	142	158	45	12	1551	151	48	1465	181
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	392	446	8	146	163	46	12	1599	156	49	1510	187
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	382	408	2	205	215	185	26	1684	787	74	1450	177
Arrive On Green	0.21	0.21	0.21	0.11	0.11	0.11	0.02	0.48	0.48	0.05	0.51	0.50
Sat Flow, veh/h	1780	1875	34	1802	1892	1630	1626	3541	1655	1514	2852	349
Grp Volume(v), veh/h	392	0	454	146	163	46	12	1599	156	49	834	863
Grp Sat Flow(s), veh/h/ln	1780	0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	32.0	0.0	32.0	11.7	12.5	3.8	1.1	64.4	8.1	4.7	75.9	75.9
Cycle Q Clear(g_c), s	32.0	0.0	32.0	11.7	12.5	3.8	1.1	64.4	8.1	4.7	75.9	75.9
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.22
Lane Grp Cap(c), veh/h	382	0	410	205	215	185	26	1684	787	74	808	819
V/C Ratio(X)	1.03	0.00	1.11	0.71	0.76	0.25	0.46	0.95	0.20	0.66	1.03	1.05
Avail Cap(c_a), veh/h	382	0	409	386	406	349	87	1684	787	81	808	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.6	0.0	58.6	63.8	64.2	60.3	72.8	37.4	22.7	69.8	36.7	36.8
Incr Delay (d2), s/veh	53.2	0.0	76.7	4.6	5.4	0.7	11.9	12.8	0.6	16.3	40.1	46.5
Initial Q Delay(d3),s/veh	75.5	0.0	61.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/	ln35.4	0.0	40.7	9.4	10.3	2.9	1.0	38.4	5.9	3.9	47.8	50.9
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	187.3	0.0	196.8	68.3	69.5	61.0	84.7	50.2	23.2	86.1	76.8	83.3
LnGrp LOS	F	Α	F	Е	Е	Е	F	D	С	F	F	F
Approach Vol, veh/h		846			355			1767			1746	
Approach Delay, s/veh		192.4			68.0			48.1			80.3	
Approach LOS		F			Е			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s12.3	76.0		23.0	7.4	80.9		38.0				
Change Period (Y+Rc), s		6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		70.0		31.0	7.0	70.0		31.0				
Max Q Clear Time (q c+		66.9		15.0	3.6	78.4		34.5				
Green Ext Time (p_c), s	0.0	2.8		1.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			87.4									
HCM 6th LOS			F									

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Existing Weekday Morning Peak Hour

HCM 6th Signalized Intersection Summary I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Syisting\\8'\extraction \AM.syn

Lanes, Volumes, Timings Existing Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Syisting\\00e4\00e4\00e4\\00e4\00e4\\00e4\\00e4\00e4\\00e4\00e4\00e4\00e4\\00e4\00 McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract Existing Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	*	7	J.	f)			^	7		^	7
Traffic Volume (vph)	81	141	31	50	134	54	0	2036	29	0	1874	256
Future Volume (vph)	81	141	31	50	134	54	0	2036	29	0	1874	256
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75			100			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.957				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1598	1765	1434	1628	1691	0	0	3225	1616	0	3214	1676
Flt Permitted	0.536			0.663								
Satd. Flow (perm)	902	1765	1434	1136	1691	0	0	3225	1616	0	3214	1676
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	85	148	33	53	141	57	0	2143	31	0	1973	269
Shared Lane Traffic (%))											
Lane Group Flow (vph)		148	33	53	198	0	0	2143	31	0	1973	269
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		_6			6							
Detector 4 Type		CI+Ex			Cl+Ex							

McMahon Associates, Inc.

Robinson Tract Existing Weekday Morning Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL SBT	SBF
Detector 4 Channel											
Detector 4 Extend (s)		0.0			0.0						
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm	N/	Perm
Protected Phases		8			4			6		2	!
Permitted Phases	8		8	4					6		2
Detector Phase	8	8	8	4	4			6	6	2	. 2
Switch Phase											
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0	22.0	22.0
Total Split (s)	39.0	39.0	39.0	39.0	39.0			71.0	71.0	71.0	71.0
Total Split (%)	35.5%	35.5%	35.5%	35.5%	35.5%			64.5%	64.5%	64.5%	64.5%
Maximum Green (s)	31.0	31.0	31.0	31.0	31.0			64.0	64.0	64.0	64.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0	5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0	6.0	6.0
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0	6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0
Time Before Reduce (s	0.0	0.0	0.0	0.0	0.0			48.0	48.0	48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0	24.0	24.0
Recall Mode	None	None	None	None	None			Max	Max	Max	Max
Intersection Summary											
Area Type: (Other										
Cycle Length: 110											
Actuated Cycle Length:	95.5										
Natural Cycle: 80											
Control Type: Actuated	-Uncoo	rdinated									

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd		
♦ Ø2	★ Ø4	
71 s	39 s	
↑ ø6	₽ 08	
71 s	39 s	

Lanes, Volumes, Timings
Existing Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\Weekday\ AM.syn

McMahon Associates, Inc. 12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract Existing Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ኝ	†	7	ች	1>			^	7		^	7
Traffic Volume (veh/h)	81	141	31	50	134	54	0	2036	29	0	1874	256
Future Volume (veh/h)	81	141	31	50	134	54	0	2036	29	0	1874	256
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	85	148	33	53	141	57	0	2143	31	0	1973	269
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	210	413	320	245	246	100	0	2131	1029	0	2244	1066
Arrive On Green	0.21	0.21	0.20	0.21	0.21	0.20	0.00	0.66	0.66	0.00	0.66	0.66
Sat Flow, veh/h	1271	1947	1588	1169	1163	470	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	85	148	33	53	0	198	0	2143	31	0	1973	269
Grp Sat Flow(s),veh/h/ln	1271	1947	1588	1169	0	1633	0	1622	1567	0	1708	1622
Q Serve(g_s), s	6.3	6.4	1.7	4.0	0.0	10.8	0.0	65.0	0.7	0.0	46.4	6.8
Cycle Q Clear(g_c), s	16.6	6.4	1.7	10.4	0.0	10.8	0.0	65.0	0.7	0.0	46.4	6.8
Prop In Lane	1.00		1.00	1.00		0.29	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	210	413	320	245	0	346	0	2131	1029	0	2244	1066
V/C Ratio(X)	0.40	0.36	0.10	0.22	0.00	0.57	0.00	1.01	0.03	0.00	0.88	0.25
Avail Cap(c_a), veh/h	352	630	497	375	0	528	0	2131	1029	0	2244	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		33.3	32.2	37.7	0.0	35.1	0.0	17.0	5.9	0.0	13.8	7.0
Incr Delay (d2), s/veh	1.3	0.5	0.1	0.4	0.0	1.5	0.0	20.9	0.1	0.0	5.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		5.6	1.2	2.1	0.0	7.9	0.0	32.7	0.4	0.0	21.8	3.7
Unsig. Movement Delay,		00.0	00.0	00.0	0.0	00.0	0.0	07.0	0.0	0.0	10.1	7.0
LnGrp Delay(d),s/veh	43.5	33.8	32.3	38.2	0.0	36.6	0.0	37.9	6.0	0.0	19.1	7.6
LnGrp LOS	D	C	С	D	A	D	A	F	<u>A</u>	A	В	A
Approach Vol, veh/h		266			251			2174			2242	
Approach Delay, s/veh		36.7			36.9			37.4			17.7	
Approach LOS		D			D			D			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		71.0		28.0		71.0		28.0				
Change Period (Y+Rc), s		7.0		8.0		7.0		8.0				
Max Green Setting (Gma		64.0		31.0		64.0		31.0				
Max Q Clear Time (g_c+	·I1), S	48.9		12.9		67.5		19.1				
Green Ext Time (p_c), s		15.1		1.1		0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			28.4									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary
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McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926 Robinson Tract Existing Weekday Morning Peak Hour

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑	7	ሻ	↑	ሻ	7	
Traffic Volume (vph)	682	31	13	325	25	39	
Future Volume (vph)	682	31	13	325	25	39	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	12	14	11	12	12	14	
Grade (%)	8%			-8%	-1%		
Storage Length (ft)		350	120		0	0	
Storage Lanes		1	1		1	1	
Taper Length (ft)			75		75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850				0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592	
Link Speed (mph)	45			45	25		
Link Distance (ft)	2436			2349	414		
Travel Time (s)	36.9			35.6	11.3		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%	
Adj. Flow (vph)	703	32	13	335	26	40	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	703	32	13	335	26	40	
Sign Control	Free			Free	Stop		
Intersection Summary							

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
Existing Weekday Morning Peak Hour
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McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926 Robinson Tract
Existing Weekday Morning Peak Hour

Lane Configurations	
Movement EBT EBR WBL WBT NBL NBR	
Lane Configurations	
Traffic Vol, veh/h 682 31 13 325 25 39 Future Vol, veh/h 682 31 13 325 25 39 Conflicting Peds, #/hr 0 0 0 0 0 0 Sign Control Free Free Free Free Stop Stop RT Channelized None None None None Storage Length 350 120 - 0 0 Veh in Median Storage0# - 0 0 0 - Grade, % 88 -1 - Peak Hour Factor 97 97 97 97 97 97 97 Heavy Vehicles, % 4 3 0 8 0 3 Mvmt Flow 703 32 13 335 26 40 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 735 0 1064 703 Stage 1 703 - Stage 2 361 - Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 1 5.2 - Follow-up Hdwy 4.3 - 6.2 6.13 Critical Hdwy Stg 1 5.2 - Follow-up Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % - Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 574 - Stage 1 574 - Stage 1 574 -	
Future Vol, veh/h 682 31 13 325 25 39 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 Sign Control Free Free Free Free Stop Stop RT Channelized - None - None - None Storage Length - 350 120 - 0 0 Veh in Median Storage0# - 0 0 0 - Grade, % 88 -1 - Peak Hour Factor 97 97 97 97 97 97 Heavy Vehicles, % 4 3 0 8 0 3 Mvmt Flow 703 32 13 335 26 40 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 735 0 1064 703 Stage 1 703 - 361 - Critical Hdwy 5tg 1 5.2 - Critical Hdwy Stg 2 5.2 - Stage 2 Critical Hdwy Stg 2 5.2 - Stage 1 5.2 - Stage 2 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % 574 - Stage 1 574 - 574 - Stage 1 574 - 574 - Stage 1 574 -	·
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Sign Control Free Free Free Free Free Stop Stop Stop RT Channelized - None - None - None Storage Length - 350 120 - 0 0 0 Veh in Median Storage0# - 0 0 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1 8 - 1	
RT Channelized - None - None - None Storage Length - 350 120 - 0 0 Veh in Median Storage) + - 0 0 0 - 0 - 0 - 0 0 Veh in Median Storage) + - 0 0 0 - 0 - 0 0 - 0 0 Veh in Median Storage) + - 0 0 0 - 0 0 - 0 0 0 0 0 0 0 0 0 0 0	
Storage Length	
Veh in Median Storage0,# - - 0 0 - Grade, % 8 - - 8 -1 - Peak Hour Factor 97 97 97 97 97 97 Heavy Vehicles, % 4 3 0 8 0 3 Mvmt Flow 703 32 13 335 26 40 Major/Minor Major1 Major/Minor Minor1 Conflicting Flow All 0 735 0 1064 703 Stage 1 - - - 703 - Stage 2 - - - 361 - Critical Hdwy Stg 1 - - - 5.2 - Critical Hdwy Stg 2 - - - 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 2 - - - 574 <td></td>	
Grade, % 88 -1	
Peak Hour Factor 97	
Heavy Vehicles, % 4 3 0 8 0 3 Mvmt Flow 703 32 13 335 26 40 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 735 0 1064 703 Stage 1 703 - Stage 2 Critical Hdwy 5tg 1 52 - Critical Hdwy Stg 2 52 - 52 Critical Hdwy Stg 2 52 - 52 Follow-up Hdwy - 3 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 Platoon blocked, % 825 - Platoon blocked, % 825 - Stage 1 Major/Minor Major1 Minor	
Mvmt Flow 703 32 13 335 26 40 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 735 0 1064 703 Stage 1 - - - 703 - - Stage 2 - - - 361 - Critical Hdwy Stg 1 - - - 5.2 - Critical Hdwy Stg 2 - - - 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 - - - 574 - Platoon blocked, % - - - 284 - Mov Cap-2 Maneuver - 667 - 284 - Stage 1 - - - - - - - - - </td <td></td>	
Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 735 0 1064 703 Stage 1 - - - 703 - Stage 2 - - - 361 - Critical Hdwy - - 4.3 - 6.2 6.13 Critical Hdwy Stg 1 - - - 5.2 - Critical Hdwy Stg 2 - - - 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 - - - 574 - Stage 2 - - - 825 - Platoon blocked, % - - - - 284 468 Mov Cap-1 Maneuver - - - - - - - - -	
Conflicting Flow All 0 0 735 0 1064 703 Stage 1 703 - Stage 2 361 - Critical Hdwy 4.3 - 6.2 6.13 Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Critical Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, %	
Conflicting Flow All 0 0 735 0 1064 703 Stage 1 703 - Stage 2 361 - Critical Hdwy 4.3 - 6.2 6.13 Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Critical Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, %	
Stage 1 703 - Stage 2 361 - Critical Hdwy - 4.3 - 6.2 6.13 - Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Stage 1 667 - 290 468 - Stage 1 574 - Stage 2 825 - Platoon blocked, %	
Stage 2 361 - Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Critical Hdwy Stg 2 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 574 - Stage 1 574 - Stage 1 574 - Stage 2 574 - Stage 2 574 - Stage 1 574 - Stage 1 574 -	
Critical Hdwy 4.3 - 6.2 6.13 Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Critical Hdwy Stg 2 5.2 - Follow-up Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 667 - 284 - Stage 1 574 -	
Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platon blocked, % Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 667 - 284 - Stage 1 574 -	
Critical Hdwy Stg 1 5.2 - Critical Hdwy Stg 2 5.2 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platon blocked, % Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 667 - 284 - Stage 1 574 -	
Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 574 - 574 -	
Pot Cap-1 Maneuver - 667 - 290 468 Stage 1 574 - Stage 2 825 - Platoon blocked, % 667 - 284 468 Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver 574 - 574 -	
Stage 1 - - - 574 - Stage 2 - - - 825 - Platon blocked, % - - - - Mov Cap-1 Maneuver - 667 - 284 468 Mov Cap-2 Maneuver - - 284 - Stage 1 - - 574 -	
Stage 2 825 - Platoon blocked, %	
Platoon blocked, %	
Mov Cap-1 Maneuver -	
Mov Cap-2 Maneuver 284 - Stage 1 574 -	
Stage 1 574 -	
Stage 2 809 -	
Approach EB WB NB	
HCM Control Delay, s 0 0.4 15.5	
HCM LOS C	
Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT	
Capacity (veh/h) 284 468 667 -	
HCM Lane V/C Ratio 0.091 0.086 0.02 -	
HCM Control Delay (s) 18.9 13.4 10.5 -	
HCM Lane LOS C B B -	
HCM 95th %tile Q(veh) 0.3 0.3 0.1 -	
HOW 3001 70018 Q(VEII) U.S U.S U.I -	

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract Existing Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		ሻ	↑ ↑	
Traffic Volume (vph)	0	0	12	0	0	7	10	2082	52	37	1753	150
Future Volume (vph)	0	0	12	0	0	7	10	2082	52	37	1753	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.988	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3205	0	1629	3160	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3205	0	1629	3160	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	13	0	0	7	10	2169	54	39	1826	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	13	0	0	7	10	2223	0	39	1982	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
Lanes, Volumes, Timings
Liveng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Syisdhg\\8' & AM.syn

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract Existing Weekday Morning Peak Hour

Intersection												
Int Delay, s/veh	0.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	ns		1			7	ኝ	∱ ∱		ኝ	۴ß	
Traffic Vol, veh/h	0	0	12	0	0	7		2082	52		1753	150
Future Vol., veh/h	0	0	12	0	0	7	10	2082	52	37	1753	150
Conflicting Peds, #/	/hr 0	0	0	0	0	0	0	0	0	0	0	0
		Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-		Yield	-		None	-		None	-		None
Storage Length	-		0	-		0	350	-	-	380		-
Veh in Median Stor	rage-#	# 0		-	0	-		0	-		0	-
Grade. %	- ugo, <i>i</i>	-1		-	-2	-		2	-		-3	-
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96
Heavy Vehicles, %		0	0	0	0	14	10	5	14	3	9	3
Mymt Flow	0	0	13	0	0	7		2169	54		1826	156
IVIVIII I IOW	U	U	10	U	U	,	10	2103	54	33	1020	130
	inor2			1inor1			lajor1			lajor2		
Conflicting Flow All	l -	-	991	-	-	1112	1982	0	0	2223	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.2	-	-	7.3	4.1	-	-	4	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	2 -	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-
Pot Cap-1 Maneuv	er 0	0	248	0	0	189	277	-	-	243	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	5							-	-		-	-
Mov Cap-1 Maneuv	ver -	-	248	-	-	189	277	-	-	243	-	-
Mov Cap-2 Maneuv	ver -	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	FB			WB			NB			SB		
HCM Control Delay				24.8			0.1			0.4		
HCM LOS	y∠ s .3 C			24.6 C			0.1			0.4		
HCIVI LOS	C			C								
Minor Lane/Major N	Mvmt	NBL	NBT	NBÆ	BLn1/1	BLn1	SBL	SBT	SBR			
Capacity (veh/h)		277	-	-	248	189	243	-	-			
HCM Lane V/C Rat	tio (0.038	-	-	0.05	0.039	0.159	-	-			
HCM Control Delay		18.5	-	-	20.3		22.6		-			
HCM Lane LOS	. (-)	С	-	-	С	С	С	-	-			
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	0.6	-	-			
	,											

HCM 6th TWSC Existing Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\Weekday\ AM.syn

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract Existing Weekday Morning Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4î			ર્ન	ľ	7
Traffic Volume (vph)	12	1	8	152	1	0
Future Volume (vph)	12	1	8	152	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.992					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1692	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1692	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	429			499	469	
Travel Time (s)	8.4			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	17	1	11	217	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	18	0	0	228	1	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract Existing Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configuration	ns 🏗			4	ኘ	
Traffic Vol, veh/h	12		8	152	1	0
Future Vol, veh/h	12	1	8	152	1	0
Conflicting Peds, #	hr 0	0	0	0	0	0
Sign Control		Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Sto	rage0	# -	-	0	0	-
Grade. %	4		-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0		0	3	0	0
Mvmt Flow	17		11	217	1	0
IVIVIII I IOW	17			217		U
	lajor1		lajor2		linor1	- 10
Conflicting Flow Al		-	18	0	257	18
Stage 1	-		-	-	18	-
Stage 2	-	-	-	-	239	-
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1	- ا	-	-	-	5.8	-
Critical Hdwy Stg 2	2 -	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	er -	-	1183	-	820	1133
Stage 1	-	-	-	-	1174	-
Stage 2	-	-	-	-	901	-
Platoon blocked, %	6 -	_		-		
Mov Cap-1 Maneu			1183		811	1133
Mov Cap-2 Maneu			1100		-	1100
Stage 1	-		_		1174	
			-			-
Stage 2	-	-	-	-	891	-
Approach	EB		WB		NB	
HCM Control Delay	y, s 0		0.4		9.4	
HCM LOS					Α	
Minor Long/M-i	Munch	IDI n. A.I	מ וח	EDT	EDD	WD
Minor Lane/Major I	IVIVITI N					
Capacity (veh/h)		811	-			1183
HCM Lane V/C Ra		0.002	-			0.01
HCM Control Delay	y (s)	9.4	0	-	-	8.1
HCM Lane LOS		Α	Α	-	-	
HCM 95th %tile Q((veh)	0	-	-	-	0

McMahon Associates, Inc.

Robinson Tract Existing Weekday Morning Peak Hour

7: Church Egress Access & Pleasant Grove Rd

	\rightarrow	•	1	•	•	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			†	¥	
Traffic Volume (vph)	13	0	0	153	0	0
Future Volume (vph)	13	0	0	153	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			429	436	
Travel Time (s)	57.1			8.4	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	19	0	0	219	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	19	0	0	219	0	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 7: Church Egress Access & Pleasant Grove Rd Robinson Tract Existing Weekday Morning Peak Hour

Intersection							
Int Delay, s/veh		0					
Movement	EB		BR	WBL	WBT		NBR
Lane Configuratio	ns 4	†			↑	¥	
Traffic Vol, veh/h	13	3	0	0	153	0	0
Future Vol, veh/h		_	0	0	153	0	0
Conflicting Peds,			0	0	0	0	0
Sign Control	Free	e F	ree	Free	Free	Stop	Stop
RT Channelized		- No	one	-	None	-	None
Storage Length		-	-	-	-	0	-
Veh in Median Sto	orage	Q#	-	-	0	0	-
Grade, %		3	-	-	_	-2	-
Peak Hour Factor		0	70	70	70	70	70
Heavy Vehicles, %	6 (0	0	0	3	0	0
Mvmt Flow	19	9	0	0	219	0	0
Major/Minor N	Major	1	N 4	ajor2	N /	linor1	
Conflicting Flow A			- 171	-	- 101		10
Stage 1		0	-	-	-	238 19	19
Stage 1		-			-		-
		-	-	-			
Critical Hdwy			-	-	-	6	6
Critical Hdwy Stg		-	-	-	-	5	-
Critical Hdwy Stg		-	-	-	-	5	-
Follow-up Hdwy		-	-	-	-	3	3.1
Pot Cap-1 Maneu			0	0			1134
Stage 1		-	0	0		1178	-
Stage 2		-	0	0	-	969	-
Platoon blocked, 9	%	-			-		
Mov Cap-1 Maneu			-	-	-		1134
Mov Cap-2 Maneu			-	-	-	890	1134
	uver				-		-
Mov Cap-2 Maneu	uver	-		-	-	890 1178	-
Mov Cap-2 Maneu Stage 1	uver	-	-	-	- - -	890 1178	-
Mov Cap-2 Manet Stage 1 Stage 2	uver	- - -	-	-	- - -	890 1178 969	-
Mov Cap-2 Manet Stage 1 Stage 2 Approach	uver	- - -	-	- - - WB	- - -	890 1178 969 NB	-
Mov Cap-2 Manet Stage 1 Stage 2 Approach HCM Control Dela	uver	- - -	-	-	- - -	890 1178 969 NB	-
Mov Cap-2 Manet Stage 1 Stage 2 Approach	uver	- - -	-	- - - WB	- - -	890 1178 969 NB	-
Mov Cap-2 Manet Stage 1 Stage 2 Approach HCM Control Dela	uver	- - -	-	- - - WB	- - -	890 1178 969 NB	-
Mov Cap-2 Maner Stage 1 Stage 2 Approach HCM Control Dela HCM LOS	EE	- - - 3 0	-	- - - WB 0	-	890 1178 969 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major	EE	- - - 3 0	- - - Ln1	WB 0	-	890 1178 969 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major Capacity (veh/h)	EE ay, s (- - - 3 0	-	- - - WB 0	- - - - WBT	890 1178 969 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major Capacity (veh/h) HCM Lane V/C Ra	EE ay, s (- - 3 0	- - - - Ln1_ -	WB 0	WBT	890 1178 969 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major Capacity (veh/h) HCM Lane V/C R: HCM Control Dela	EE ay, s (- - 3 0	- - - - - 0	- - - WB 0	- - - - WBT	890 1178 969 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major Capacity (veh/h) HCM Lane V/C Ra	EE ay, s (- - - 0	- - - - Ln1_ -	WB 0	WBT -	890 1178 969 NB	-

Lanes, Volumes, Timings
Existing Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Syisting\Weekday AM.syn

HCM 6th TWSC Existing Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - **Byisting\W** €€€□ AM.syn

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract Existing Weekday Morning Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	f)		¥	
Traffic Volume (vph)	0	19	222	3	5	2
Future Volume (vph)	0	19	222	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1643	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1643	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	27	317	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	27	321	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract
Existing Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	ERI	ERT	WRT	WBR	CRI	SBD
Lane Configuratio		-€1 -EDI	₩ <u>₽</u>		SDL W	
Traffic Vol, veh/h	0		222			
Future Vol. veh/h						
			222	_	0	_
Conflicting Peds,						
Sign Control				Free		
RT Channelized		None		None		None
Storage Length	-		-	-	0	
Veh in Median Sto	orage,	# 0	0		0	
Grade, %	-	3	-3	-	1	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, 9	% 0	5	3	50	0	25
Mvmt Flow	0	27	317	4	7	3
WWW.	U		017	-	•	U
	Major1		1ajor2	: N	1inor2	
Conflicting Flow A	dl 321		-	-		319
Stage 1	-	-	-	-	319	-
Stage 2	-	-	-	-	27	-
Critical Hdwy	4.3	-	-		6.6	6.55
Critical Hdwy Stg						
Critical Hdwy Stg		-		_		
Follow-up Hdwy	- 3					
Pot Cap-1 Maneu			-		732	
Stage 1	-					
	-	-				
Stage 2	-	-	-		1164	-
Platoon blocked, 6		-				
Mov Cap-1 Mane			-	-		704
Mov Cap-2 Manei	uver -	-	-	-	732	-
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-		1164	-
- 3						
Approach	EB		WB		SB	
HCM Control Dela	ay, s 0		0		10	
HCM LOS					В	
Min = 1 = = - /N 1 ·	N de come d	ED.	EDT	WOT	MIDE	DI 1
Minor Lane/Major	wwt			WBT		
Capacity (veh/h)		932	-	-	-	724
HCM Lane V/C Ra	atio	-	-	-	-	0.014
HCM Control Dela	(e) ve	0	-	-	-	10
HCM Lane LOS	ay (3)	A	-	-	-	В
	, ()	A 0	-		-	

McMahon Associates, Inc.

Robinson Tract Existing Weekday Morning Peak Hour

11: New Street & Pleasant Grove Rd

	•	_	T		-	¥	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	¥		î»			4	
Traffic Volume (vph)	203	21	173	6	13	127	
Future Volume (vph)	203	21	173	6	13	127	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.987		0.995				
Flt Protected	0.957					0.995	
Satd. Flow (prot)	1648	0	1757	0	0	1762	
Flt Permitted	0.957					0.995	
Satd. Flow (perm)	1648	0	1757	0	0	1762	
Link Speed (mph)	35		35			35	
Link Distance (ft)	496		2543			619	
Travel Time (s)	9.7		49.5			12.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%	
Adj. Flow (vph)	228	24	194	7	15	143	
Shared Lane Traffic (%))						
Lane Group Flow (vph)	252	0	201	0	0	158	
Sign Control	Stop		Free			Free	
Intersection Summary							

Area Type: Other Control Type: Unsignalized McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd Robinson Tract
Existing Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	5.4					
			. ID-	LIBE	00:	0.00
Movement		WBR		NBR	SBL	
Lane Configuration			^}	_		4
Traffic Vol, veh/h	203	21	173	6	13	127
Future Vol, veh/h	203	21	173	6	13	
Conflicting Peds, #		0	0	0	0	0
Sign Control				Free		
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Sto			0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %		14	2	0	8	1
Mvmt Flow	228	24	194	7	15	143
Major/Minor M	1inor1	N/	lajor1	N/	lajor2	
Conflicting Flow Al		198	0	0	201	0
Stage 1	198	190	-	-	201	-
Stage 1	173	-	-	-	-	-
Critical Hdwy	6.42			-	4.4	-
Critical Hdwy Stg		-	-	-		-
Critical Hdwy Stg 2		-	-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuv		866	-	-	989	-
Stage 1	966	-	-	-	-	-
Stage 2	993	-	-	-	-	-
Platoon blocked, 9			-	-		-
Mov Cap-1 Maneu		866	-	-	989	-
Mov Cap-2 Maneu	ıv ∂ 108	-	-	-	-	-
Stage 1	966	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Dela		_	0	_	0.8	_
HCM LOS	y,ıxı./ B		U		0.0	
TICIVI LOG	ь					
Minor Lane/Major	Mvmt	NBT	NBR	/BLn1	SBL	SBT
Capacity (veh/h)		-	-	720	989	-
HCM Lane V/C Ra	atio	-	-	0.35	0.015	-
HCM Control Dela	y (s)	-	-	12.7	8.7	0
HCM Lane LOS	,	-	-	В	Α	Α
HCM 95th %tile Q	(veh)	-	-	1.6	0	-
	, ,					

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract
Existing Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	30	659	13	19	305	30	9	83	37	49	164	143
Future Volume (vph)	30	659	13	19	305	30	9	83	37	49	164	143
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.961			0.946	
Flt Protected		0.998			0.997			0.997			0.993	
Satd. Flow (prot)	0	1627	0	0	1551	0	0	1581	0	0	1530	0
Flt Permitted		0.974			0.950			0.963			0.940	
Satd. Flow (perm)	0	1588	0	0	1478	0	0	1527	0	0	1449	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	31	679	13	20	314	31	9	86	38	51	169	147
Shared Lane Traffic (%))											
Lane Group Flow (vph)	0	723	0	0	365	0	0	133	0	0	367	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (%)	70.5%	70.5%		70.5%	70.5%		29.5%	29.5%		29.5%	29.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing \(\frac{\text{Model Notal Belling PM.syn}{\text{Synchro}\} \)

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract
Existing Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}	₽ Ø4
74 s	31 s
₩ Ø6	↑ ø8
74 s	31 s

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Modified by PM.syn}

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract Existing Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	30	659	13	19	305	30	9	83	37	49	164	143
Future Volume (veh/h)	30	659	13	19	305	30	9	83	37	49	164	143
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	31	679	13	20	314	31	9	86	38	51	169	147
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	65	1119	21	68	933	90	49	297	124	81	197	160
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24
Sat Flow, veh/h	45	1703	32	49	1420	136	51	1200	500	170	796	646
Grp Volume(v), veh/h	723	0	0	365	0	0	133	0	0	367	0	0
Grp Sat Flow(s), veh/h/ln		0	0	1605	0	0	1751	0	0	1612	0	0
Q Serve(q s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.6	0.0	0.0
Cycle Q Clear(q c), s	23.7	0.0	0.0	10.0	0.0	0.0	6.4	0.0	0.0	23.0	0.0	0.0
Prop In Lane	0.04	0.0	0.02	0.05	0.0	0.08	0.07	0.0	0.29	0.14	0.0	0.40
Lane Grp Cap(c), veh/h		0	0.02	1106	0	0.00	487	0	0.23	453	0	0.40
V/C Ratio(X)	0.59	0.00	0.00	0.33	0.00	0.00	0.27	0.00	0.00	0.81	0.00	0.00
Avail Cap(c a), veh/h	1222	0.00	0.00	1106	0.00	0.00	487	0.00	0.00	453	0.00	0.00
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.00	0.00	7.9	0.00	0.00	32.2	0.00	0.00	38.4	0.00	0.00
Incr Delay (d2), s/veh	2.1	0.0	0.0	0.8	0.0	0.0	0.3	0.0	0.0	10.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	0.0	5.6	0.0	0.0	5.0	0.0	0.0	15.3	0.0	0.0
Unsig. Movement Delay,		0.0	0.0	5.0	0.0	0.0	5.0	0.0	0.0	15.5	0.0	0.0
LnGrp Delay(d),s/veh	12.3	0.0	0.0	8.7	0.0	0.0	32.5	0.0	0.0	48.9	0.0	0.0
LnGrp LOS	12.3 B	Ο.0	Ο.0	Α.	Α	Α	32.5 C	Α	Ο.0	46.9 D	Ο.0	
Approach Vol, veh/h	ь	723			365			133			367	A
					8.7			32.5			48.9	
Approach Delay, s/veh		12.3 B			8.7 A			32.5 C				
Approach LOS		В			А			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		74.0		31.0		74.0		31.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		68.0		25.0		68.0		25.0				
Max Q Clear Time (g_c+	l1), s	25.7		25.0		12.0		8.4				
Green Ext Time (p_c), s		6.7		0.0		2.8		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.6									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing Metallog PM.syn

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract
Existing Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	4		ሻ	<u></u>	7	ř	^	7	ሻ	↑ ↑	
Traffic Volume (vph)	451	204	27	199	221	57	29	1551	121	79	1451	128
Future Volume (vph)	451	204	27	199	221	57	29	1551	121	79	1451	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	0.00
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984	Ů	0.950			0.950	5557	. 550	0.950	00	ű
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No	.020		No		000.	Yes		02.0	Yes
Satd. Flow (RTOR)									112		7	. 00
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0.37	1%	4%	0.57	3%	2%	0.57	4%	5%
Adj. Flow (vph)	465	210	28	205	228	59	30	1599	125	81	1496	132
Shared Lane Traffic (%)		210	20	200	220	33	30	1000	123	01	1430	132
Lane Group Flow (vph)	349	354	0	205	228	59	30	1599	125	81	1628	0
Number of Detectors	1	1	U	1	1	1	1	1333	1 1	1	1020	U
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5 -5	-5	-5 -5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type		Cl+Ex			CI+Ex							
Detector 1 Channel	CITEX	CITEX		CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
• • •	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Turn Type Protected Phases	Spiit 8	NA 8		Spiit 4	NA 4	Pellii	5	2	Pellii	1	1NA 6	
Permitted Phases	0	0		4	4	4	5	2	2		0	
Detector Phase	8	8		4	4	4	5			1		
Switch Phase	8	8		4	4	4	5			1		
	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Initial (s)									20.0			
Minimum Split (s)	43.0	43.0		10.0	10.0	10.0	9.0	29.0		9.0	29.0	
Total Split (s)	38.0	38.0		38.0	38.0	38.0	13.0	76.0	76.0	13.0	76.0	
	23.0%				23.0%			46.1%			46.1%	
Maximum Green (s)	31.0	31.0		31.0	31.0	31.0	7.0	70.0	70.0	7.0	70.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Modified by PM.syn}

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract Existing Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	Max	Max	None	Max	
Walk Time (s)	13.0	13.0						8.0	8.0		8.0	
Flash Dont Walk (s)	23.0	23.0						15.0	15.0		15.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary Area Type: Other

Cycle Length: 165
Actuated Cycle Length: 158.8
Natural Cycle: 115
Control Type: Actuated-Uncoordinated



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract Existing Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4		ሻ	↑	7	Ť	^	7	ሻ	∱ î≽	
Traffic Volume (veh/h)	451	204	27	199	221	57	29	1551	121	79	1451	128
Future Volume (veh/h)	451	204	27	199	221	57	29	1551	121	79	1451	128
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	352	369	28	205	228	59	30	1599	125	81	1496	132
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	361	396	6	269	280	241	55	1654	773	88	1559	57
Arrive On Green	0.21	0.21	0.20	0.14	0.14	0.14	0.03	0.46	0.46	0.05	0.48	0.47
Sat Flow, veh/h	1753	1798	136	1856	1935	1668	1856	3622	1693	1714	3082	270
Grp Volume(v), veh/h	352	0	397	205	228	59	30	1599	125	81	799	829
Grp Sat Flow(s),veh/h/ln	1753	0	1934	1856	1935	1668	1856	1811	1693	1714	1657	1695
Q Serve(g_s), s	31.0	0.0	31.9	16.5	17.8	4.9	2.5	66.8	6.7	7.3	74.4	74.4
Cycle Q Clear(g_c), s	31.0	0.0	31.9	16.5	17.8	4.9	2.5	66.8	6.7	7.3	74.4	74.4
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	361	0	402	269	280	241	55	1654	773	88	792	824
V/C Ratio(X)	0.98	0.00	0.99	0.76	0.81	0.24	0.54	0.97	0.16	0.92	1.01	1.01
Avail Cap(c_a), veh/h	361	0	398	382	398	343	95	1654	773	88	792	811
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	0.0	61.8	63.9	64.5	59.0	74.4	41.1	24.8	73.4	40.6	40.6
Incr Delay (d2), s/veh	40.8	0.0	41.9	5.6	8.4	0.5	8.1	15.6	0.4	69.4	34.2	32.8
Initial Q Delay(d3),s/veh	19.1	0.0	39.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	363.5	349.6
%ile BackOfQ(95%),veh	/ln26.9	0.0	32.0	12.8	14.3	3.7	2.3	41.4	5.0	8.5	126.6	127.7
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	121.6	0.0	142.9	69.5	72.9	59.5	82.5	56.7	25.2	142.8	438.2	422.9
LnGrp LOS	F	Α	F	Е	Е	Е	F	Е	С	F	F	F
Approach Vol, veh/h		749			492			1754			1709	
Approach Delay, s/veh		132.9			69.9			54.9			416.8	
Approach LOS		F			Е			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s13.0	76.0		28.5	9.6	79.4		38.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma	ax),7s0	70.0		31.0	7.0	70.0		31.0				
Max Q Clear Time (g_c+	11)9\$8	69.3		20.3	5.0	76.9		33.9				
Green Ext Time (p_c), s	0.0	0.7		1.2	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			200.4									
HCM 6th LOS			F									

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\$\\\end{align*} PM.syn

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract Existing Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	†	7	Ĭ	î»			^	7		^	7
Traffic Volume (vph)	120	129	61	27	43	59	0	1993	46	0	1925	131
Future Volume (vph)	120	129	61	27	43	59	0	1993	46	0	1925	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.913				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1735	0	0	3256	1616	0	3370	1709
Flt Permitted	0.689			0.634								
Satd. Flow (perm)	1205	1906	1589	1130	1735	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	124	133	63	28	44	61	0	2055	47	0	1985	135
Shared Lane Traffic (%)											
Lane Group Flow (vph)	124	133	63	28	105	0	0	2055	47	0	1985	135
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			CI+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Mediads}\text{ PM.syn}

McMahon Associates, Inc.

Robinson Tract
Existing Weekday Afternoon Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL SBT	SBF
Detector 4 Channel											
Detector 4 Extend (s)								0.0		0.0)
Detector 5 Position(ft)								484		484	ļ
Detector 5 Size(ft)								6		6	
Detector 5 Type								CI+Ex		CI+Ex	1
Detector 5 Channel											
Detector 5 Extend (s)								0.0		0.0	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm	NA	
Protected Phases		8			4			6		2	
Permitted Phases	8		8	4					6		2
Detector Phase	8	8	8	4	4			6	6	2	2
Switch Phase											
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0	22.0	22.0
Total Split (s)	30.0	30.0	30.0	30.0	30.0			70.0	70.0	70.0	70.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	22.0	22.0	22.0	22.0	22.0			63.0	63.0	63.0	63.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0	5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0	-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0	5.0	5.0
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0	6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0
Time Before Reduce (s	0.0	0.0	0.0	0.0	0.0			48.0	48.0	48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0	24.0	24.0
Recall Mode	None	None	None	None	None			Max	Max	Max	Max
Intersection Summary											
Area Type:	Other										
Cycle Length: 100											
Actuated Cycle Length:	92.9										
Natural Cycle: 60											
Control Type: Actuated	-Uncoo	rdinated	ı								
Description: Signal											
Splits and Phases: 12	2: Rt 20	2 & Ste	tson Sc	hool Dr.	/Skiles E	Blvd					
↓ Ø2								- 1 2	Ø4		
▼ Ø2 70 s								30 s	דע		
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Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Modified by PM.syn}

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract Existing Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	<u></u>	7	ሻ	1			^	7		^	7
Traffic Volume (veh/h)	120	129	61	27	43	59	0	1993	46	0	1925	131
Future Volume (veh/h)	120	129	61	27	43	59	0	1993	46	0	1925	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	ı	No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	124	133	63	28	44	61	0	2055	47	0	1985	135
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	288	408	359	246	138	192	0	2276	1090	0	2471	1146
Arrive On Green	0.20	0.20	0.21	0.20	0.20	0.17	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1424	2066	1726	1191	701	972	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	124	133	63	28	0	105	0	2055	47	0	1985	135
Grp Sat Flow(s),veh/h/ln	1424	2066	1726	1191	0	1674	0	1635	1567	0	1776	1647
Q Serve(g_s), s	7.6	5.2	2.8	1.9	0.0	5.1	0.0	48.1	0.9	0.0	36.0	2.5
Cycle Q Clear(g_c), s	12.2	5.2	2.8	7.1	0.0	5.1	0.0	48.1	0.9	0.0	36.0	2.5
Prop In Lane	1.00		1.00	1.00		0.58	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	288	408	359	246	0	330	0	2276	1090	0	2471	1146
V/C Ratio(X)	0.43	0.33	0.18	0.11	0.00	0.32	0.00	0.90	0.04	0.00	0.80	0.12
Avail Cap(c_a), veh/h	388	553	480	330	0	448	0	2276	1090	0	2471	1146
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		32.2	30.4	35.2	0.0	32.9	0.0	11.6	4.5	0.0	9.8	4.7
Incr Delay (d2), s/veh	1.0	0.5	0.2	0.2	0.0	0.5	0.0	6.4	0.1	0.0	2.9	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		4.7	2.1	1.0	0.0	3.8	0.0	20.2	0.4	0.0	16.1	1.3
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	38.2	32.6	30.6	35.4	0.0	33.4	0.0	18.1	4.5	0.0	12.7	4.9
LnGrp LOS	D	С	С	D	A	<u> </u>	A	В	A	A	В	A
Approach Vol, veh/h		320			133			2102			2120	
Approach Delay, s/veh		34.4			33.9			17.8			12.2	
Approach LOS		С			С			В			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	S	70.0		23.4		70.0		23.4				
Change Period (Y+Rc),	S	7.0		8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	63.0		22.0		63.0		22.0				
Max Q Clear Time (g_c+	·I1), s	38.5		9.6		50.6		14.7				
Green Ext Time (p_c), s		24.4		0.4		12.4		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing \(\text{Synchro\1}\) - Existing \(\text{PM.syn}\)



McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract Existing Weekday Afternoon Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	^	7	Ţ	↑	Ţ	7
Traffic Volume (vph)	692	37	20	357	16	34
Future Volume (vph)	692	37	20	357	16	34
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	721	39	21	372	17	35
Shared Lane Traffic (%)						
Lane Group Flow (vph)	721	39	21	372	17	35
Sign Control	Free			Free	Stop	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Mediads}\text{ PM.syn}

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract Existing Weekday Afternoon Peak Hour

Intersection										
Int Delay, s/veh	0.9									
Mayamant	ГРТ	EBR	WDI	WDT	NIDI	NIDD				
Movement										
Lane Configuratio					<u>ነ</u>	7				
Traffic Vol, veh/h	692			357	16	34				
Future Vol, veh/h			20	357	16	34				
Conflicting Peds,			0	0	0	0				
Sign Control		Free	Free	Free	Stop	Stop				
RT Channelized	-	None		None	-	None				
Storage Length		350	120	-	0	0				
Veh in Median Sto	orageQ	# -	-	0	0	-				
Grade, %	8	-	-	-8	-1	-				
Peak Hour Factor	96	96	96	96	96	96				
Heavy Vehicles, 9	6 3	0	5	3	0	9				
Mvmt Flow	721	39	21	372	17	35				
		-		-						
	Major1		lajor2		linor1					
Conflicting Flow A					1135	721				
Stage 1	-	-	-	-		-				
Stage 2	-	-	-	-		-				
Critical Hdwy	-	-	4.3	-		6.19				
Critical Hdwy Stg		-	-	-	5.2	-				
Critical Hdwy Stg	2 -	-	-	-	5.2	-				
Follow-up Hdwy	-		3	-	3	3.1				
Pot Cap-1 Maneu	ver -	-	653	-	263	451				
Stage 1	-		-	-	563	-				
Stage 2	-			-	780	-				
Platoon blocked.	% -	-		-						
Mov Cap-1 Maner			653		255	451				
Mov Cap-2 Maner			-							
Stage 1	-		_	_	563	_				
Stage 2			_		755	_				
Olage 2		_	_	_	7 33	_				
Approach	EB		WB		NB					
HCM Control Dela	ay, s 0		0.6		15.7					
HCM LOS	,,				С					
Minor Lane/Major	Mvml	IBLn1	IBLn2							
Capacity (veh/h)		255	451	-	-	653	-			
HCM Lane V/C Ra	atio	0.065	0.079	-	-	0.032	-			
HCM Control Dela	ay (s)	20.1	13.7	-	-	10.7	-			
HCM Lane LOS		С	В	-	-	В	-			
HCM 95th %tile Q	(veh)	0.2	0.3	-	-	0.1	-			
	, ,									

HCM 6th TWSC Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{ModelMedled}\text{PM.syn} PM.syn

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract Existing Weekday Afternoon Peak Hour

	۶	→	•	•	←	•	4	†	/	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		Ĭ	↑ ↑	
Traffic Volume (vph)	0	0	24	0	0	11	32	2004	46	89	1701	202
Future Volume (vph)	0	0	24	0	0	11	32	2004	46	89	1701	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.997			0.984	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3249	0	1678	3323	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3249	0	1678	3323	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	24	0	0	11	33	2045	47	91	1736	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	24	0	0	11	33	2092	0	91	1942	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing \(\frac{\text{Meachtdag}}{\text{PM}} \) PM.syn

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract
Existing Weekday Afternoon Peak Hour

Intersection		-			-		-		-	-		
Int Delay, s/veh	0.8											
Movement	EBL	EBT		WBL	WBT	WBR		NBT	NBR			SBR
Lane Configuration	าร		7			7	ሻ	ŧβ		ሻ	∱ }	
Traffic Vol, veh/h	0	0	24	0	0	11	32	2004	46	89	1701	202
Future Vol, veh/h	0	0	24	0	0	11	32	2004	46	89	1701	202
Conflicting Peds, #	hr 0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-
Veh in Median Sto	rage,	# 0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1
Mvmt Flow	0	0	24	0	0	11	33	2045	47	91	1736	206
NA=:==/NA:===	: <u>-</u>			1: t			1-14			1-:		
	linor2			linor1			lajor1			lajor2		
Conflicting Flow Al		-	971	-		1046	1942	0		2092		0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	7.1	-	-	7.2	3.9	-	-	3.9	-	-
Critical Hdwy Stg 1		-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2		-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.9	-	-	U	2.4	-	-	2.4	-	-
Pot Cap-1 Maneuv		0	264	0	0	222	326	-	-	288	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneu		-	264	-	-	222	326	-	-	288		-
Mov Cap-2 Maneu	ver -	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay				22.1			0.3			1		
HCM LOS	y, szu C			22.1 C			0.3					
I ICIVI LUG	C			C								
Minor Lane/Major I	Mvmt	NBL	NBT	NBÆ	BLn\n/\	/BLn1	SBL	SBT	SBR			
Capacity (veh/h)		326	-	-	264	222	288	-	-			
HCM Lane V/C Ra	tio	0.1	-	-	0.093	0.051	0.315	-	-			
HCM Control Delay		17.3	-	-	20		23.2	-	-			
HCM Lane LOS	, (-,	C			C	C	C					
HCM 95th %tile Q(veh)	0.3			0.3	0.2	1.3		-			
	,	0.0			0.0	V.2	0					

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract Existing Weekday Afternoon Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	f)			ર્ન	J.	7
Traffic Volume (vph)	20	0	5	229	1	4
Future Volume (vph)	20	0	5	229	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	385			553	359	
Travel Time (s)	7.5			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	27	0	7	305	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	312	1	5
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract
Existing Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	ERT	EBR	W/RI	W/RT	NIRI	NRP
Lane Configuration			VVDL	₩ĐI	INDL T	
Traffic Vol, veh/h	113 pa		5	229	1	
Future Vol, veh/h	20	-	5	229	1	
Conflicting Peds, #		0	0	0	0	
Sign Control		Free	_	-	_	-
RT Channelized		None		None		None
Storage Length	-	-	-	-	0	0
Veh in Median Sto	rage0,	# -	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %			0		0	-
Mvmt Flow	27	0	7	305	1	5
Major/Minor N	/lajor1	N	lajor2	M	linor1	
Conflicting Flow A			27	0	346	27
Stage 1	-		-	-	27	
Stage 2	-	-	-	-	319	
Critical Hdwy	-	-	4.3	-	6.8	6.4
Critical Hdwy Stg	1 -	-	-	-	5.8	-
Critical Hdwy Stg 2	2 -	-	-	-	5.8	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	ver -	-	1175	-		1120
Stage 1	-	-	-	-	1162	
Stage 2	-	-	-	-	817	-
Platoon blocked, 9				-		
Mov Cap-1 Maneu			1175	-		1120
Mov Cap-2 Maneu			-	-	714	
Stage 1	-		-		1162	
Stage 2	-	-	-	-	811	-
Approach	EB		WB		NB	
HCM Control Dela	y, s 0		0.2		8.6	
HCM LOS	•				Α	
Minor Lane/Major	MvmN	JBI n1N	Bl n2	FRT	FBR	WBI
Capacity (veh/h)	141411IL		1120	LDI		1175
HCM Lane V/C Ra	atio	0.002				0.006
HCM Control Dela		10.1	8.2	-	_	
HCM Lane LOS	, (0)	В	Α.2			-
HCM 95th %tile Q	(veh)	0	0	-	-	0
/0.110 0	,,,,,,		- 0			- 3

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

Existing Weekday Afternoon Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	^			†	¥	
Traffic Volume (vph)	20	0	0	230	0	0
Future Volume (vph)	20	0	0	230	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			385	323	
Travel Time (s)	55.1			7.5	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	27	0	0	307	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	27	0	0	307	0	0
Sign Control	Free			Free	Stop	
Intersection Cummers						

Intersection Summary
Area Type: Other
Control Type: Unsignalized

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing \(\frac{\text{Sylendag}}{\text{PM.syn}} \) PM.syn

McMahon Associates, Inc.
7: Church Egress Access & Pleasant Grove Rd

Robinson Tract
Existing Weekday Afternoon Peak Hour

Int Delay, s/veh						
20.0, , 0, 10	0					
Movement	EBT	FBR	WBI	WBT	NBI	NBR
Lane Configuration			.,,		¥*	.1011
Traffic Vol, veh/h	20		0	230	0	0
Future Vol, veh/h	20	-	0	230	0	0
Conflicting Peds, #		•	0	0	0	0
Sign Control		Free				
RT Channelized		None		None		None
Storage Length				-	0	-
Veh in Median Sto				0	0	
Grade. %	3		_	-3	-2	_
Peak Hour Factor	75		75	75	75	75
Heavy Vehicles, %			0	1	0	0
Mymt Flow	27		0	307	0	0
WWITETIOW	21	0	U	301	U	U
	1ajor1		lajor2		linor1	
Conflicting Flow Al			-	-	٠.	27
Stage 1	-	-	-	-	27	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1		-	-	-	5	-
Critical Hdwy Stg 2	2 -	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	0	3.1
Pot Cap-1 Maneuv	/er -	0	0	-	788	1123
Stage 1	-	-	0	-	1169	-
Stage 2	-	0	0	-	888	-
Platoon blocked, %	6 -			-		
Maria Oana 4 Maria are	ver -	-	-	-	788	1123
wov Cap-1 waneu						
	ver -	-	-	-	788	-
	ıver - -		-		788 1169	-
Mov Cap-2 Maneu		-				-
Mov Cap-2 Maneu Stage 1	-	-	-	-	1169	-
Mov Cap-2 Maneu Stage 1 Stage 2	-	-	-	-	1169 888	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach	- EB	-	- - WB	-	1169 888 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela	- EB	-	-	-	1169 888 NB 0	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach	- EB	-	- - WB	-	1169 888 NB	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS	- - EB y, s 0	-	- - WB 0	-	1169 888 NB 0	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major I	- - EB y, s 0	- - NBLn1	WB 0	WBT	1169 888 NB 0	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Delay HCM LOS Minor Lane/Major I Capacity (veh/h)	EB y, s 0	- - NBLn1 -	WB 0	WBT	1169 888 NB 0	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Dela HCM LOS Minor Lane/Major I Capacity (veh/h) HCM Lane V/C Ra	EB y, s 0	- VBLn1 -	WB 0	WBT	1169 888 NB 0	-
Mov Cap-2 Maneu Stage 1 Stage 2 Approach HCM Control Delay HCM LOS Minor Lane/Major I Capacity (veh/h) HCM Lane V/C Ra HCM Control Delay	EB y, s 0	- - - - 0	WB 0 EBT	WBT	1169 888 NB 0	-
Stage 2 Approach HCM Control Delay HCM LOS Minor Lane/Major I Capacity (veh/h)	EB y, s 0	- VBLn1 -	WB 0	WBT	1169 888 NB 0	-

HCM 6th TWSC Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{ModelMedled}\text{PM.syn} PM.syn

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract Existing Weekday Afternoon Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	î,		¥	
Traffic Volume (vph)	3	32	243	11	1	2
Future Volume (vph)	3	32	243	11	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.996			0.988	
Satd. Flow (prot)	0	1648	1679	0	1485	0
Flt Permitted		0.996			0.988	
Satd. Flow (perm)	0	1648	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	43	324	15	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	47	339	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract
Existing Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	FRI	EBT	WRT	W/RR	SBI	SBR
Lane Configuration		4	₩ <u>₩</u>	VVDI\	SDL M	SDI
Traffic Vol, veh/h	3			11	- T	2
Future Vol. veh/h	3		243	11	1	2
Conflicting Peds, #	-		0	0	0	0
Sign Control		Free				_
RT Channelized		None		None		None
Storage Length				-	0	
Veh in Median Sto			0		0	-
Grade, %	rage,		_		1	_
Peak Hour Factor	75		75	75	75	75
Heavy Vehicles, %			1	0	0	
Mymt Flow	4	-	324	15	1	3
WWITH FIOW	4	43	324	13		3
	lajor1		lajor2	N	linor2	
Conflicting Flow Al	II 339	0	-	0	383	332
Stage 1	-	-	-	-	332	-
Stage 2	-	-	-	-	51	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	1 -	-	-	-	5.6	-
Critical Hdwy Stg 2	2 -	-	-	-	5.6	-
Follow-up Hdwy		-	-	-	3	3.1
Pot Cap-1 Maneuv	/e₿19	-	-	-	695	747
Stage 1	-		-	-	820	-
Stage 2	-	-	-	-	1132	-
Platoon blocked. 9	6	-	-			
Mov Cap-1 Maneu			-	-	692	747
Mov Cap-2 Maneu			-	_	692	
Stage 1	-			-		
Stage 2	-		-		1132	
Stage 2		-	-		1132	-
Approach	EB		WB		SB	
HCM Control Dela	y, 9 .8		0		10	
HCM LOS	•				В	
Minor Long/M=:==	Muset	ED!	EDT	WDT	WDD	'DI n4
Minor Lane/Major	ivivitit			WBT		
Capacity (veh/h)		919	-	-		728
HCM Lane V/C Ra		0.004	-	-		0.005
HCM Control Dela	y (s)	8.9	0	-	-	
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q	(veh)	0	-	-	-	0

Robinson Tract Existing Weekday Afternoon Peak Hour

11: New Street & Pleasant Grove Rd

	•	•	T		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	¥		î,			र्स
Traffic Volume (vph)	198	47	143	17	18	168
Future Volume (vph)	198	47	143	17	18	168
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.986			
Flt Protected	0.961					0.995
Satd. Flow (prot)	1665	0	1759	0	0	1759
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1665	0	1759	0	0	1759
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	222	53	161	19	20	189
Shared Lane Traffic (%))					
Lane Group Flow (vph)	275	0	180	0	0	209
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
Existing Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\(\mathbb{S}\)/\text{leng}\(\mathbb{P}\)/\text{Minimal Model} PM.syn

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd Robinson Tract
Existing Weekday Afternoon Peak Hour

lutuus satious						
Intersection						
Int Delay, s/veh	5.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configuration	ıs 🎀		ĵ.			4
Traffic Vol, veh/h	198	47	143	17	18	168
Future Vol. veh/h	198	47	143	17	18	168
Conflicting Peds, #		0	0	0	0	0
Sign Control		_	-	Free	_	_
RT Channelized		None		None		None
Storage Length	0	-				-
Veh in Median Sto			0		_	0
Grade. %	ay o y:	-	0		-	0
Peak Hour Factor	89	89	89	89	89	89
		2	09			2
Heavy Vehicles, %		_		0	0	
Mvmt Flow	222	53	161	19	20	189
Major/Minor M	inor1	N	lajor1	M	lajor2	
Conflicting Flow Al		171	0	0	180	0
Stage 1	171		-	-	-	-
Stage 2	229	-	_		-	
Critical Hdwv	6.41	6.22	-		4.3	
		-		-	-	-
Critical Hdwy Stg 1		-	-	-	-	-
Critical Hdwy Stg 2		-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuv		929	-		1042	-
Stage 1	996	-	-	-	-	-
Stage 2	934	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneu	v ⊕ 77	929	-	-	1042	-
Mov Cap-2 Maneu	v ⊕ 77	-	-	-	-	-
Stage 1	996	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Olago Z	011					
Approach	WB		NB		SB	
HCM Control Delay	/,18.2		0		0.8	
HCM LOS	В					
Minor Long/Moior I	Auros	NDT	NIDID	/DI 51	SBL	CDT
Minor Lane/Major I	VIVIIIL					
Capacity (veh/h)		-		714		-
HCM Lane V/C Ra		-		0.386		-
HCM Control Dela	y (s)	-		13.2	8.5	0
HCM Lane LOS		-	-	_	Α	Α
HCM 95th %tile Q(veh)	-	-	1.8	0.1	-

HCM 6th TWSC Existing Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\1 - Existing\\$\text{Monthwday} PM.syn



Appendix P

Future (2025) Capacity/Level-of-Service Without Development Analysis Worksheets

1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	→	•	•	+	4	1	†	/	/	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.920	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1587	0	0	1514	0
Flt Permitted		0.916			0.986			0.888			0.992	
Satd. Flow (perm)	0	1497	0	0	1527	0	0	1413	0	0	1503	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			15							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	82	662	5	8	332	38	9	105	43	8	131	205
Shared Lane Traffic (%))		-	-								
Lane Group Flow (vph)	0	749	0	0	378	0	0	157	0	0	344	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
	76.7%	76.7%		76.7%	76.7%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag		2.0			2.0			2.0			2.0	
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2026with0rd\2014 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	•	-	•	•	•	•	1	Ť		-	¥	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926



Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2026withbRdpen\1 - Base\We

1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	→	\rightarrow	•	•	•	4	†	/	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	82	662	5	8	332	38	9	105	43	8	131	205
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	145	1106	8	48	1050	118	50	222	87	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1556	11	10	1476	166	43	1248	487	15	637	962
Grp Volume(v), veh/h	749	0	0	378	0	0	157	0	0	344	0	0
Grp Sat Flow(s), veh/h/ln	1709	0	0	1653	0	0	1778	0	0	1615	0	0
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.2	0.0	0.0	7.7	0.0	0.0	7.3	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
V/C Ratio(X)	0.60	0.00	0.00	0.32	0.00	0.00	0.46	0.00	0.00	1.11	0.00	0.00
Avail Cap(c_a), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	4.9	0.0	0.0	33.6	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.7	0.0	0.0	1.0	0.0	0.0	83.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.	/ln 9.7	0.0	0.0	3.9	0.0	0.0	5.8	0.0	0.0	21.2	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	8.7	0.0	0.0	5.6	0.0	0.0	34.5	0.0	0.0	121.7	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	Α
Approach Vol, veh/h		749			378			157			344	
Approach Delay, s/veh		8.7			5.6			34.5			121.7	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		15.0		63.0		15.0				
Max Q Clear Time (q c+	·l1), s	21.2		17.0		9.7		9.3				
Green Ext Time (p_c), s	,, -	7.3		0.0		2.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			34.3 C									
I IOM OUI LOG			C									

HCM 6th Signalized Intersection Summary 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimal Revised Revised TIS\Syn

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	→	•	•	←	•	4	†	~	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4		ሻ	<u></u>	7	ሻ	^	7	ሻ	↑ ↑	
Traffic Volume (vph)	522	228	8	146	163	56	12	1630	156	56	1537	189
Future Volume (vph)	522	228	8	146	163	56	12	1630	156	56	1537	189
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.984	
Flt Protected	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1734	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Flt Permitted	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1734	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		14	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	538	235	8	151	168	58	12	1680	161	58	1585	195
Shared Lane Traffic (%)	28%											
Lane Group Flow (vph)	387	394	0	151	168	58	12	1680	161	58	1780	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
	25.8%									11.7%		
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
LOSE TIME Aujust (8)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2926\width delem\1 - Base\We

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	•	-	•	•	•	•	4	†	1	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	→	•	•	←	•	1	†	~	/	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	4		ሻ	+	7	Ť	^	7	ሻ	∱ î≽	
Traffic Volume (veh/h)	522	228	8	146	163	56	12	1630	156	56	1537	189
Future Volume (veh/h)	522	228	8	146	163	56	12	1630	156	56	1537	189
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	390	441	8	151	168	58	12	1680	161	58	1585	195
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	397	2	180	189	163	29	1594	745	88	1401	170
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.02	0.45	0.45	0.06	0.49	0.48
Sat Flow, veh/h	1780	1874	34	1802	1892	1630	1626	3541	1655	1514	2855	346
Grp Volume(v), veh/h	390	0	449	151	168	58	12	1680	161	58	873	907
Grp Sat Flow(s),veh/h/ln		0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	25.0	0.0	25.0	9.9	10.5	4.0	0.9	54.0	7.1	4.5	58.9	58.9
Cycle Q Clear(g_c), s	25.0	0.0	25.0	9.9	10.5	4.0	0.9	54.0	7.1	4.5	58.9	58.9
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	29	1594	745	88	780	791
V/C Ratio(X)	1.05	0.00	1.13	0.84	0.89	0.36	0.42	1.05	0.22	0.66	1.12	1.15
Avail Cap(c_a), veh/h	371	0	398	180	189	163	122	1594	745	114	780	791
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	47.5	53.0	53.3	50.4	58.3	33.0	20.1	55.3	30.6	30.7
Incr Delay (d2), s/veh	60.9	0.0	84.2	27.9	36.2	1.3	9.4	38.4	0.7	8.6	69.9	81.0
Initial Q Delay(d3),s/veh		0.0	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	37.1	9.7	11.0	3.0	8.0	40.4	5.0	3.4	49.6	54.1
Unsig. Movement Delay,												
- 1	186.1	0.0	195.0	80.9	89.5	51.7	67.8	71.4	20.8	64.0	100.4	111.6
LnGrp LOS	F	Α	F	F	F	D	E	F	С	E	F	F
Approach Vol, veh/h		839			377			1853			1838	
Approach Delay, s/veh		190.8			80.2			66.9			104.8	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),		59.0		18.0	7.1	63.9		31.0				
Change Period (Y+Rc), s	6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+	l1)7 s 0	56.5		13.0	3.4	61.4		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			103.3									
HCM 6th LOS			F									

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2025 without Dev Weekday Morning Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 20026/widh@delpen\1 - Base\We

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 29\(2020\)Edividia Report\1 - Base\We

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Lane Width (ft) 11 13 13 12 14 14 12 12 14 12 12	297 297 1800
Traffic Volume (vph) 141 149 34 86 138 61 0 2079 56 0 1947 Future Volume (vph) 141 149 34 86 138 61 0 2079 56 0 1947 Ideal Flow (vphpl) 1800	297 297 1800
Traffic Volume (vph) 141 149 34 86 138 61 0 2079 56 0 1947 Future Volume (vph) 141 149 34 86 138 61 0 2079 56 0 1947 Ideal Flow (vphpl) 1800	297 1800
Future Volume (vph) 141 149 34 86 138 61 0 2079 56 0 1947 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 180	1800
Ideal Flow (vphpl)	
Lane Width (ft) 11 13 13 12 14 14 12 12 14 12 12	
Grade (%) -5% 2% 2% -3%	
Storage Length (ft) 200 200 350 0 0 220 0	200
Storage Lanes 1 1 1 0 0 1 0	1
Taper Length (ft) 75 100 75 75	
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 1.00 0.95	1.00
	0.850
Fit Protected 0.950 0.950	0.000
	1676
Fit Permitted 0.483 0.599	1070
	1676
Right Turn on Red No No No	No
Satd. Flow (RTOR)	NO
,	
Link Speed (mph) 25 25 45 45 Link Distance (ft) 637 560 1356 940	
Travel Time (s) 17.4 15.3 20.5 14.2	0.05
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	0.95
Heavy Vehicles (%) 6% 8% 13% 4% 9% 4% 0% 5% 0% 0% 8%	5%
Adj. Flow (vph) 148 157 36 91 145 64 0 2188 59 0 2049	313
Shared Lane Traffic (%)	040
Lane Group Flow (vph) 148 157 36 91 209 0 0 2188 59 0 2049	313
Number of Detectors 1 4 1 1 4 2 1 2	1
	Right
Leading Detector (ft) 35 68 30 35 68 490 30 490	30
Trailing Detector (ft) -5 -1 -10 -5 -1 -10 -10 -10	-10
Detector 1 Position(ft) -5 -1 -10 -5 -1 -10 -10 -10	-10
Detector 1 Size(ft) 40 6 40 40 6 40 40 40 40	40
Detector 1 Type CI+Ex CI	CI+EX
Detector 1 Channel	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0
Detector 2 Position(ft) 15 15 450 450	
Detector 2 Size(ft) 6 6 40 40	
Detector 2 Type CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 2 Channel	
Detector 2 Extend (s) 0.0 0.0 0.0 0.0	
Detector 3 Position(ft) 36 36	
Detector 3 Size(ft) 6 6	
Detector 3 Type CI+Ex CI+Ex	
Detector 3 Channel	
Detector 3 Extend (s) 0.0 0.0	
Detector 4 Position(ft) 62 62	
Detector 4 Size(ft) 6 6	
Detector 4 Type CI+Ex CI+Ex	

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimum} Revised Revised TIS\Synchro\2 - 2026\text{minim

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	•	-	•	•	—	*	1	†	/	<i>→</i> 1	,	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL SI	ВТ	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm	1	NΑ	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0	15	5.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0	22	2.0	22.0
Total Split (s)	34.0	34.0	34.0	34.0	34.0			86.0	86.0	86	6.0	86.0
Total Split (%)	28.3%	28.3%	28.3%	28.3%	28.3%			71.7%	71.7%	71.7	7%	71.7%
Maximum Green (s)	26.0	26.0	26.0	26.0	26.0			79.0	79.0	79	9.0	79.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0	2	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0	-1	0.1	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0	6	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0	6	6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0	48	3.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		1.0	
Recall Mode	None	None	None	None	None			C-Max	C-Max	C-M	ax	C-Max
Intersection Summary												
Area Type: (Other											
Cycle Length: 120												
Actuated Cycle Length:	120											
Officety 02 (COO/) Defer			O.CDT		IDT CL-	-4 -4 V/-I						

Splits and Phases:	12: Rt 202 & Stetson School Dr/Skiles Blvd	
Control Type: Actuat		
Natural Cycle: 90		
Offset: 83 (69%), Re	ferenced to phase 2:SBT and 6:NBT, Start of Yello	OW
Actuated Cycle Leng		



Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2926\width&Re\pert\1 - Base\We

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

12. Rt 202 & Stetsor	Rt 202 & Stetson School DI/Skiles Blvd 2023 without Dev Weekday Monthly Feak								K I IUUI			
	۶	→	•	•	←	•	4	†	<i>></i>	-	ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ኻ		7	<u>ነ</u>	1 >			^	1		^	7
Traffic Volume (veh/h)	141	149	34	86	138	61	0	2079	56	0	1947	297
Future Volume (veh/h)	141	149	34	86	138	61	0	2079	56	0	1947	297
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	า	No			No			No			No	
Adj Sat Flow, veh/h/ln	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	148	157	36	91	145	64	0	2188	59	0	2049	313
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	204	438	344	242	254	112	0	2163	1045	0	2277	1082
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.67	0.67	0.00	0.67	0.67
Sat Flow, veh/h	1258	1947	1588	1156	1129	498	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	148	157	36	91	0	209	0	2188	59	0	2049	313
Grp Sat Flow(s), veh/h/ln	1258	1947	1588	1156	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	13.8	8.2	2.2	8.6	0.0	13.7	0.0	80.0	1.6	0.0	59.9	9.6
Cycle Q Clear(g_c), s	27.0	8.2	2.2	16.8	0.0	13.7	0.0	80.0	1.6	0.0	59.9	9.6
Prop In Lane	1.00		1.00	1.00		0.31	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	204	438	344	242	0	366	0	2163	1045	0	2277	1082
V/C Ratio(X)	0.72	0.36	0.10	0.38	0.00	0.57	0.00	1.01	0.06	0.00	0.90	0.29
Avail Cap(c_a), veh/h	204	438	344	242	0	366	0	2163	1045	0	2277	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	39.2	37.7	46.3	0.0	41.5	0.0	20.0	6.9	0.0	16.7	8.3
Incr Delay (d2), s/veh	11.9	0.5	0.1	1.0	0.0	2.1	0.0	22.3	0.1	0.0	6.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/ln 8.9	7.2	1.6	4.6	0.0	9.7	0.0	40.7	0.9	0.0	28.8	5.6
Unsig. Movement Delay,	, s/veh											
LnGrp Delay(d),s/veh	65.2	39.7	37.8	47.2	0.0	43.6	0.0	42.3	7.0	0.0	22.9	8.9
LnGrp LOS	E	D	D	D	Α	D	Α	F	Α	Α	С	Α
Approach Vol, veh/h		341			300			2247			2362	
Approach Delay, s/veh		50.6			44.7			41.3			21.0	
Approach LOS		D			D			D			С	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	, s	86.0		34.0		86.0		34.0				
Change Period (Y+Rc),	s	7.0		8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	79.0		26.0		79.0		26.0				
Max Q Clear Time (g_c+	-I1), s	62.4		19.3		82.5		29.5				
Green Ext Time (p_c), s		16.5		8.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.0									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2926\with0ft\Beliefer\1 - Base\We

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	→	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	7	Ţ	†	Ţ	7
Traffic Volume (vph)	678	32	13	337	26	40
Future Volume (vph)	678	32	13	337	26	40
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%
Adj. Flow (vph)	699	33	13	347	27	41
Shared Lane Traffic (%)						
Lane Group Flow (vph)	699	33	13	347	27	41
Sign Control	Free			Free	Stop	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2926\with0ft\Beliefer\1 - Base\We

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

ntersection						
Int Delay, s/veh	1					
Movement	EBT	EBR	WBI	WBT	NBL	NBR
Lane Configuration			*	<u>↑,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	*	7
Traffic Vol. veh/h	678		13	337	26	40
Future Vol, veh/h			13		26	40
Conflicting Peds,		0	0	0	0	0
Sign Control		Free				Stop
RT Channelized		None		None		None
Storage Length		350	120	-		0
Veh in Median Sto	orage0	# -	-	0	0	-
Grade, %	8		-	-8	-1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, 9	% 4	3	0	8	0	3
Mvmt Flow	699	33	13	347	27	41
Major/Minor N	Major1	N.	lajor2	N/	linor1	
Conflicting Flow A			_		1072	699
Stage 1	AII 0 -		132	-		- 099
Stage 2	-		-	-		-
Critical Hdwy	-		4.3	-		6.13
Critical Hdwy Stq			4.3		5.2	0.13
Critical Hdwy Stg		-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	-	
Pot Cap-1 Maneu			669	-	-	470
Stage 1	-		-	-		4/0
Stage 2	_		_	_	815	_
Platoon blocked.					013	
Mov Cap-1 Mane			669	-	281	470
Mov Cap-2 Mane			-	-	-	7/0
Stage 1	-			-		
Stage 2	-		-	-		
Olago 2					000	
Approach	EB		WB		NB	
HCM Control Dela	ay, s 0		0.4		15.7	
HCM LOS					С	
Minor Lane/Major	Mvml	NBLn1N	BLn2	EBT	EBR	WBL
Capacity (veh/h)		281		-	-	
HCM Lane V/C R	atio	0.095				0.02
HCM Control Dela			13.4			10.5
HCM Lane LOS	J (-)	C	В	-	-	
HCM 95th %tile C	(veh)	0.3	0.3	-	-	0.1
	.,)					

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	-	•	•	•	•	4	†	-	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	Ĭ	↑ ↑		Ĭ	↑ ↑	
Traffic Volume (vph)	0	0	27	0	0	34	32	2124	70	53	1827	154
Future Volume (vph)	0	0	27	0	0	34	32	2124	70	53	1827	154
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.988	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3160	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	28	0	0	35	33	2213	73	55	1903	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	28	0	0	35	33	2286	0	55	2063	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimum} Revised Revised TIS\Synchro\2 - 2026\text{minim

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	3		7			7	ሻ	↑ ↑		ሻ	ħβ		
Traffic Vol, veh/h	0	0	27	0	0	34	32	2124	70	53	1827	154	
Future Vol, veh/h	0	0	27	0	0	34	32	2124	70	53	1827	154	
Conflicting Peds, #/	hr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-	
Veh in Median Stora	age,#	ŧ 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3	
Mvmt Flow	0	0	28	0	0	35	33	2213	73	55	1903	160	
Major/Minor Mi	nor2		Α.	1inor1			lajor1			lajor2			
Conflicting Flow All	-	_	1032	-		1143	_	0		2286	0	0	
Stage 1	-	-	1002	-	-	1143	2003	-	-		-	-	
Stage 2	-			-					_				
Critical Hdwy	-		7.2	-	-	7.3	41			4			
Critical Hdwy Stg 1	-	-	1.2	-	-	1.3	4.1	-	-	4	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-		-	-	3.1	2.5	-	-	2.4	-	-	
Pot Cap-1 Maneuve		0		0		*225	*449			*291			
Stage 1	0	0	300	0	0	225	449	-	_	291		-	
Stage 2	0	0	-	0	0	-							
Platoon blocked. %	_	U	1	U	U	1	1	-	_	1			
Mov Cap-1 Maneuv			*386	_		*225	*449	-		*291	-	-	
Mov Cap-1 Maneuv		-	300	-	-	225	449	-	-	291	-	-	
Stage 1	eı -	-	-		-		-	-		-	-		
Stage 1 Stage 2	-	•	-	-	-	-	-	-	-	•	•	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay	,15.1			24			0.2			0.5			
HCM LOS	С			С									
Minor Lane/Major M	1vmt	NBL	NBT	NBR	BLn\1\	BLn1	SBL	SBT	SBR				
Capacity (veh/h)		* 449	-	-			* 291	-	-				
HCM Lane V/C Rat		0.074				0.157	0.19	-					
HCM Control Delay		13.7	-			24			_				
HCM Lane LOS	(0)	В.			C	C	C						
HCM 95th %tile Q(v	/eh)	0.2	-	-	0.2	0.5	0.7	-	-				
,	J,	V.2			U.Z	0.0	0.7						
Notes													

5: Church Access & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4î			ર્ન	٦	7
Traffic Volume (vph)	27	1	8	178	1	0
Future Volume (vph)	27	1	8	178	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1700	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1700	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	39	1	11	254	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	40	0	0	265	1	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Othe Control Type: Unsignalized

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBI	WBT	NBI	NBR
Lane Configuration				4	ኘ	
Traffic Vol, veh/h	27	1	8	178	1	0
Future Vol. veh/h	27	1	8	178	1	0
Conflicting Peds, #	#/hr 0	0	0	0	0	0
Sign Control		Free				Stop
RT Channelized		None		None		None
Storage Length	-		-	-	0	0
Veh in Median Sto	rage0	# -	-	0	0	
Grade, %	4		-	-4	2	
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mymt Flow	39	1	11	254	1	0
Major/Minor M	lajor1	N/	lajor2	N/	linor1	
Conflicting Flow Al		0	40	0	316	40
Stage 1	-	-	40	-	40	40
Stage 2	_		-			
Critical Hdwv	_	-	4.3	-	6.8	6.4
Critical Hdwy Stg 1			4.5		5.8	
Critical Hdwy Stg 2			_	-	5.8	
Follow-up Hdwy	-		3	-		
Pot Cap-1 Maneuv			1163			1100
Stage 1	-				1144	1100
Stage 2	-					
Platoon blocked. %					001	
Mov Cap-1 Maneu			1163		7/13	1100
Mov Cap-1 Maneu		-	1103		743	
Stage 1	-	-			1144	
Stage 2	-	-	-	-		
Stage 2					032	
Approach	EB		WB		NB	
HCM Control Dela	y, s 0		0.3		9.9	
HCM LOS					Α	
Minor Lane/Major	MvmN	IBLn 1 N	BLn2	EBT	EBR	WBL
Capacity (veh/h)		743				1163
HCM Lane V/C Ra	ntio	0.002	-			0.01
HCM Control Dela		9.9	0	_	-	
HCM Lane LOS	, (-,	A	Ā		-	A
HCM 95th %tile Q	(veh)	0	-	-	-	0
	, , ,					

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2926\with0ft\Beliefer\1 - Base\We

Robinson Tract

6: Pleasant Grove Rd & Orvis Way

2025 without Dev Weekday Morning Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	4î		¥	
Traffic Volume (vph)	34	12	151	28	15	12
Future Volume (vph)	34	12	151	28	15	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979		0.940	
Flt Protected		0.964			0.973	
Satd. Flow (prot)	0	1676	1748	0	1614	0
Flt Permitted		0.964			0.973	
Satd. Flow (perm)	0	1676	1748	0	1614	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	49	17	216	40	21	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	66	256	0	38	0
Sign Control		Free	Free		Stop	
Intersection Summary						

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configuration	ns	4	1 >		¥	
Traffic Vol, veh/h	34	12	151	28	15	12
Future Vol. veh/h	34	12	151	28	15	12
Conflicting Peds, #		0	0	0	0	0
Sign Control		_	_	Free		-
RT Channelized		None		None		None
Storage Length	-		_	-	0	-
Veh in Median Sto			0		0	-
Grade. %	age, i	4	-4	_	0	
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %		0	3		2	
	_	-	-			
Mvmt Flow	49	17	216	40	21	17
Major/Minor M	lajor1	N	lajor2	M	linor2	
Conflicting Flow Al	I 256	0	-	0	351	236
Stage 1	-	-	-	-	236	-
Stage 2	-			-	115	-
Critical Hdwy	4.3	-	_	_		6.22
Critical Hdwy Stg 1		-	-		5.42	
		-	-		5.42	
Critical Hdwy Stg 2						
Follow-up Hdwy	3	-	-	-	3	
Pot Cap-1 Maneuv		-	-	-	740	
Stage 1	-	-	-	-	927	-
Stage 2	-	-	-	-	1058	-
Platoon blocked, %	6	-	-	-		
Mov Cap-1 Maneu	v ⊕ 81	-	-	-	703	854
Mov Cap-2 Maneu	ver -	-	-	-	703	-
Stage 1	-	-	-	-	881	-
Stage 2		-		-	1058	-
Olage 2					1000	
Approach	EB		WB		SB	
HCM Control Delay	y, 6 .5		0		10	
HCM LOS					В	
Minor Lane/Major I	Mvmt	EBL	FBT	WBT	WBR	Bl n1
Capacity (veh/h)	viviiil	981	LUI	-		763
	ti o		-			0.051
HCM Cartes Dalay		0.05			-	
HCM Control Dela	y (S)	8.9	0			
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 without Dev Weekday Morning Peak Hour

	-	•	•	•	1	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			†	Y	
Traffic Volume (vph)	47	0	0	163	0	0
Future Volume (vph)	47	0	0	163	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			322	436	
Travel Time (s)	57.1			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	67	0	0	233	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	67	0	0	233	0	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 without Dev Weekday Morning Peak Hour

l						
Intersection Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT		NBR
Lane Configuration					¥	
Traffic Vol, veh/h	47	0	0		0	0
Future Vol, veh/h	47	0	0		0	0
Conflicting Peds, #/		0	0		0	0
				Free		
RT Channelized	-	None	-	None		None
Storage Length	-		-		0	-
Veh in Median Stor	0 ,		-	U	0	-
Grade, %	3		-	_	-2	-
Peak Hour Factor	70	70	70		70	70
Heavy Vehicles, %		0	0	-	0	0
Mvmt Flow	67	0	0	233	0	0
Major/Minor Ma	ajor1	N/	lajor2	N/	linor1	
Conflicting Flow All		- 10				67
Stage 1	U		_		67	-
Stage 2	-		-		233	-
Critical Hdwy	-		-		233	6
Critical Hdwy Stg 1		-	-		5	-
Critical Hdwy Stg 2					5 5	-
Follow-up Hdwy		-	-	-	-	3.1
	-	0	0		-	1069
Pot Cap-1 Maneuve						1069
Stage 1	-	0	0		1124	-
Stage 2	-	U	U		955	-
Platoon blocked, %				-	000	4000
Mov Cap-1 Maneuv		-	-	-		1069
Mov Cap-2 Maneu		-	-			-
Stage 1	-	-	-		1124	-
Stage 2	-	-	-	-	955	-
Approach	EB		WB		NB	
HCM Control Delay	/. s 0		0		0	
HCM LOS					Α	
N		D. 4	гот	MOT		
Minor Lane/Major N	/IVM I N			WBT		
Capacity (veh/h)		-	-			
HCM Lane V/C Rat		-	-			
HCM Control Delay	/ (s)	0	-			
HCM Lane LOS		Α	-			
HCM 95th %tile Q(v	veh)	-	-	-		

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimum} Revised Revised TIS\Synchro\2 - 2026\text{minim

Robinson Tract

10: Pleasant Grove Rd & Dunvegan Road

2025 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	f)		¥	
Traffic Volume (vph)	0	54	234	3	5	2
Future Volume (vph)	0	54	234	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1643	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1643	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	77	334	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	77	338	0	10	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	FRI	FRT	WBT	WRP	SBI	SRP
Lane Configuration		4	₩ <u>₩</u>	WDI\	N/	אושט
Traffic Vol, veh/h	0	~4	234	3	'T' 5	2
Future Vol. veh/h	0	54	234	3	5 5	2
Conflicting Peds, #	-	0	234	0	0	0
						-
Sign Control	Free					
RT Channelized		None		None		None
Storage Length	-		-	-	0	-
Veh in Median Sto	0 ,		0	-	0	-
Grade, %	-	-		-	1	
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %		5	3	50	0	
Mvmt Flow	0	77	334	4	7	3
Major/Minor M	1ajor1		lajor2		linor2	
		0	iajoiz -			220
Conflicting Flow Al		-		0	413	
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.3	-	-	-		6.55
Critical Hdwy Stg 1		-	-	-	0.0	
Critical Hdwy Stg 2	2 -	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.3
Pot Cap-1 Maneuv	/e 9 20	-	-	-	665	688
Stage 1	-	-	-	-	816	-
Stage 2	-	-	-	-	1099	-
Platoon blocked. %	6		-		.000	
Mov Cap-1 Maneu				_	665	688
Mov Cap-1 Maneu			-	-		
			-	-		
Stage 1	-	-	-	-	0.0	-
Stage 2	-	-	-	-	1099	-
Approach	EB		WB		SB	
HCM Control Dela	v s 0		0		10.4	
HCM LOS	у, з о		U		10.4	
I ICIVI LOG					U	
Minor Lane/Major I	Mvmt	EBL	EBT	WBT	WBRS	BLn1
		920	-	-	-	671
Capacity (veh/h)						0.015
	itio	-	-	-	-	0.013
Capacity (veh/h) HCM Lane V/C Ra			-	-		10.4
Capacity (veh/h) HCM Lane V/C Ra HCM Control Dela		-				
Capacity (veh/h) HCM Lane V/C Ra	y (s)	0	-	-		10.4

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimum} Revised Revised TIS\Synchro\2 - 2026\text{minim

11: New Street & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		4î			4
Traffic Volume (vph)	213	23	178	38	15	131
Future Volume (vph)	213	23	178	38	15	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987		0.976			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1648	0	1728	0	0	1761
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1648	0	1728	0	0	1761
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	239	26	200	43	17	147
Shared Lane Traffic (%))					
Lane Group Flow (vph)	265	0	243	0	0	164
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized McMahon Associates, Inc.
11: New Street & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	5.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configuration			1>			4
Traffic Vol., veh/h	213	23	178	38	15	131
Future Vol. veh/h	213	23	178	38	15	131
Conflicting Peds,	#/hr 0	0	0	0	0	0
Sign Control		Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	
Veh in Median Sto	rage0:	# -	0	-	-	0
Grade. %	0	" -	0			·
Peak Hour Factor	-	89	89	89	89	89
Heavy Vehicles, %		14	2	0	8	
Mymt Flow	239	26	200	43	17	147
INIVITIL FIOW	239	20	200	43	17	147
Major/Minor N	/linor1	N	lajor1	M	lajor2	
Conflicting Flow A	II 403	222	0	0	243	0
Stage 1	222	-	-	-	-	-
Stage 2	181	-	-	-	-	-
Critical Hdwy	6.42	6.34	-	-	4.4	-
Critical Hdwy Stg		-		-	-	-
Critical Hdwy Stg			-	-		-
Follow-up Hdwy	3	3.2		-	3.1	
Pot Cap-1 Maneur		839	-	_	956	-
Stage 1	941	-	-	-	930	
Stage 2	984		-	-	-	_
		•		-	-	-
Platoon blocked,		000	-	-	050	-
Mov Cap-1 Maneu				-	956	-
Mov Cap-2 Maneu		-	-	-	-	-
Stage 1	941	-	-	-	-	-
Stage 2	965	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Dela	v18.5		0		0.9	
HCM LOS	В.		•		0.0	
TION LOO	٥					
Minor Lane/Major	Mvmt	NBT	NBR	BLn1	SBL	SBT
Capacity (veh/h)		-	-	689	956	-
HCM Lane V/C Ra	atio	-	-	0.385	0.018	-
HCM Control Dela	ıy (s)	-	-	13.5	8.8	0
HCM Lane LOS		-	-	В	Α	Α
HCM 95th %tile Q	(veh)	-	-	1.8	0.1	-

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2026\text{minimum} Revised Revised TIS\Synchro\2 - 2026\text{minim

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Lane Group EBL **EBT** WBT Lane Configurations Traffic Volume (vph) 57 659 20 317 87 171 150 Future Volume (vph) 57 659 13 20 317 31 9 87 38 51 171 150 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 Lane Width (ft) 10 10 10 10 10 10 10 10 10 10 10 10 Grade (%) -2% Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.998 0.989 0.962 0.946 Flt Protected 0.996 0.997 0.997 0.993 Satd. Flow (prot) 0 1625 0 1551 0 1583 1530 Flt Permitted 0.941 0.947 0.972 0.939 Satd. Flow (perm) 0 1536 0 1473 0 1544 0 1447 0 0 Right Turn on Red Yes Yes No No Satd. Flow (RTOR) 2 Link Speed (mph) 25 45 45 35 Link Distance (ft) 819 2436 714 826 Travel Time (s) 12.4 36.9 19.5 16.1 Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 Heavy Vehicles (%) 2% 4% 0% 0% 7% 3% 11% 1% 5% 13% 0% 2% Adj. Flow (vph) 59 679 13 21 327 32 9 90 39 53 176 155 Shared Lane Traffic (%) Lane Group Flow (vph) 751 380 138 Number of Detectors Detector Template Left Left Left Thru Left Thru Leading Detector (ft) 6 6 30 30 30 35 30 35 Trailing Detector (ft) -10 0 -10 0 -10 -10 -5 -5 Detector 1 Position(ft) -10 0 -10 -10 -5 -10 -5 40 40 Detector 1 Size(ft) 40 40 40 40 6 6 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex **Detector 1 Channel** Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type NA Perm NA Perm NA Perm NA **Protected Phases** 2 8 Permitted Phases **Detector Phase** 2 8 4 6 8 4 Switch Phase Minimum Initial (s) 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 36.0 36.0 Total Split (s) 69.0 69.0 69.0 69.0 36.0 36.0 Total Split (%) 34.3% 34.3% 65.7% 65.7% 65.7% 65.7% 34.3% 34.3% Maximum Green (s) 63.0 63.0 63.0 63.0 30.0 30.0 30.0 30.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 2.0 2.0 2.0 2.0 All-Red Time (s) 2.0 2.0 2.0 2.0 Lost Time Adjust (s) -1.0 -1.0 -1.0-1.0 Total Lost Time (s) 5.0 5.0 5.0 5.0 Lead/Lag Lead-Lag Optimize?

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8**\nutribe \8.1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Intersection Summary												
Area Type: O	ther											
Cycle Length: 105												

Control Type: Semi Act-Uncoord

Actuated Cycle Length: 103.9

Natural Cycle: 70

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Base\We

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour 1: New St & Rt 926

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			44			4	
Traffic Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	59	679	13	21	327	32	9	90	39	53	176	155
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	101	1026	19	68	906	86	51	320	131	85	209	172
Arrive On Green	0.65	0.64	0.63	0.65	0.64	0.63	0.27	0.26	0.25	0.27	0.26	0.25
Sat Flow, veh/h	99	1611	30	48	1424	135	48	1212	496	168	792	650
Grp Volume(v), veh/h	751	0	0	380	0	0	138	0	0	384	0	0
Grp Sat Flow(s),veh/h/ln	1740	0	0	1607	0	0	1757	0	0	1610	0	0
Q Serve(q s), s	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.4	0.0	0.0
Cycle Q Clear(q c), s	26.4	0.0	0.0	10.7	0.0	0.0	6.3	0.0	0.0	22.9	0.0	0.0
Prop In Lane	0.08	0.0	0.02	0.06	0.0	0.08	0.07	0.0	0.28	0.14	0.0	0.40
Lane Grp Cap(c), veh/h		0	0	1076	0	0	519	0	0.20	482	0	0
V/C Ratio(X)	0.65	0.00	0.00	0.35	0.00	0.00	0.27	0.00	0.00	0.80	0.00	0.00
Avail Cap(c a), veh/h	1163	0.00	0.00	1076	0.00	0.00	595	0.00	0.00	552	0	0.00
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	8.6	0.0	0.0	29.6	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.9	0.0	0.0	0.3	0.0	0.0	7.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	0.0	6.1	0.0	0.0	4.8	0.0	0.0	14.6	0.0	0.0
Unsig. Movement Delay,		0.0	0.0	0	0.0	0.0		0.0	0.0		0.0	0.0
LnGrp Delay(d),s/veh	14.1	0.0	0.0	9.5	0.0	0.0	29.9	0.0	0.0	42.8	0.0	0.0
LnGrp LOS	В	Α	A	A	A	A	C	Α	A	D	Α	Α
Approach Vol, veh/h		751			380			138			384	
Approach Delay, s/veh		14.1			9.5			29.9			42.8	
Approach LOS		В			Α.			C C			72.0 D	
• •					Α.							
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		69.0		31.6		69.0		31.6				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		30.0		63.0		30.0				
Max Q Clear Time (g_c+	11), s	28.4		24.9		12.7		8.3				
Green Ext Time (p_c), s		7.0		0.7		3.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary
2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8youth⊅e** €1 - Base\W€

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	٦	4		Ĭ	†	7	Ĭ	^	7	Ĭ	↑ ↑	
Traffic Volume (vph)	444	210	28	205	228	66	30	1626	125	89	1531	134
Future Volume (vph)	444	210	28	205	228	66	30	1626	125	89	1531	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		10	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	458	216	29	211	235	68	31	1676	129	92	1578	138
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	343	360	0	211	235	68	31	1676	129	92	1716	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	27.0	27.0		21.0	21.0	21.0	14.0	58.0	58.0	14.0	58.0	
Total Split (%)	22.5%	22.5%		17.5%	17.5%	17.5%	11.7%	48.3%	48.3%	11.7%	48.3%	
Maximum Green (s)	20.0	20.0		14.0	14.0	14.0	8.0	52.0	52.0	8.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Robinson Tract

3: Rt 202 & Rt 926

2025 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary Other

Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Lane Configurations	ሻ	4		ሻ	↑	7	ሻ	^	7	ሻ	∱ }	
Traffic Volume (veh/h)	444	210	28	205	228	66	30	1626	125	89	1531	134
Future Volume (veh/h)	444	210	28	205	228	66	30	1626	125	89	1531	134
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	(
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	352	365	29	211	235	68	31	1676	129	92	1578	138
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	307	336	5	232	242	208	60	1600	748	129	1576	60
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.03	0.44	0.44	0.08	0.48	0.48
Sat Flow, veh/h	1753	1791	142	1856	1935	1668	1856	3622	1693	1714	3085	267
Grp Volume(v), veh/h	352	0	394	211	235	68	31	1676	129	92	841	875
Grp Sat Flow(s),veh/h/ln		0	1933	1856	1935	1668	1856	1811	1693	1714	1657	1696
Q Serve(g_s), s	21.0	0.0	21.0	13.5	14.5	4.5	2.0	53.0	5.5	6.3	58.1	58.1
Cycle Q Clear(g_c), s	21.0	0.0	21.0	13.5	14.5	4.5	2.0	53.0	5.5	6.3	58.1	58.1
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	307	0	342	232	242	208	60	1600	748	129	802	834
V/C Ratio(X)	1.15	0.00	1.15	0.91	0.97	0.33	0.52	1.05	0.17	0.72	1.05	1.05
Avail Cap(c_a), veh/h	307	0	338	232	242	208	139	1600	748	129	802	821
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	49.5	51.8	52.3	47.9	57.1	33.5	20.2	54.2	30.9	31.0
Incr Delay (d2), s/veh	97.4	0.0	96.9	35.6	49.8	0.9	6.7	36.1	0.5	17.2	45.2	45.0
Initial Q Delay(d3),s/veh		0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	359.0	345.5
%ile BackOfQ(95%),veh/		0.0	33.2	13.1	15.4	3.4	1.8	39.9	4.0	5.9	122.0	123.4
Unsig. Movement Delay,												
- 1	182.1	0.0	199.1	87.5	102.0	48.8	63.8	69.6	20.7	71.4	435.1	421.4
LnGrp LOS	F	A	F	F	F	<u>D</u>	E	F	<u>C</u>	E	F	F
Approach Vol, veh/h		746			514			1836			1808	
Approach Delay, s/veh		191.1			89.0			66.1			410.0	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),		58.0		21.0	8.9	63.1		27.0				
Change Period (Y+Rc), s		6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma	088(xi	52.0		14.0	8.0	52.0		20.0				
Max Q Clear Time (g_c+	l1)8 : 8	55.5		17.0	4.5	60.6		23.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			214.3									
HCM 6th LOS			F									

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2025 without Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8youthDev**\$1 - Base\W€

2025 without Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**ßynut/Dæ®**1 - Base\W€

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 without Dev Weekday Afternoon Peak Hour

12. Kt 202 & Stetson	Conc	JOI D17	Citiloc	Diva					rccitaay			ik i loui
	ᄼ	→	•	•	←	•		†	/	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	,	*	7	ř	f)			^	7		^	7
Traffic Volume (vph)	186	142	61	59	44	65	0	2042	75	0	1998	165
Future Volume (vph)	186	142	61	59	44	65	0	2042	75	0	1998	165
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.910				0.850			0.850
Flt Protected (0.950			0.950								
	1661	1906	1589	1693	1730	0	0	3256	1616	0	3370	1709
	0.647			0.571								
	1131	1906	1589	1018	1730	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No	Ů	0200	No	·	00.0	No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0.97	2%	0.97	0.97	0.97	0.97	4%	0.97	0.97	3%	3%
Adj. Flow (vph)	192	146	63	61	45	67	0 /8	2105	77	0 78	2060	170
Shared Lane Traffic (%)	132	170	0.5	01	73	01	U	2100	- ' '	U	2000	170
Lane Group Flow (vph)	192	146	63	61	112	0	0	2105	77	0	2060	170
Number of Detectors	1 1	140	1	1	1	U	U	5	1	U	5	170
Detector Template			Right					J	Right		J	Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
			CI+Ex						CI+Ex			CI+Ex
Detector 1 Channel		CITEX	CITEX	CITEX	CITEX			CITEX	CITEX		CITEX	CITEX
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)	0.0	0.0	0.0	0.0	0.0			113	0.0		113	0.0
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel								0.0			0.0	
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237				
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			Cl+Ex	
Detector 3 Channel								0.0			0.0	
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								CI+Ex			CI+Ex	

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\ynuti**ne⊗1 - Base\W€

McMahon Associates, Inc.

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								CI+Ex		1	CI+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA			NA	Perm			Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0			89.0	89.0		89.0	89.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%			74.2%	74.2%	7	74.2%	74.2%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0			82.0	82.0		82.0	82.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max	(C-Max	C-Max
Intersection Summary												
Area Type: 0	Other											
Cycle Length: 120												
Actuated Cycle Length:	120											
Offset: 84 (70%), Refere	enced t	o phase	2:SBT	and 6:N	NBT, Sta	rt of Yel	low					
Natural Cycle: 90												
Control Type: Actuated-	·Coordi	nated										
Description: Signal												
Splits and Phases: 12	2: Rt 20)2 & Ste	tson Sc	hool Dr	/Skiles E	llvd						
∜ Ø2 (R)								_	★ Ø4			

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 without Dev Weekday Afternoon Peak Hour

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	۶	-	\rightarrow	•	←	•	4	†	/	>	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	<u></u>	7	7	1			^	7		^	7
Traffic Volume (veh/h)	186	142	61	59	44	65	0	2042	75	0	1998	165
Future Volume (veh/h)	186	142	61	59	44	65	0	2042	75	0	1998	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	า	No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	192	146	63	61	45	67	0	2105	77	0	2060	170
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	292	448	388	245	145	216	0	2290	1097	0	2486	1153
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.19	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1415	2066	1726	1177	671	998	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	192	146	63	61	0	112	0	2105	77	0	2060	170
Grp Sat Flow(s), veh/h/ln	1415	2066	1726	1177	0	1669	0	1635	1567	0	1776	1647
Q Serve(g_s), s	15.8	7.1	3.5	5.5	0.0	6.9	0.0	65.0	1.9	0.0	49.7	4.1
Cycle Q Clear(q c), s	22.1	7.1	3.5	12.7	0.0	6.9	0.0	65.0	1.9	0.0	49.7	4.1
Prop In Lane	1.00		1.00	1.00		0.60	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	292	448	388	245	0	362	0	2290	1097	0	2486	1153
V/C Ratio(X)	0.66	0.33	0.16	0.25	0.00	0.31	0.00	0.92	0.07	0.00	0.83	0.15
Avail Cap(c_a), veh/h	292	448	388	245	0	362	0	2290	1097	0	2486	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.6	39.6	37.4	45.0	0.0	40.3	0.0	15.1	5.7	0.0	12.9	6.0
Incr Delay (d2), s/veh	5.3	0.4	0.2	0.5	0.0	0.5	0.0	7.4	0.1	0.0	3.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/ln10.1	6.7	2.8	3.0	0.0	5.3	0.0	28.9	1.0	0.0	23.7	2.3
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	53.9	40.0	37.6	45.5	0.0	40.7	0.0	22.6	5.8	0.0	16.2	6.3
LnGrp LOS	D	D	D	D	Α	D	Α	С	Α	Α	В	Α
Approach Vol, veh/h		401			173			2182			2230	
Approach Delay, s/veh		46.3			42.4			22.0			15.5	
Approach LOS		D			D			С			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	, S	89.0		31.0		89.0		31.0				
Change Period (Y+Rc),	S	7.0		8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	82.0		23.0		82.0		23.0				
Max Q Clear Time (g_c+	-l1), s	52.2		15.2		67.5		24.6				
Green Ext Time (p_c), s		29.7		0.4		14.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			21.7									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary
2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\yndtDe**®\1 - Base\W€

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

	-	•	•	-	1	_
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	7	ľ	†	Ţ	7
Traffic Volume (vph)	693	38	21	370	17	35
Future Volume (vph)	693	38	21	370	17	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	722	40	22	385	18	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	722	40	22	385	18	36
Sign Control	Free			Free	Stop	
Intersection Cumment						

Other

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.9					
Movement	FRT	FBR	WBI	WBT	NBI	NBR
Lane Configuration			YVDL T		NDL T	
Traffic Vol, veh/h	693	38	21	370	17	35
Future Vol, veh/h	693		21		17	
Conflicting Peds, #					0	0
Sign Control				Free		Stop
RT Channelized		None		None		None
Storage Length	-					
Veh in Median Sto	rageQ:	# -	-	0	0	-
Grade, %	8	-	-	-8	-1	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	3	0	5	3	0	9
Mvmt Flow	722	40	22	385	18	36
Major/Minor NA	loior4	N.	laior?	Α.	linor1	
	lajor1		lajor2		linor1	700
Conflicting Flow Al			762		1151	
Stage 1	-					
Stage 2	-	-	-			- 0.40
Critical Hdwy	-	-	4.3			6.19
Critical Hdwy Stg 1		-			٠.ـ	
Critical Hdwy Stg 2		-	-		· · -	
Follow-up Hdwy	-	-	3		257	
Pot Cap-1 Maneuv		-	652			
Stage 1 Stage 2	-	-	-			-
Platoon blocked, %		-				-
Mov Cap-1 Maneu		-	650			451
Mov Cap-1 Maneu			-00			
Stage 1	ver -	-	-	-	563	
Stage 1 Stage 2	-	-	-		742	
Stage 2	-	-	-	-	142	-
Approach	EB		WB		NB	
HCM Control Delay	y, s 0		0.6		16	
HCM LOS					С	
Minor Lane/Major I	\/\vm\l	IRI n N	IRI n2	FRT	FRP	WRI
Capacity (veh/h)	VIVIIIN		451			652
HCM Lane V/C Ra	tio	0.071				0.034
HCM Control Dela			13.7			10.7
HCM Lane LOS	y (S)	20.6 C				
HCM 95th %tile Q((voh)	0.2			-	
HOW SOUL WILL MILE (ven)	0.2	0.3	-	-	0.1

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\yndt**Dev&1 - Base\We

Robinson Tract

4: Rt 202 & Pleasant Grove Rd

2025 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		ሻ	↑ î>	
Traffic Volume (vph)	0	0	45	0	0	42	50	2049	60	108	1779	196
Future Volume (vph)	0	0	45	0	0	42	50	2049	60	108	1779	196
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.985	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	46	0	0	43	51	2091	61	110	1815	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	43	51	2152	0	110	2015	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												
A T												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\yout**\Dev\1 - Base\We

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

RT Channelized Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	0 0 (hr 0 Stop - - age, # - 98 0 0	- + 0 -1 98 0	Yield 0 - - 98 0 46	- - - 98	0 Stop - 0 -2 98 0	42 0 Stop None 0 - - 98 0	50 0 Free - 350 - - 98 0	2049 2049 0 Free	60 60 0 Free None - - - 98 0 61	108 0 Free - 380 - - 98 0		196 196 0 Free None - - - 98 1 200	
Future Vol, veh/h Conflicting Peds, #/ Sign Control RT Channelized Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mymt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	0 /hr 0 Stop 	0 0 Stop - - 0 -1 98 0	45 0 Stop Yield 0 - - 98 0 46	0 0 Stop - - - - 98 0	0 0 Stop - - 0 -2 98 0	42 0 Stop None 0 - - 98 0	50 0 Free - 350 - - 98 0	2049 0 Free - 0 2 98 4	60 0 Free None - - - 98 0	108 0 Free - 380 - - 98 0	1779 0 Free - - 0 -3 98 3	196 0 Free None - - - 98 1	
Conflicting Peds, #/ Sign Control RT Channelized Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	/hr 0 Stop - age, # - 98 0 0	0 Stop - - + 0 -1 98 0	Stop Yield 0 - - 98 0 46	98 0 0 0 0	0 Stop - 0 -2 98 0	0 Stop None 0 - - 98 0	0 Free - 350 - - 98 0	0 Free - 0 2 98 4	0 Free None - - - 98 0	0 Free - 380 - - - 98 0	0 Free - 0 -3 98 3	0 Free None - - - 98 1	
Sign Control RT Channelized Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	Stop - age, # - 98 0 0 nor2 -	Stop - - # 0 -1 98 0	Stop Yield 0 - - 98 0 46	Stop 98 0	Stop - - 0 -2 98 0	Stop None 0 - 98 0	Free 350 - - 98 0	Free - 0 2 98 4	Free None - - - 98 0	Free - 380 - - - 98 0	Free - 0 -3 98 3	Free None - - - 98 1	
RT Channelized Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	age, # - 98 0 0 nor2	- + 0 -1 98 0	Yield 0 - - 98 0 46	- - - 98 0	- 0 -2 98 0	None 0 - - 98 0	350 - - 98 0	- 0 2 98 4	None - - - 98 0	380 - - 98 0	- 0 -3 98 3	None - - - 98 1	
Storage Length Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	age, # - 98 0 0 nor2	+ 0 -1 98 0	0 - - 98 0 46	- - 98 0	0 -2 98 0	98 0	350 - - 98 0	98 4	- - 98 0	380 - - 98 0	- 0 -3 98 3	- - - 98 1	
Veh in Median Stor Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	age, # 98 0 0 nor2	# 0 -1 98 0 0	98 0 46	98 0	0 -2 98 0	- 98 0	- 98 0	98 4	- - 98 0	- - 98 0	0 -3 98 3	98 1	
Grade, % Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	98 0 0	-1 98 0 0	98 0 46	98 0 0	-2 98 0	98 0	98 0	98 4	98 0	98 0	-3 98 3	98 1	
Peak Hour Factor Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	98 0 0 nor2	98 0 0	98 0 46	98 0 0	98 0	98 0	98 0	98 4	98 0	98 0	98	98 1	
Heavy Vehicles, % Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	0 0 nor2	0	0 46 M	0	0	0	0	4	0	0	3	1	
Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	0 nor2 -	0	46 N	0						-			
Mvmt Flow Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	nor2		N		0	43	51	2091	61	110	1815	200	
Major/Minor Mi Conflicting Flow All Stage 1 Stage 2	-			1inor1									
Conflicting Flow All Stage 1 Stage 2	-	-		1inor1									
Conflicting Flow All Stage 1 Stage 2	-	-		1111011		N.	1ajor1		M	lajor2			
Stage 1 Stage 2	-					1076		0		2152	0	0	
Stage 2			1008		-	10/6	2015	U	U	2152	-	U	
		-	-		-		-	-				-	
Critical Hdwy	_	-	7.1	-	-	7.2	3.9	-	-	3.9			
Critical Hdwy Stg 1	-	-	7.1	-	-	1.2	3.9	-	-	3.9	-	-	
Critical Hdwy Stg 2			-			-	-	-		-			
	-	-		-	-		2.4	-	-	2.4	-	-	
Follow-up Hdwy		-		-				-				-	
Pot Cap-1 Maneuve		0		0		*260	*467	-	-	*326	-	-	
Stage 1	0	0	-	0			-	-	-	-	-	-	
Stage 2	0	0	-	0	0		- :	-	-		-	-	
Platoon blocked, %			1			1	1	-	-	1	-	-	
Mov Cap-1 Maneuv		-	*386	-		*260	*467	-	-	020	-	-	
Mov Cap-2 Maneuv		-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay	,1 5 .6			21.6			0.3			1.1			
HCM LOS	С			С									
Minor Lane/Major M	/lvmt	NBL	NBT	NBR	BLn\n	/BLn1	SBL	SBT	SBR				
Capacity (veh/h)		467	-		386		* 326	-	-				
HCM Lane V/C Rat).109				0.165							
HCM Control Delay		13.7	-			21.6		-	-				
HCM Lane LOS	(0)	В			C	Z1.0	C C						
HCM 95th %tile Q(\	veh)	0.4	-	-		_	1.5	-	-				
Notes	,												

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour 5: Church Access & Pleasant Grove Rd

	-	•	1	•	1	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	ĵ.			ર્ન	ሻ	7
Traffic Volume (vph)	41	0	5	241	1	4
Future Volume (vph)	41	0	5	241	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	55	0	7	321	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	328	1	5
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Control Type: Unsignalized McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Int Delay, s/veh 0.3	Intersection						
Lane Configurations	Int Delay, s/veh	0.3	3				
Traffic Vol, veh/h 41 0 5 241 1 4 Future Vol, veh/h 41 0 5 241 1 4 Future Vol, veh/h 41 0 5 241 1 4 Conflicting Peds, #hr 0 0 0 0 0 0 0 Sign Control Free Free Free Free Stop Stop RT Channelized None None None Storage Length 0 0 0 Veh in Median Storage0# 0 0 0 Grade, % 4 4 2 4 2 0 Grade, % 4 4 2 0 Mythicles, % 0 0 0 1 0 0 0 Mythicles, % 0 0 0 0 1 0 0 0 Mythicles, % 0 0 0 0 1 0 0 0 Mythicles, % 0 0 0 0 1 0 0 0 Mythicles, % 0 0 0 0 1 0 0 0 Mythicles, % 0 0 0 55 0 390 55 Stage 1 55 - 55 Stage 1 55 - 55 Stage 2 55 - 55 Critical Hdwy Stg 1 58 - 55 Critical Hdwy Stg 1 58 - 58 Critical Hdwy Stg 1 58 - 58 Critical Hdwy Stg 2 58 Stage 1 58 Critical Hdwy Stg 2 58 Stage 1 1150 Follow-up Hdwy - 3 3 - 3.3 Pot Cap-1 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver 1150 - 668 1078 Mov Cap-2 Maneuver 150 - 668 Stage 1 1124 - 5129 Stage 2 668 - 5128 Full Mov Cap-2 Maneuver 150 - 688 Full Mov Cap-2 Maneuver	Movement	EBT	EBR	WBL	WBT	NBL	NBR
Traffic Vol, veh/h 41 0 5 241 1 4 Future Vol, veh/h 41 0 5 241 1 4 Conflicting Peds, #hr 0	Lane Configuration	ns 🏗	,		4	٦	7
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 Stop None	Traffic Vol, veh/h	41	0	5	241	1	4
Sign Control Free Free Free Free Free Free Stop Stop RT Channelized Free None Free None Free None None	Future Vol, veh/h	41	0	5	241	1	
RT Channelized - None - None - None - None Storage Length - - - 0 0 Veh in Median Storage0# - - 0 0 - Grade, % 4 - - 4 2 - Peak Hour Factor 75 75 75 75 75 75 75 Heavy Vehicles, % 0 0 0 1 0 0 0 Minort Major/Minor Major1 Major2 Minort Minort Minort Conflicting Flow All 0 0 55 0 390 55 Stage 1 - - - 55 - 390 55 Stage 2 - - - 55 - 390 55 Stage 2 - - - 58 6.4 Critical Hdwy Stg 1 - - - 5.8 - Critical Hdwy Stg 2 - - - 8.8 -	Conflicting Peds, #	#/hr 0	0 (0	0	0	0
Storage Length	Sign Control	Free	Free	Free	Free	Stop	Stop
Veh in Median Storage0# - 0 0 - Grade, % 4 - - 4 2 - Peak Hour Factor 75 75 75 75 75 75 Heavy Vehicles, % 0 0 0 1 0 0 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 55 0 390 55 Stage 1 - - - 55 - 35 - Critical Hdwy - - - 5.8 - - 5.8 - Critical Hdwy Stg 1 - - - 5.8 - - 5.8 - Follow-up Hdwy - - 3 - 3 3.1 1078 Stage 1 - - 1124 - - 5.8 - Follow-up Hdwy - - - 1124 - -	RT Channelized	-	None	-	None	-	None
Grade, % 4 4 2 - Peak Hour Factor 75 75 75 75 75 75 75 75 75 75 75 75 75	Storage Length	-		-	-	0	0
Peak Hour Factor 75 75 75 75 75 75 16	Veh in Median Sto	rageQ)# -	-	0	0	-
Heavy Vehicles, % 0 0 0 1 0 0 0 Mvmt Flow 55 0 7 321 1 5	Grade, %	4	-	-	-4	2	-
Mommation 55 0 7 321 1 5 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 55 0 390 55 Stage 1 - - - 55 - 55 - Stage 2 - - - 335 - Critical Hdwy - - - 5.8 - Critical Hdwy Stg 1 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - 5.8 - - - - - - - - - - - -	Peak Hour Factor	75	75	75	75	75	75
Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 55 0 390 55 Stage 1 - - - 55 - 55 - Critical Hdwy - - - - - 8 6.4 Critical Hdwy Stg 1 - - - 5.8 - Critical Hdwy Stg 2 - - 5.8 - Critical Hdwy Stg 2 - - 5.8 - Follow-up Hdwy - 3 3 3.1 1078 Follow-up Hdwy - 3 3 3.1 1078 Stage 1 - - - 1124 - 802 - Platonon blocked, % - - - - - 668 1078 Mov Cap-1 Maneuver - - 1150 - 668 1078 Mov Cap-2 Maneuver	Heavy Vehicles, %	6 0	0 (0	1	0	0
Conflicting Flow All	Mymt Flow	55	5 0	7	321	1	5
Conflicting Flow All							
Conflicting Flow All	Major/Minor N	laiar1		Aniar?	N.	linar1	
Stage 1 - - - 55 Stage 2 - - - 335 - Critical Hdwy - - - - 8.6 6.4 Critical Hdwy Stg 1 - - - 5.8 - Critical Hdwy Stg 2 - - - 5.8 - Follow-up Hdwy - 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 1078 078				_			
Stage 2 3335 - Critical Hdwy Stg 1 5.8 6.4 Critical Hdwy Stg 2 5.8 - Critical Hdwy Stg 2 5.8 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 1150 - 673 1078 Stage 1 1124 - Stage 2 802 - Platoon blocked, % Mov Cap-1 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver 1668 - Stage 1 1124 - Stage 2 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 1150			-		-		
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 3.1 Pot Cap-1 Maneuver - 1150 - 673 1078 Stage 1 - - - 1124 - Mov Cap-1 Maneuver - - - 668 1078 Mov Cap-2 Maneuver - - - 668 1078 Stage 1 - - - 1124 - Stage 2 - - - 1124 - Stage 1 - - - 1124 - Stage 2 - - - 1124 - Stage 2 - - - 1124 - Stage 2 - - - 10 - - - Approach EB WB NB NB <td></td> <td></td> <td></td> <td></td> <td></td> <td>00</td> <td></td>						00	
Critical Hdwy Stg 1 - - - 5.8 - Critical Hdwy Stg 2 - - 5.8 - Follow-up Hdwy - - 3 3 3.1 Pot Cap-1 Maneuver - 1150 - 673 1078 Stage 1 - - - 1124 - Stage 2 - - - 802 - Platoon blocked, % - - - 802 - Mov Cap-1 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver - - - 668 1078 Stage 1 - - - 1124 - Stage 2 - - - 796 - Approach B WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - - - 1150							
Critical Hdwy Stg 2 - - 5.8 - Follow-up Hdwy - 3 3 3.1 Pot Cap-1 Maneuver - 1150 - 673 1078 Stage 1 - - - 1124 - - 802 - Platoon blocked, % - - - - 802 - Mov Cap-1 Maneuver - - 1150 - 668 1078 Mov Cap-2 Maneuver - - - 668 1078 Stage 1 - - - 1124 - Stage 2 - - - 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLn NBLn 2 EBT EBR WBL Capacity (veh/h) 668 1078				-			
Follow-up Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 1150 - 673 1078				-			
Pot Cap-1 Maneuver - 1150 - 673 1078 Stage 1 1124 - Stage 2 802 - Platoon blocked, % Mov Cap-1 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver 150 - 668 1078 Mov Cap-2 Maneuver 668 - Stage 1 1124 - Stage 2 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 1150		2 -	-	-	-		
Stage 1 - - - 1124 - Stage 2 - - - 802 - Platoon blocked, % - - - - 668 1078 Mov Cap-1 Maneuver - 1150 - 668 1078 Stage 1 - - - 1124 - Stage 2 - - - 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - - 1150			-	3	-		
Stage 2	Pot Cap-1 Maneuv	ver -		1150	-		
Platoon blocked, %	Stage 1	-		-	-	1124	-
Mov Cap-1 Maneuver - 1150 - 668 1078 Mov Cap-2 Maneuver 668 - 668 Stage 1 1124 - 1124 Stage 2 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A A Minor Lane/Major MvmNBLn NBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 1150	Stage 2	-		-	-	802	-
Mov Cap-2 Maneuver - Stage 1 668 1124 1124 796 796 796 796 1124 796 1124 796 1124 1124 1124		% -			-		
Mov Cap-2 Maneuver - Stage 1 668 1124 1124 796 796 796 796 1124 796 1124 796 1124 1124 1124	Mov Cap-1 Maneu	ıver -		1150	-	668	1078
Stage 1 - - - 1124 - Stage 2 - - - 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - <td></td> <td></td> <td></td> <td>-</td> <td>-</td> <td></td> <td></td>				-	-		
Stage 2 - - - 796 - Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - - 1150				-			
Approach EB WB NB HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - 1150		_					
HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - 1150	Olago 2					700	
HCM Control Delay, s 0 0.2 8.8 HCM LOS A Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - 1150							
Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 - - 1150							
Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL Capacity (veh/h) 668 1078 1150	HCM Control Dela	ıy, s 0)	0.2		8.8	
Capacity (veh/h) 668 1078 1150	HCM LOS					Α	
Capacity (veh/h) 668 1078 1150							
Capacity (veh/h) 668 1078 1150	Minor Lane/Major	Mymk	VIRI nA	IRI n2	ERT	ERD	\/\/RI
		IVIVIIIL					
HCM Lane V/C Ratio 0.0020.0050.006		4:-					
11014.0 (1.15.1 () 40.4 0.4							
HCM Control Delay (s) 10.4 8.4 8.1		ıy (S)					
HCM Lane LOS B A A	=====	/					
HCM 95th %tile Q(veh) 0 0 0	HCM 95th %tile Q	(veh)	0	0	-	-	0

Robinson Tract

6: Pleasant Grove Rd & Orvis Way

2025 without Dev Weekday Afternoon Peak Hour

	•	-	-	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		र्स	f)		¥	
Traffic Volume (vph)	28	25	221	21	20	22
Future Volume (vph)	28	25	221	21	20	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.988		0.930	
Flt Protected		0.974			0.976	
Satd. Flow (prot)	0	1700	1786	0	1602	0
Flt Permitted		0.974			0.976	
Satd. Flow (perm)	0	1700	1786	0	1602	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	37	33	295	28	27	29
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	70	323	0	56	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\ynutiDev**\1 - Base\We

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	2.1					
Movement	EDI	EDT	WDT	WBR	CDI	CDD
						ODK
Lane Configuratio		4	\$		₩	00
Traffic Vol, veh/h	28	25	221	21	20	22
Future Vol, veh/h		25		21	20	22
Conflicting Peds,		_ 0	_ 0	_ 0	0	0
Sign Control				Free		
RT Channelized		None		None		None
Storage Length	-	-			U	-
Veh in Median Sto	0 ,		0		U	-
Grade, %	-		-		-	-
Peak Hour Factor		75				75
Heavy Vehicles, 9	% 2	0	1	2	2	2
Mvmt Flow	37	33	295	28	27	29
	Major1		lajor2		linor2	20.5
Conflicting Flow A		0			416	
Stage 1	-			-		-
Stage 2	-	-				-
Critical Hdwy	4.3	-	-		6.42	
Critical Hdwy Stg		-	-		5.42	-
Critical Hdwy Stg	2 -	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneu	ve931	-	-	-	676	775
Stage 1	-	-	-	-	855	-
Stage 2	-	-	-	-	1068	-
Platoon blocked,	%	-	-	-		
Mov Cap-1 Maner		_	-	-	649	775
Mov Cap-2 Maner				-		-
Stage 1	-	_	_	-		-
Stage 2	_		-		1068	
Glage 2	_	_	_	_	1000	_
Approach	EB		WB		SB	
HCM Control Dela	ay, 4 .8		0		10.5	
HCM LOS					В	
N. 6:		EDI		MOT	14/DE	ъ.
Minor Lane/Major	Wwt			WBT		
Capacity (veh/h)		931	-			709
HCM Lane V/C Ra		0.04				0.079
HCM Control Dela	ay (s)	9	0		-	10.5
HCM Lane LOS		Α	Α		-	В
HCM 95th %tile Q	Q(veh)	0.1	-	-	-	0.3

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 without Dev Weekday Afternoon Peak Hour

	-	•	•	•	1	_
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	¥	
Traffic Volume (vph)	49	0	0	243	0	0
Future Volume (vph)	49	0	0	243	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			300	323	
Travel Time (s)	55.1			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	65	0	0	324	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	0	324	0	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configuration				^	¥	
Traffic Vol, veh/h	49	0	0	243	0	0
Future Vol, veh/h	49	0	0	243	0	0
Conflicting Peds, #	hr 0	0	0	0	0	0
Sign Control		Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Sto	rageQ	# -	-	0	0	-
Grade, %	3	-	-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	65	0	0	324	0	0
Major/Minor M	lajor1	M	lajor2	M	linor1	
Conflicting Flow Al			-	-		65
Stage 1	-		-	-	65	-
Stage 2	_		-			
Critical Hdwy	_		_	-	6	6
Critical Hdwy Stg 1			-	-	5	-
Critical Hdwy Stg 2			_	_	5	
Follow-up Hdwy			-	_	-	
Pot Cap-1 Maneuv			0			1071
Stage 1	-	-	0	_	1126	1071
Stage 2		-	0	-		_
Platoon blocked, %		U	U	_		
Mov Cap-1 Maneu			_			1071
Mov Cap-2 Maneu			-	_		
Stage 1	-		-		1126	-
Stage 2	_		-		873	_
Olage 2					013	
Approach	EB		WB		NB	
HCM Control Delay	y, s 0		0		0	
HCM LOS					Α	
Minor Lane/Major I	MvmN	IBLn1	EBT	WBT		
Capacity (veh/h)		-	-	-		
HCM Lane V/C Ra	tio					
HCM Control Dela		0	-	-		
HCM Lane LOS	, (-)	Ā	-	-		
	(vah)	-	_	_		
HCM 95th %tile Q(ven)	-	-	-		

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\ynutiDev**\1 - Base\We

Robinson Tract

10: Pleasant Grove Rd & Dunvegan Road

2025 without Dev Weekday Afternoon Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	î,		Y	
Traffic Volume (vph)	3	61	257	11	1	2
Future Volume (vph)	3	61	257	11	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.998			0.988	
Satd. Flow (prot)	0	1651	1679	0	1485	0
Flt Permitted		0.998			0.988	
Satd. Flow (perm)	0	1651	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	81	343	15	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	85	358	0	4	0
Sign Control		Free	Free		Stop	
Intersection Cummery						

Intersection Summary

Area Type: Othe Control Type: Unsignalized

Lanes, Volumes, Timings

2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wishout Dev &1 - Base\We

McMahon Associates, Inc. 10: Pleasant Grove Rd & Dunvegan Road Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	FRI	FRT	WRT	WBR	SBI	SBR
Lane Configurations		4	14 13	ייטוי	¥/	SDIN
Traffic Vol, veh/h	3	6 1	257	11	- T	2
Future Vol. veh/h	3	61	257	11	1	2
	-				0	0
Conflicting Peds, #/		0	0	0		_
				Free		
RT Channelized		None		None		None
Storage Length	-	-		-	0	-
Veh in Median Stor	0 ,		0	-	0	-
Grade, %	-	3	-3	-	1	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	4	81	343	15	1	3
NA=:==/NA:===	-:4		·-:			
	ajor1		lajor2		linor2	
Conflicting Flow All		0	-	0	440	351
Stage 1	-	-	-	-	351	-
Stage 2	-	-	-	-	89	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2		-	-	-	5.6	-
Follow-up Hdwy	3		-	-	3	3.1
Pot Cap-1 Maneuve			-	_	640	728
Stage 1	-		-	-	802	-
Stage 2	-	_	_		1084	-
Platoon blocked. %		_	_		1004	
			-		007	728
Mov Cap-1 Maneuv			-	-	637	
Mov Cap-2 Maneuv		-	-	-		-
Stage 1	-	-	-	-	798	-
Stage 2	-	-	-	-	1084	-
Approach	EB		WB		SB	
HCM Control Delay			0		10.2	
HCM LOS	, 5.4		0		10.2 B	
HOIVI LUS					В	
Minor Lane/Major N	/lvmt	EBL	EBT	WBT	WBRS	BLn1
Capacity (veh/h)		905			-	
HCM Lane V/C Rat	io (0.004	_			0.006
HCM Control Delay		9	0	-		10.2
HCM Lane LOS	(3)	A	A		-	-
	(ab)	A 0	Α -	-	-	0
HCM 95th %tile Q(v	ven)	0	-	-	-	U

11: New Street & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

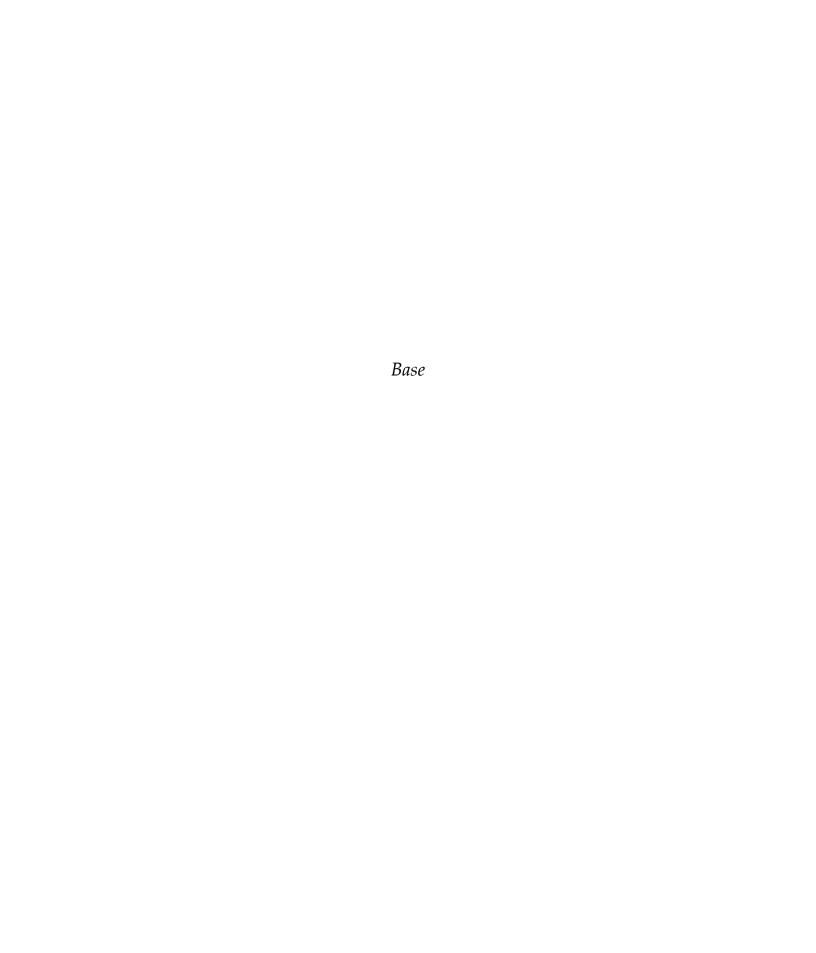
	•	•	T		>	¥	
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	Y		î			4	
Traffic Volume (vph)	208	50	148	45	20	173	
Future Volume (vph)	208	50	148	45	20	173	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.974		0.968				
Flt Protected	0.961					0.995	
Satd. Flow (prot)	1665	0	1729	0	0	1759	
Flt Permitted	0.961					0.995	
Satd. Flow (perm)	1665	0	1729	0	0	1759	
Link Speed (mph)	35		35			35	
Link Distance (ft)	591		636			619	
Travel Time (s)	11.5		12.4			12.1	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%	
Adj. Flow (vph)	234	56	166	51	22	194	
Shared Lane Traffic (%))						
Lane Group Flow (vph)	290	0	217	0	0	216	
Sign Control	Stop		Free			Free	
Intersection Summary							
Area Type: C	Other		•				_
Control Type: Unsignalize	zed						

McMahon Associates, Inc.
11: New Street & Pleasant Grove Rd

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

Intersection Int Delay, s/veh 5.9 Movement WBL WBR NBT NBR SBL SBT Traffic Vol, veh/h 208 50 148 45 20 173 Future Vol, veh/h 208 208 209 201
Lane Configurations
Lane Configurations
Traffic Vol, veh/h 208 50 148 45 20 173 Future Vol, veh/h 208 50 148 45 20 173 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 Sign Control Stop Stop Free Free Free Free RTC RT Channelized - None - None - None Storage Length 0
Future Vol, veh/h 208 50 148 45 20 173 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 Sign Control Stop Stop Free Free Free Free RT Channelized None None None Storage Length 0 0 Grade, % 0 - 0 0 - 0 Peak Hour Factor 89 89 89 89 89 89 89 89 89 89 89 89 89
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Sign Control Stop Stop Free Tee Free Pare
RT Channelized - None - None - None Storage Length 0
Storage Length 0
Veh in Median Storage0# - 0 - - 0 Grade, % 0 - 0 - - 0 Peak Hour Factor 89 89 89 89 89 89 Heavy Vehicles, % 1 2 1 0 0 2 Mwint Flow 234 56 166 51 22 194 Major/Minor Minor Major/I Major/I Major/I C Conflicting Flow All 430 192 0 0 217 0 Stage 1 192 - - - - - Stage 2 238 -
Grade, % 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0
Peak Hour Factor 89 80 2 2 194 Malior Mill Mill 430 162 1 2 1 2 1 2 1 2 1 2 2 2 2 2 2
Heavy Vehicles, % 1 2 1 0 0 2 2 Mvmt Flow 234 56 166 51 22 194
Major/Minor Minor1 Major1 Major2 Conflicting Flow All 430 192 0 0 217 0 Stage 1 192
Major/Minor Minor1 Major1 Major2 Conflicting Flow All 430 192 0 0 217 0 Stage 1 192 - - - - - Critical Hdwy 6.41 6.22 - - - - Critical Hdwy Stg 15.41 - - - - - - - Critical Hdwy Stg 25.41 -
Conflicting Flow All 430 192 0 0 217 0 Stage 1 192
Conflicting Flow All 430 192 0 0 217 0 Stage 1 192
Stage 1 192 - - - Stage 2 238 - - - Critical Hdwy 6.41 6.22 - 4.3 Critical Hdwy Stg 15.41 - - - Critical Hdwy Stg 25.41 - - - Follow-up Hdwy 3 3.1 - 3 Pot Cap-1 Maneuve664 904 - 1012 Stage 1 973 - - - Stage 2 925 - - - Plattoon blocked, % - - - Mov Cap-1 Maneuve648 904 - 1012 Mov Cap-2 Maneuve648 - - - Stage 1 973 - - - Stage 2 903 - - - Approach WB NB SB HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBL SBT Capacity (veh/h) - - 686 1012
Stage 2 238
Critical Hdwy 6.41 6.22 - 4.3 Critical Hdwy Stg 1 5.41
Critical Hdwy Stg 1 5.41
Critical Hdwy Stg 2 5.41
Follow-up Hdwy 3 3.1 - 3 Pot Cap-1 Maneuve664 904 - 1012 - Stage 1 973 Stage 2 925 Platoon blocked, % Mov Cap-1 Maneuve648 904 - 1012 - Mov Cap-2 Maneuve648 Stage 1 973 Stage 2 903 Approach WB NB SB HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) 686 1012
Pot Cap-1 Maneuve664 904 - 1012 Stage 1 973
Stage 1 973 -
Stage 2 925 -
Platoon blocked, %
Mov Cap-1 Maneuver48 904 - - 1012 Mov Cap-2 Maneuver48 - - - Stage 1 973 - - - Stage 2 903 - - - - Approach WB NB SB HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) - - 686 1012 -
Mov Cap-2 Maneuver48 -
Stage 1 973 -
Stage 2 903 -
Approach WB NB SB HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBT Capacity (veh/h) - - 686 1012
HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) - 686 1012
HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) - 686 1012
HCM Control Delay, s14 0 0.9 HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) - 686 1012
HCM LOS B Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) - 686 1012
Minor Lane/Major Mvmt NBT NBR/BLn1 SBL SBT Capacity (veh/h) 686 1012
Capacity (veh/h) 686 1012 -
Capacity (veh/h) 686 1012 -
HCM Lane V/C Ratio0.423 0.022 -
HCM Control Delay (s) 14 8.6 0
HCM Lane LOS B A A
HCM 95th %tile Q(veh) 2.1 0.1 -

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\ynutiDev**\1 - Base\We



1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

	۶	→	•	•	+	•	1	†	~	/	↓	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (vph)	80	642	5	8	322	37	9	102	42	8	127	199
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.920	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1587	0	0	1514	0
Flt Permitted	Ū	0.916	•	Ū	0.986			0.888	Ū	•	0.992	·
Satd. Flow (perm)	0	1497	0	0	1527	0	0	1413	0	0	1503	0
Right Turn on Red	U	1401	Yes	Ū	1027	Yes	U	1410	No	Ū	1000	No
Satd. Flow (RTOR)		1	103		15	103			140			140
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0.97	0.97	7%	3%	11%	1%	5%	13%	0.97	2%
	82	662	5	8	332	38	9	105	43	13%	131	205
Adj. Flow (vph)		002	5	0	332	30	9	105	43	0	131	205
Shared Lane Traffic (%)		749	0	^	070	0	0	157	0	^	344	0
Lane Group Flow (vph) Number of Detectors	0	149	U	0	378 1	U	0	157	U	0	344	0
	Left			Left	- 1		Left	Thru		Left	Thru	
Detector Template		_			_							
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+EX	CI+Ex		CI+EX	CI+Ex		CI+EX	CI+Ex		CI+EX	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8	_		4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)		76.7%		76.7%			23.3%			23.3%		
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\2 - 2026with0rd\2014 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 60
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}		↓ Ø4	
69 s		21 s	
₩ Ø6		↑ Ø8	
69 s		21 s	

Lanes, Volumes, Timings 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\2 - 2026with0ft6ddpent1 - Base\We

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Morning Peak Hour

1. New 3t & Rt 920	×				_	_		_		, wom	ī	
		→	*	•			7	T		*	+	*
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4	_	_	4			- ↔			4	
Traffic Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Future Volume (veh/h)	80	642	5	8	322	37	9	102	42	8	127	199
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No	4000		No	1000	.=	No	.=
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	82	662	5	8	332	38	9	105	43	8	131	205
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	145	1106	8	48	1050	118	50	222	87	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1556	11	10	1476	166	43	1248	487	15	637	962
Grp Volume(v), veh/h	749	0	0	378	0	0	157	0	0	344	0	0
Grp Sat Flow(s),veh/h/ln	1709	0	0	1653	0	0	1778	0	0	1615	0	0
Q Serve(g_s), s	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.2	0.0	0.0	7.7	0.0	0.0	7.3	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
V/C Ratio(X)	0.60	0.00	0.00	0.32	0.00	0.00	0.46	0.00	0.00	1.11	0.00	0.00
Avail Cap(c_a), veh/h	1241	0	0	1198	0	0	339	0	0	310	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	4.9	0.0	0.0	33.6	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.2	0.0	0.0	0.7	0.0	0.0	1.0	0.0	0.0	83.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/In 9.7	0.0	0.0	3.9	0.0	0.0	5.8	0.0	0.0	21.2	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	8.7	0.0	0.0	5.6	0.0	0.0	34.5	0.0	0.0	121.7	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	Α
Approach Vol, veh/h		749			378			157			344	
Approach Delay, s/veh		8.7			5.6			34.5			121.7	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	69.0		21.0		69.0		21.0				
Change Period (Y+Rc),	s	6.0		6.0		6.0		6.0				
Max Green Setting (Gma	ax), s	63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+	·I1), s	21.2		17.0		9.7		9.3				
Green Ext Time (p_c), s		7.3		0.0		2.9		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			34.3									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2025 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\2 - 2926\with0ft\Beliefer\1 - Base\We



1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

	۶	→	•	•	+	4	1	†	/	/	↓	- ✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (vph)	57	659	13	20	317	31	9	87	38	51	171	150
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.997			0.993	
Satd. Flow (prot)	0		0	0	1551	0	0	1583	0	0	1530	0
Flt Permitted	-	0.941		-	0.947	-		0.960			0.938	-
Satd. Flow (perm)	0	1536	0	0		0	0	1525	0	0	1446	0
Right Turn on Red	Ū	.000	Yes	Ū	0	Yes	Ū	.020	No	Ū		No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0.37	0.57	7%	3%	11%	1%	5%	13%	0.57	2%
Adj. Flow (vph)	59	679	13	21	327	32	9	90	39	53	176	155
Shared Lane Traffic (%)		0/3	10	21	321	32	3	30	33	55	170	100
Lane Group Flow (vph)	0	751	0	0	380	0	0	138	0	0	384	0
Number of Detectors	1	1	U	1	1	U	1	130	U	1	1	U
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 1 Channel	OITEX	OITEX		OITEX	OIILX		OITEX	OITEX		OIILX	OITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	r eiiii	2		r eiiii	6		r eiiii	8		r eiiii	4	
Permitted Phases	2			6	U		8	0		4	-	
Detector Phase	2			6			8	8		4	4	
Switch Phase				O			0	0		4	4	
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (s)		70.5%			70.5%			29.5%		29.5%		
- (/					68.0			25.0				
Maximum Green (s)	68.0	68.0		68.0			25.0			25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2025 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**synutiDev**\1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

	•	-	•	•	←	•	1	†	~	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}	V 04
74 s	31 s
₩ Ø6	↑ Ø8
74 s	31 s

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2025 without Dev Weekday Afternoon Peak Hour

1. New 3t & Rt 920						2020	Withiou	DOT 11	conday	7 (1101110	on rou	r ioui
	۶	-	•	•	←	•	4	†	~	/	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Future Volume (veh/h)	57	659	13	20	317	31	9	87	38	51	171	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	59	679	13	21	327	32	9	90	39	53	176	155
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	102	1058	20	69	933	89	49	298	122	81	196	161
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24
Sat Flow, veh/h	99	1610	30	50	1420	135	49	1204	493	171	791	651
Grp Volume(v), veh/h	751	0	0	380	0	0	138	0	0	384	0	0
Grp Sat Flow(s), veh/h/ln	1739	0	0	1604	0	0	1746	0	0	1613	0	0
Q Serve(g_s), s	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	0.0	0.0
Cycle Q Clear(g_c), s	25.9	0.0	0.0	10.6	0.0	0.0	6.7	0.0	0.0	24.4	0.0	0.0
Prop In Lane	0.08		0.02	0.06		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1197	0	0	1106	0	0	485	0	0	454	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.34	0.00	0.00	0.28	0.00	0.00	0.85	0.00	0.00
Avail Cap(c_a), veh/h	1197	0	0	1106	0	0	485	0	0	454	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.5	0.0	0.0	8.0	0.0	0.0	32.3	0.0	0.0	38.9	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.8	0.0	0.0	0.3	0.0	0.0	13.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.	/l n 13.5	0.0	0.0	5.9	0.0	0.0	5.2	0.0	0.0	16.5	0.0	0.0
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	13.0	0.0	0.0	8.8	0.0	0.0	32.6	0.0	0.0	52.7	0.0	0.0
LnGrp LOS	В	A	A	A	Α	A	С	A	A	D	A	A
Approach Vol, veh/h		751			380			138			384	
Approach Delay, s/veh		13.0			8.8			32.6			52.7	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	74.0		31.0		74.0		31.0				
Change Period (Y+Rc), s	3	6.0		6.0		6.0		6.0				
Max Green Setting (Gma		68.0		25.0		68.0		25.0				
Max Q Clear Time (g_c+	l1), s	27.9		26.4		12.6		8.7				
Green Ext Time (p_c), s		7.2		0.0		3.0		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			22.9									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary
2025 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\2 - 2025 wi**8\yndtDe**®\1 - Base\W€





Appendix Q

Future (2025) Capacity/Level-of-Service With Development Analysis Worksheets

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			ર્ન	7		4			43-	
Traffic Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1564	1379	0	1587	0	0	1530	0
Flt Permitted		0.908			0.977			0.925			0.991	
Satd. Flow (perm)	0	1484	0	0	1529	1379	0	1472	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1				38						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	86	665	5	12	395	38	9	106	44	8	134	158
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	756	0	0	407	38	0	159	0	0	300	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	30	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	40	40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6	_	6	8	-		4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%)	76.7%				76.7%					23.3%		
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0	-1.0		0	-1.0	0.0	0	-1.0		0	-1.0	
(3)		1.0			1.0	0.0		1.0			1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2926\windte{100} - 2926\wi

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Lane Group NBT Total Lost Time (s) 5.0 6.0 5.0 Lead/Lag
Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 Recall Mode C-Max C-Max C-Max C-Max C-Max None None None None Intersection Summary

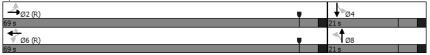
Area Type: Other Cycle Length: 90 Actuated Cycle Length: 90

Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 60

Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Lanes, Volumes, Timings

2025 with Dev Weekday Morning Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2020chwidt8Deep\80denario 2A\W

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT	SBR
Lane Configurations 💠 🐧 🏌 💠	
Traffic Volume (veh/h) 83 645 5 12 383 37 9 103 43 8 130	153
Future Volume (veh/h) 83 645 5 12 383 37 9 103 43 8 130	153
Initial Q (Qb), veh 0 0 0 0 0 0 0 0 0 0	0
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 1.0	1.00
Work Zone On Approach No No No No No	
Adj Sat Flow, veh/h/ln 1818 1818 1818 1696 1696 1752 1860 1860 1860 1794 1794	1794
Adj Flow Rate, veh/h 86 665 5 12 395 38 9 106 44 8 134	158
Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97	0.97
Percent Heavy Veh, % 4 4 4 7 7 3 1 1 1 0 0	0
Cap, veh/h 149 1089 8 54 1178 1040 50 221 87 44 134	153
Arrive On Green 0.70 0.71 0.70 0.93 0.95 0.93 0.17 0.18 0.17 0.17 0.18	0.17
Sat Flow, veh/h 147 1531 11 17 1656 1485 42 1244 492 17 755	860
Grp Volume(v), veh/h 756 0 0 407 0 38 159 0 0 300 0	0
Grp Sat Flow(s),veh/h/ln 1690 0 0 1673 0 1485 1778 0 0 1632 0	0
Q Serve(q s), s 6.1 0.0 0.0 0.0 0.0 0.2 0.0 0.0 0.0 6.0 0.0	0.0
Cycle Q Clear(q c), s 19.8 0.0 0.0 1.7 0.0 0.2 7.4 0.0 0.0 15.0 0.0	0.0
Prop In Lane 0.11 0.01 0.03 1.00 0.06 0.28 0.03	0.53
Lane Grp Cap(c), veh/h 1227 0 0 1212 0 1040 339 0 0 313 0	0.00
V/C Ratio(X) 0.62 0.00 0.00 0.34 0.00 0.04 0.47 0.00 0.00 0.96 0.00	0.00
Avail Cap(c a), veh/h 1227 0 0 1212 0 1040 339 0 0 313 0	0.00
HCM Platoon Ratio 1.00 1.00 1.33 1.33 1.33 1.00 1.00 1.00	1.00
Upstream Filter(I) 1.00 0.00 0.00 0.99 0.00 0.99 1.00 0.00 1.00 0.00	0.00
Uniform Delay (d), s/veh 6.5 0.0 0.0 0.8 0.0 0.9 33.6 0.0 0.0 37.5 0.0	0.0
Incr Delay (d2), s/veh 2.3 0.0 0.0 0.7 0.0 0.1 1.0 0.0 0.0 39.6 0.0	0.0
Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0
%ile BackOfQ(95%),veh/ln 9.9 0.0 0.0 1.0 0.0 0.1 5.9 0.0 0.0 15.2 0.0	0.0
Unsig. Movement Delay, s/veh	0.0
LnGrp Delay(d),s/veh 8.9 0.0 0.0 1.5 0.0 1.0 34.6 0.0 0.0 77.2 0.0	0.0
LnGrp LOS A A A A A A C A A E A	Α
Approach Vol, veh/h 756 445 159 300	
Approach Delay, s/veh 8.9 1.5 34.6 77.2	
Approach LOS A A C E	
Timer - Assigned Phs 2 4 6 8	
Phs Duration (G+Y+Rc), s 69.0 21.0 69.0 21.0	
Change Period (Y+Rc), s 6.0 6.0 6.0 6.0	
Max Green Setting (Gmax), s 63.0 15.0 63.0 15.0	
Max Q Clear Time (g_c+l1), s 21.8 17.0 3.7 9.4	
Green Ext Time (p_c), s 7.5 0.0 3.5 0.2	
Intersection Summary	
HCM 6th Ctrl Delay 21.7	
HCM 6th LOS C	

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 23/26/with Eiræn\8denario 2A\W

McMahon Associates, Inc.

2: Bridlewood Blvd/Collector Road & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7	ሻ	<u></u>	7	ሻ	<u>.</u>		ሻ	4	
Traffic Volume (vph)	30	652	32	13	243	14	26	31	13	46	15	159
Future Volume (vph)	30	652	32	13	243	14	26	31	13	46	15	159
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.957			0.863	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1662	1521	1719	1733	1560	1719	1692	0	1676	1523	0
Flt Permitted	0.603			0.369			0.400			0.728		
Satd. Flow (perm)	1022	1662	1521	668	1733	1560	724	1692	0	1285	1523	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			36		13			164	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			607	
Travel Time (s)		36.9			35.6			11.3			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	0%	8%	2%	0%	2%	3%	2%	2%	2%
Adj. Flow (vph)	31	672	33	13	251	14	27	32	13	47	15	164
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	672	33	13	251	14	27	45	0	47	179	0
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30	30	30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	71.0	71.0	71.0	71.0	71.0	71.0	19.0	19.0		19.0	19.0	
	78.9%	78.9%	78.9%	78.9%	78.9%	78.9%	21.1%	21.1%		21.1%	21.1%	
Maximum Green (s)	65.0	65.0	65.0	65.0	65.0	65.0	13.0	13.0		13.0	13.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	

Lanes, Volumes, Timings
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2026\with Dev Weekday Morning Peak Hour

Robinson Tract

2: Bridlewood Blvd/Collector Road & Rt 926

2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length	: 90											
Offset: 0 (0%), Referen	nced to p	hase 2	EBTL a	ind 6:W	/BTL, St	art of Ye	ellow, M	aster Int	ersection	on		
Natural Cycle: 45												
Control Type: Actuated	d-Coordi	nated										

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ		7	ሻ		7	ሻ	Դ		ሻ	Դ	
Traffic Volume (veh/h)	30	652	32	13	243	14	26	31	13	46	15	159
Future Volume (veh/h)	30	652	32	13	243	14	26	31	13	46	15	159
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1415	1387	1457	2098	1984	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	31	672	33	13	251	14	27	32	13	47	15	164
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	3	0	8	2	0	2	2	2	2	2
Cap, veh/h	698	1017	905	695	1455	1286	140	190	77	268	20	217
Arrive On Green	0.98	0.98	0.98	0.73	0.73	0.73	0.16	0.16	0.14	0.16	0.16	0.14
Sat Flow, veh/h	890	1387	1235	879	1984	1754	1250	1223	497	1361	127	1394
Grp Volume(v), veh/h	31	672	33	13	251	14	27	0	45	47	0	179
Grp Sat Flow(s),veh/h/ln	890	1387	1235	879	1984	1754	1250	0	1719	1361	0	1521
Q Serve(g_s), s	0.2	3.0	0.1	0.4	3.5	0.2	1.9	0.0	2.0	2.8	0.0	10.2
Cycle Q Clear(g_c), s	3.7	3.0	0.1	3.4	3.5	0.2	11.6	0.0	2.0	4.3	0.0	10.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.92
Lane Grp Cap(c), veh/h	698	1017	905	695	1455	1286	140	0	267	268	0	237
V/C Ratio(X)	0.04	0.66	0.04	0.02	0.17	0.01	0.19	0.00	0.17	0.18	0.00	0.76
Avail Cap(c_a), veh/h	698	1017	905	695	1455	1286	140	0	267	268	0	237
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.63	0.63	0.63	0.34	0.34	0.34	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.3	0.3	4.1	3.7	3.2	41.7	0.0	33.1	34.6	0.0	36.8
Incr Delay (d2), s/veh	0.1	2.1	0.0	0.0	0.1	0.0	0.7	0.0	0.3	0.3	0.0	13.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/	ln 0.0	1.5	0.0	0.1	1.7	0.1	1.1	0.0	1.6	1.7	0.0	8.1
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	0.6	2.5	0.3	4.1	3.8	3.2	42.3	0.0	33.4	34.9	0.0	49.9
LnGrp LOS	Α	Α	Α	Α	Α	Α	D	Α	С	С	Α	D
Approach Vol, veh/h		736			278			72			226	
Approach Delay, s/veh		2.3			3.7			36.7			46.8	
Approach LOS		Α			Α			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	71.0		19.0		71.0		19.0				
Change Period (Y+Rc), s	;	6.0		6.0		6.0		6.0				
Max Green Setting (Gma		65.0		13.0		65.0		13.0				
Max Q Clear Time (g_c+l	l1), s	6.2		12.2		6.0		14.1				
Green Ext Time (p_c), s		2.8		0.1		0.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.2									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbook and the control of th

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	4		*	†	7	*	^	1	*	† \$	
Traffic Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.991	
Flt Protected	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Flt Permitted	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		7	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	499	243	32	151	172	58	23	1680	161	66	1593	98
Shared Lane Traffic (%)	23%											
Lane Group Flow (vph)	384	390	0	151	172	58	23	1680	161	66	1691	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
	25.8%								47.5%			
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2026/wib/81Pea\85denario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2026\with8\Peak\80\end{align*} denario 2A\W

Robinson Tract 2025 with Dev Weekday Morning Peak Hour 3: Rt 202 & Rt 926

	۶	→	•	•	←	•	4	†	<i>></i>	>	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4		ሻ	<u></u>	7	ሻ	^	7	ሻ	† }	
Traffic Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	ı	No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	387	400	32	151	172	58	23	1680	161	66	1593	98
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	391	7	180	189	163	44	1571	734	98	1465	90
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.03	0.44	0.44	0.06	0.48	0.47
Sat Flow, veh/h	1780	1749	140	1802	1892	1630	1626	3541	1655	1514	3044	186
Grp Volume(v), veh/h	387	0	432	151	172	58	23	1680	161	66	828	863
Grp Sat Flow(s), veh/h/ln	1780	0	1889	1802	1892	1630	1626	1771	1655	1514	1590	1640
Q Serve(q s), s	25.0	0.0	25.0	9.9	10.8	4.0	1.7	53.2	7.2	5.1	57.8	57.8
Cycle Q Clear(q c), s	25.0	0.0	25.0	9.9	10.8	4.0	1.7	53.2	7.2	5.1	57.8	57.8
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	44	1571	734	98	765	789
V/C Ratio(X)	1.04	0.00	1.09	0.84	0.91	0.36	0.52	1.07	0.22	0.67	1.08	1.09
Avail Cap(c_a), veh/h	371	0	394	180	189	163	122	1571	734	114	765	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.0	53.5	50.4	57.6	33.4	20.6	54.9	31.1	31.2
Incr Delay (d2), s/veh	54.9	0.0	67.0	27.9	40.8	1.3	9.3	43.9	0.7	12.0	56.8	60.6
Initial Q Delay(d3),s/veh	77.7	0.0	63.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/lr 3 1.0	0.0	33.6	9.7	11.5	3.0	1.4	41.9	5.1	4.0	44.3	46.9
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	180.0	0.0	177.9	80.9	94.3	51.7	67.0	77.3	21.3	66.9	88.0	91.8
LnGrp LOS	F	Α	F	F	F	D	Е	F	С	Е	F	F
Approach Vol, veh/h		819			381			1864			1757	
Approach Delay, s/veh		178.9			82.5			72.3			89.0	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				_
Phs Duration (G+Y+Rc),		58.2		18.0	8.2	62.8		31.0				
Change Period (Y+Rc),		6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+		55.7		13.3	4.2	60.3		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			97.3									
HCM 6th LOS			F									
Notes												
User approved pedestria												
User approved volume b	alancir	ng amor	ng the la	nes for	turning	movem	ent.					

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 23/26/with Eiræn\8denario 2A\W

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	1>		*	†	7		^	7		^	7
Traffic Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200	0,0	200	350	_,0	150	0	_,,	220	0	0,0	200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	75			100		•	75		•	75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	0.07	0.972				0.850		0.00	0.850		0.00	0.850
Flt Protected	0.950	0.0.2		0.950		0.000			0.000			0.000
Satd. Flow (prot)	3101	1701	0	1628	1744	1554	0	3225	1616	0	3214	1676
Flt Permitted	0.950	1701		0.636		1001	Ŭ	OZZO	1010	Ū	0211	1070
Satd. Flow (perm)	3101	1701	0	1090	1744	1554	0	3225	1616	0	3214	1676
Right Turn on Red	3101	1701	No	1000	1777	No	U	3223	No	U	5217	No
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0.93	5%	0.93	0.93	8%	5%
Adj. Flow (vph)	253	157	36	91	145	64	0%	2147	59	0%	2060	323
Shared Lane Traffic (%)		137	30	91	145	04	U	2141	59	U	2000	323
Lane Group Flow (vph)	253	193	0	91	145	64	0	2147	59	0	2060	323
Number of Detectors	253	193	U	1	145	1	U	2147	1	U	2000	3∠3 1
Detector Template	- 1	4		- 1	4	Right		2	Right		2	
	35	68		35	68	Right 30		490	Right 30		490	Right
Leading Detector (ft) Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5 -5	-1 -1		-5 -5	-1 -1	-10		-10	-10		-10	-10
` '	-5 40	-1		-5 40	-1	40		40	40		40	40
Detector 1 Size(ft)												
Detector 1 Type	CI+EX	CI+Ex		CI+EX	CI+Ex	CI+EX		CI+EX	CI+Ex		CI+EX	CI+Ex
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			_6			40			40	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		CI+Ex			CI+Ex							

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Eq:Norning} denario 2A\W

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

C-Max C-Max

C-Max C-Max

12: Rt 202 & Stetson School Dr/Skiles Blvd

Lane Group EBR WBL WBT WBR NBL Detector 4 Channel Detector 4 Extend (s) 0.0 0.0 Turn Type Prot NA NA Perm NA Perm **Protected Phases** 3 8 4 6 2 Permitted Phases Detector Phase 3 8 6 6 2 Switch Phase Minimum Initial (s) 3.0 3.0 3.0 15.0 15.0 15.0 15.0 3.0 3.0 Minimum Split (s) 9.0 15.0 15.0 15.0 15.0 22.0 22.0 22.0 22.0 Total Split (s) 15.0 36.0 21.0 21.0 21.0 84.0 84.0 84.0 84.0 Total Split (%) 12.5% 30.0% 17.5% 17.5% 17.5% 70.0% 70.0% 70.0% 70.0% Maximum Green (s) 9.0 28.0 13.0 77.0 77.0 77.0 13.0 13.0 77.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 5.0 5.0 5.0 5.0 All-Red Time (s) 2.0 2.0 2.0 2.0 4.0 4.0 4.0 4.0 2.0 Lost Time Adjust (s) -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 0.0 -1.0 Total Lost Time (s) 7.0 6.0 6.0 5.0 7.0 7.0 8.0 6.0 6.0 Lead Lag Lag Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 6.0 6.0 6.0 6.0 Minimum Gap (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 48.0 48.0 48.0 Time Before Reduce (s) 0.0 0.0 0.0 0.0 0.0 48.0 Time To Reduce (s) 0.0 0.0 0.0 0.0 0.0 24.0 24.0 24.0 24.0

Intersection Summary Area Type: Other Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

None None

Natural Cycle: 90

Lead/Lag

Recall Mode

Control Type: Actuated-Coordinated

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



None None None

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	77	f)		J.	†	7		^	7		^	7
Traffic Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1901	1947	1947	1722	1717	1790	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	253	157	36	91	145	64	0	2147	59	0	2060	323
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	8	4	9	4	0	5	0	0	8	5
Cap, veh/h	293	363	83	189	192	157	0	2124	1026	0	2237	1062
Arrive On Green	0.08	0.24	0.23	0.11	0.11	0.10	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3512	1533	351	1156	1717	1517	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	253	0	193	91	145	64	0	2147	59	0	2060	323
Grp Sat Flow(s),veh/h/ln		0	1884	1156	1717	1517	0	1622	1567	0	1708	1622
Q Serve(g_s), s	8.5	0.0	10.5	9.1	9.8	4.7	0.0	78.6	1.6	0.0	62.9	10.3
Cycle Q Clear(g_c), s	8.5	0.0	10.5	9.1	9.8	4.7	0.0	78.6	1.6	0.0	62.9	10.3
Prop In Lane	1.00		0.19	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	293	0	446	189	192	157	0	2124	1026	0	2237	1062
V/C Ratio(X)	0.86	0.00	0.43	0.48	0.75	0.41	0.00	1.01	0.06	0.00	0.92	0.30
Avail Cap(c_a), veh/h	293	0	455	195	200	164	0	2124	1026	0	2237	1062
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	39.0	51.4	51.7	50.3	0.0	20.7	7.4	0.0	18.0	8.9
Incr Delay (d2), s/veh	22.5	0.0	0.7	1.9	14.5	1.7	0.0	22.2	0.1	0.0	7.7	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	8.6	5.0	8.7	3.4	0.0	40.6	0.9	0.0	30.9	6.8
Unsig. Movement Delay,		0.0	20.7	50.0	00.4	500	0.0	40.0	7.5	0.0	05.7	0.7
LnGrp Delay(d),s/veh	76.9	0.0	39.7	53.3	66.1	52.0	0.0	42.9	7.5	0.0	25.7	9.7
LnGrp LOS	E	A	D	D	E	<u>D</u>	A	F	A	A	С	A
Approach Vol, veh/h		446			300			2206			2383	
Approach Delay, s/veh		60.8			59.2			41.9			23.5	
Approach LOS		Е			Е			D			С	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc),		84.6	15.0	20.4		84.6		35.4				
Change Period (Y+Rc), s	3	7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gma		77.0	9.0	13.0		77.0		28.0				
Max Q Clear Time (g_c+	l1), s	65.4	11.0	12.3		81.1		12.5				
Green Ext Time (p_c), s		11.6	0.0	0.1		0.0		0.7				
Intersection Summary												
HCM 6th Ctrl Delay			36.3									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

2025 with Dev Weekday Morning Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 28/26/with8Deap8denario 2A\W

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		ሻ	^	7
Traffic Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3185	1508
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3185	1508
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	45	0	0	35	33	2173	73	55	1805	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	45	0	0	35	33	2246	0	55	1805	269
Sign Control		Stop			Stop			Free			Free	
Intersection Cummers												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2020 with ElPay\00000 denario 2A\W

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Movement	FRI	FRT	FRR	WBL	WRT	WRR	NRI	NRT	NBR	SRI	SRT	SBR	
Lane Configurations		בטו	7	VVDL	VVDI	7	ሻ		NUIN	N N	**	7	
Traffic Vol, veh/h	0	0	43	0	0	34		2086	70		1733	258	
Future Vol. veh/h	0	0	43	0	0	34		2086	70		1733	258	
Conflicting Peds, #/	-	0	0	0	0	0	0	0	0	0	0	0	
									Free				
RT Channelized	- -		Yield	-		None	-		None	-		None	
Storage Length	_	_	0	_	_	0	350	_	-	380	_		
Veh in Median Stora			-	_	0	-	-	0	_	300	0	525	
Grade. %	agc, "	-1	-	_	-2	-	_	2		_	-3		
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	90	3	
Mymt Flow	0	0	45	0	0	35		2173	73		1805	269	
IVIVIIIL FIOW	U	U	45	U	U	33	ు	21/3	13	55	1005	209	
NA=:==/NA:==== NA:				U		B /	1-:4		N /	1-:0			
Major/Minor Mi Conflicting Flow All	nor2	_		linor1 -		1123	lajor1	0		lajor2 2246	0	0	
Stage 1	-	-	903	-	-	1123	2014	-	-	2240	-	-	
Stage 1		-		-	-	-	-	-	-		-	-	
		-			-	7.0	4.4	-	-	4			
Critical Hdwy	-	-	7.2	-	-	7.3	4.1		_	•	-	-	
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy Stg 2		-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	2.9	-	-	3.1	2.5	-	-	2.4	-	-	
Pot Cap-1 Maneuve		0	*415	0	0	*225	399	-	-	*291	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-	
Platoon blocked, %			1			1	1	-	-	1	-	-	
Mov Cap-1 Maneuv		-	*415	-	-	*225	399	-	-	*291	-	-	
Mov Cap-2 Maneuv	er -	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay	,14.7			24			0.2			0.5			
HCM LOS	В			С									
Minor Lane/Major M	1vmt	NBL	NBT	NBÆ	BLn\n/\	BLn1	SBL	SBT	SBR				
Capacity (veh/h)		399	-	-	415	225	* 291	-	-				
HCM Lane V/C Rat	io (0.084	-	- (0.108	0.157	0.19	-	-				
HCM Control Delay	(s)	14.8	-	-	14.7	24	20.2	-	-				
HCM Lane LOS		В	-	-	В	С	С	-	-				
HCM 95th %tile Q(v	/eh)	0.3	-	-	0.4	0.5	0.7	-	-				
Notes													

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Equiv}\textbf{R}\textbf{Dev}\textbf{B}\textbf{C}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\text

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

5: Church Access & Pleasant Grove Rd

	-	•	•	•		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4î			ર્ન	Ţ	7
Traffic Volume (vph)	43	1	8	282	1	0
Future Volume (vph)	43	1	8	282	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1702	0	0	1723	1636	1663
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1702	0	0	1723	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	61	1	11	403	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	62	0	0	414	1	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type: Othe
Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2926\withBPeap8denario 2A\W

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Intersection							
Int Delay, s/veh	0.2						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	ľ
Lane Configuration				4	ኝ	1	
Traffic Vol, veh/h	43		8	282	1	0	
Future Vol, veh/h	43	1	8	282	1	0	
Conflicting Peds, #	hr 0/	0	0	0	0	0	
Sign Control		Free	Free	Free	Stop	Stop	
RT Channelized	-	None	-	None	-	None	
Storage Length	-	-		-	0	0	
Veh in Median Sto	rageQ	# -	-	0	0	-	
Grade, %	4		-	-4	2	-	
Peak Hour Factor	70	70	70	70	70	70	
Heavy Vehicles, %	0	0	0	3	0	0	
Mvmt Flow	61	1	11	403	1	0	
	- 01			.00			
NA=:==/NA:===	-:4		4-:0		U 4		
	lajor1		lajor2		linor1		
Conflicting Flow Al			62	0		62	
Stage 1	-		-	-	62	-	
Stage 2	-		-	-		-	
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 Maneuv	er -	-	1143	-		1068	
Stage 1	-		-		1114	-	
Stage 2	-	-	-	-	719	-	
Platoon blocked, %	6 -	-		-			
Mov Cap-1 Maneu	ver -	-	1143	-	575	1068	
Mov Cap-2 Maneu			-	-	575	-	
Stage 1	-	-	-	-	1114	-	
Stage 2	-	-		-		-	
A = = = = = b	ED		ME		NID		
Approach	EB		WB		NB		
HCM Control Delay	y, s 0		0.2		11.3		
HCM LOS					В		
Minor Lane/Major I	Mvm t	IBLn1N	IBLn2	EBT	EBR	WBL	Ì
Capacity (veh/h)		575	-			1143	
HCM Lane V/C Ra	tio	0.002	-			0.01	
HCM Control Delay		11.3	0		_		
HCM Lane LOS	, (3)	11.3 B	A	-	-	0.2 A	
HCM 95th %tile Q(\/eh\	0	-	-	-	0	
TION SOUT TOUTE Q	ve11)	U	_	_	_	U	

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Equiv}\textbf{R}\textbf{Dev}\textbf{B}\textbf{C}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\text

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

	~	-	•	•	-	*
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	rî,		¥	
Traffic Volume (vph)	133	28	255	28	15	22
Future Volume (vph)	133	28	255	28	15	22
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.987		0.920	
Flt Protected		0.960			0.980	
Satd. Flow (prot)	0	1666	1761	0	1591	0
Flt Permitted		0.960			0.980	
Satd. Flow (perm)	0	1666	1761	0	1591	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	190	40	364	40	21	31
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	230	404	0	52	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Interpolition						
Intersection						
Int Delay, s/veh	3.9					
Movement		_ EBT				SBR
Lane Configuration	ns	ની	ĥ		¥	
Traffic Vol, veh/h	133	3 28	255	28	15	22
Future Vol, veh/h	133	3 28	255	28	15	22
Conflicting Peds,			0		0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized		- None	-	None	-	None
Storage Length			-	-	0	-
Veh in Median Sto	orage	, # 0	0	-	0	-
Grade, %		- 4	-4	-	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, 9	% 2	2 0	3	2	2	2
Mvmt Flow	190) 40	364	40	21	31
Major/Minor N	Major	1 1	lajor2	N.	linor2	
						20.4
Conflicting Flow A					804	384
					٠.	-
Stage 2						-
Critical Hdwy	4.3		-		6.42	-
Critical Hdwy Stg						-
Critical Hdwy Stg			-		5.42	-
Follow-up Hdwy		3 -			3	3.1
Pot Cap-1 Maneu			-		000	
Stage 1					787	-
Stage 2			-	-	756	-
Platoon blocked, '		-	-	-		
Mov Cap-1 Mane			-	-		702
Mov Cap-2 Mane	uver		-	-	305	-
Stage 1			-	-	611	-
Stage 2			-	-	756	-
			14/5		0.5	
Approach	EE		WB		SB	
HCM Control Dela	ay, 8 .5	5	0		13.8	
HCM LOS					В	
Minor Lane/Major	Mvm	t EBI	EBT	WBT	WBRS	BLn1
Capacity (veh/h)		872	-			460
HCM Lane V/C R	atio	0.218				0.115
HCM Control Dela			0			13.8
HCM Lane LOS	ay (S)	10.3 B	A		-	13.8 B
	\/\\alpha	_	A -			
HCM 95th %tile C	(ven)ג	0.8	-	-	-	0.4

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2026withBPee\8denario 2A\W

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 with Dev Weekday Morning Peak Hour

	-	•	€	•	1	-	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	†			†	¥		
Traffic Volume (vph)	162	0	0	277	0	0	
Future Volume (vph)	162	0	0	277	0	0	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	13	13	
Grade (%)	3%			-3%	-2%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt							
Flt Protected							
Satd. Flow (prot)	1714	0	0	1715	1879	0	
Flt Permitted							
Satd. Flow (perm)	1714	0	0	1715	1879	0	
Link Speed (mph)	35			35	35		
Link Distance (ft)	318			322	436		
Travel Time (s)	6.2			6.3	8.5		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%	
Adj. Flow (vph)	231	0	0	396	0	0	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	231	0	0	396	0	0	
Sign Control	Free			Free	Stop		

Intersection Summary

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc.
7: Church Egress Access & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0					
iiii Deiay, S/VeII	- 0					
Movement		EBR	WBL	WBT		NBR
Lane Configuration	s 🕈			↑	N/F	
Traffic Vol, veh/h	162	0	0	277	0	0
Future Vol, veh/h	162	0	0	277	0	0
Conflicting Peds, #		0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Stor	rageQ:	# -	-	0	0	-
Grade, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	231	0	0	396	0	0
NA=:==/NA:=== NA	-:4	B /	1-:0	B /	U d	
	ajor1		lajor2		linor1	004
Conflicting Flow All		-	-	-		
Stage 1	-	-	-	-	231	-
Stage 2	-	-	-	-		-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1		-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	_	3.1
Pot Cap-1 Maneuv	er -	0	0	-	542	871
Stage 1	-	0	0	-	957	-
Stage 2	-	0	0	-	813	-
Platoon blocked, %	· -			-		
Mov Cap-1 Maneu	ver -	-	-	-	542	871
Mov Cap-2 Maneu			-		-	-
Stage 1	-				957	-
Stage 2					813	-
Olago 2					0.0	
Approach	EB		WB		NB	
HCM Control Delay	/, s 0		0		0	
HCM LOS					Α	
Minor Lane/Major N	/lvmN	IRI n1	FRT	WBT		
Capacity (veh/h)		-				
HCM Lane V/C Ra	tio		-	_		
HCM Control Delay		0	-			
HCM Lane LOS	(5)	A	-			
	voh)	A -	-	-		
HCM 95th %tile Q(ven)	-	-	-		

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withBree\BeakBenario 2A\W

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Equiv}\textbf{R}\textbf{Dev}\textbf{B}\textbf{C}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\text

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

	→	•	•	•	7		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	4			ર્ન	¥		
Traffic Volume (vph)	70	1	160	116	4	92	
Future Volume (vph)	70	1	160	116	4	92	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	12	12	
Grade (%)	3%			-3%	0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.999				0.871		
Flt Protected				0.972	0.998		
Satd. Flow (prot)	1712	0	0	1676	1534	0	
Flt Permitted				0.972	0.998		
Satd. Flow (perm)	1712	0	0	1676	1534	0	
Link Speed (mph)	35			35	35		
Link Distance (ft)	1878			318	459		
Travel Time (s)	36.6			6.2	8.9		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	
Heavy Vehicles (%)	0%	2%	2%	3%	2%	2%	
Adj. Flow (vph)	100	1	229	166	6	131	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	101	0	0	395	137	0	
Sign Control	Free			Free	Stop		

Intersection Summary

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc. 8: Collector Road & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

latara atian							
Intersection							
Int Delay, s/veh	5.	4					
Movement	EB.		R W	BL.	WBT		NBR
Lane Configuration	ns 1	>			Ą	Y	
Traffic Vol, veh/h	7	0	1 1	60	116	4	92
Future Vol, veh/h	7	0	1 1	60	116	4	92
Conflicting Peds,			0	0	0	0	0
Sign Control	Fre	e Fre	e F	ree	Free	Stop	Stop
RT Channelized		- Non	е	-	None	-	None
Storage Length			-	-	-	0	-
Veh in Median St	orage	Q#	-	-	0	0	-
Grade, %		3	-	-	-3	0	-
Peak Hour Factor	7	0 7	0	70	70	70	70
Heavy Vehicles, 9	%	0	2	2	3	2	2
Mvmt Flow	10	0	1 2	229	166	6	131
Major/Minor I	Major	1	Maj	2-2	N.	linor1	
							404
Conflicting Flow A				101	0		101
Stage 1		-	-	-			-
Stage 2		-	-	-			
Critical Hdwy		-		4.3		6.42	-
Critical Hdwy Stg		-	-	-		5.42	-
Critical Hdwy Stg		-	-	-		5.42	-
Follow-up Hdwy		-	-	3		_	
Pot Cap-1 Maneu			- 11				1018
Stage 1		-	-	-		1075	-
Stage 2		-	-	-	-	601	-
Platoon blocked,		-	-		-		
Mov Cap-1 Mane			- 11		-		1018
Mov Cap-2 Mane			-	-		000	-
Stage 1		-	-	-		1075	-
Stage 2		-	-	-	-	465	-
Approach	El	3	1	NΒ		NB	
HCM Control Dela				5.3		9.5	
HCM LOS	ay, o	U		J.J		9.5 A	
TIOWI LOG						^	
Minor Lane/Major	Mvm	NBLn	1 E	ВТ	EBR	WBL	WBT
Capacity (veh/h)		94	0	-	-	1109	-
HCM Lane V/C R	atio	0.14	6	-	-	0.206	-
HCM Control Dela	ay (s)	9.	5	-	-	9.1	0
HCM Lane LOS	, ,		Ā	-	-	Α	A
HCM 95th %tile C	Q(veh)	0.	5	-	-	0.8	-

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withBree\BeakBenario 2A\W

HCM 6th TWSC I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 28)2ն\width@Dea\80denario 2A\W McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

	-	•	1	•	1	_	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	f)			ર્ન	¥		
Traffic Volume (vph)	69	0	4	191	1	13	
Future Volume (vph)	69	0	4	191	1	13	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	12	12	
Grade (%)	6%			-3%	0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt					0.872		
Flt Protected				0.999	0.998		
Satd. Flow (prot)	1607	0	0	1713	1536	0	
Flt Permitted				0.999	0.998		
Satd. Flow (perm)	1607	0	0	1713	1536	0	
Link Speed (mph)	35			35	35		
Link Distance (ft)	733			1878	268		
Travel Time (s)	14.3			36.6	5.2		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	
Heavy Vehicles (%)	5%	2%	2%	3%	2%	2%	
Adj. Flow (vph)	99	0	6	273	1	19	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	99	0	0	279	20	0	
Sign Control	Free			Free	Stop		

Intersection Summary
Area Type: Othe
Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2026 with Dev Weekday Morning Peak Hour

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.6					
			MIDI	MOT	ND:	NDC
Movement		EBR	WBL			NBR
Lane Configuration				ન	Y	
Traffic Vol, veh/h	69	0	4	191	1	
Future Vol, veh/h	69	0	4	191	1	
Conflicting Peds, #		0	0	0	0	
Sign Control			Free			
RT Channelized	- 1	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Sto	rageQ#	# -	-	0	0	-
Grade, %	6	-	-	-3	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	6 5	2	2	3	2	2
Mymt Flow	99	0	6	273	1	
WWW.CT IOW	00	U	Ū	210		10
	/lajor1	N	lajor2	M	linor1	
Conflicting Flow A		0	99	0		
Stage 1	-	-	-	-	99	
Stage 2	-	-	-	-	285	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg	1 -	-	-	-	5.42	-
Critical Hdwy Stg 2	2 -	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	ver -	-	1111	-	707	1021
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-		878	-
Platoon blocked, 9	% -					
Mov Cap-1 Maneu		_	1111	_	703	1021
Mov Cap-2 Maneu			-	_	703	
Stage 1	4 V C1 -	_	-		1077	
Stage 2	-	-	-	-		
Stage 2			-		013	
Approach	EB		WB		NB	
HCM Control Dela	y, s 0		0.2		8.7	
HCM LOS	,, _ ,				A	
Minor Lane/Major	MvmN		EBT			WBT
Capacity (veh/h)		989	-	-	1111	-
HCM Lane V/C Ra	atio	0.02	-	- (0.005	-
				-	8.3	0
HCM Control Dela	ıy (s)	8.7	-	-	0.3	
HCM Control Dela HCM Lane LOS	y (s)	8.7 A	-	-	6.5 A	-
	, , ,					Ā

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Equiv}\textbf{R}\textbf{Dev}\textbf{B}\textbf{C}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\text

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2025 with Dev Weekday Morning Peak Hour

	۶	-	•	•	•	•	1	†	~	-	Ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	0	56	4	3	186	3	12	0	9	5	0	2
Future Volume (vph)	0	56	4	3	186	3	12	0	9	5	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.998			0.941			0.959	
Flt Protected					0.999			0.972			0.966	
Satd. Flow (prot)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Flt Permitted					0.999			0.972			0.966	
Satd. Flow (perm)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		496			733			274			306	
Travel Time (s)		9.7			14.3			7.5			8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	2%	2%	3%	50%	2%	2%	2%	0%	2%	25%
Adj. Flow (vph)	0	80	6	4	266	4	17	0	13	7	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	274	0	0	30	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type:

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

10: Road K/Dunvegan Road & Pleasant Grove Rd

Intersection

Int Delay, s/veh

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	าร	4			4			4			4	
Traffic Vol, veh/h	0	56	4	3	186	3	12	0	9	5	0	2
Future Vol, veh/h	0	56	4	3	186	3	12	0	9	5	0	2
Conflicting Peds, #	#/hr 0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Sto	rage, #	ŧ 0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	5	2	2	3	50	2	2	2	0	2	25
Mvmt Flow	0	80	6	4	266	4	17	0	13	7	0	3

Major/Minor	Major1		Maj	or2		Minor1		M	linor2			
Conflicting Flow	All 270	0	0	86	0	0 361	361	83	366	362	268	
Stage 1	-	-	-	-	-	- 83	83	-	276	276	-	
Stage 2	-	-	-	-	-	- 278	278	-	90	86	-	
Critical Hdwy	4.3	-	-	4.3	-	- 7.12	6.52	6.22	7.3	6.72	6.55	
Critical Hdwy Sto	g1 -	-	-	-	-	- 6.12	5.52	-	6.3	5.72	-	
Critical Hdwy Sto	g 2 -	-	-	-	-	- 6.12	5.52	-	6.3	5.72	-	
Follow-up Hdwy	3	-	-	3	-	- 34	4.018	3.1	34	4.018	3.3	
Pot Cap-1 Mane	uve971	-	- 11	122	-	- 680	566	1043	663	554	756	
Stage 1	-	-	-	-	-	- 1079	826	-	829	671	-	
Stage 2	-	-	-	-	-	- 838	680	-	1064	820	-	
Platoon blocked,	, %	-	-		-	-						
Mov Cap-1 Mane	euv e 71	-	- 11	122	-	- 675	564	1043	653	552	756	
Mov Cap-2 Mane	euver -	-	-	-	-	- 675	564	-	653	552	-	
Stage 1	-	-	-	-	-	- 1079	826	-	829	668	-	
Stage 2	-	-	-	-	-	- 831	677	-	1051	820	-	

Approach	EB	WB	NB	SB	
HCM Control D	Delay, s 0	0.1	9.7	10.4	
HCM LOS			Α	В	

Minor Lane/Major Mvml	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR9	BLn1	
Capacity (veh/h)	795	971	-	-	1122	-	-	679)
HCM Lane V/C Ratio	0.038	-	-	- C	.004	-	-	0.015	5
HCM Control Delay (s)	9.7	0	-	-	8.2	0	-	10.4	1
HCM Lane LOS	Α	Α	-	-	Α	Α	-	В	3
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0)

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withBree\BeakBenario 2A\W

HCM 6th TWSC 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2026\with8\Pea\80\end{8}denario 2A\W

Robinson Tract 11: New Street & Pleasant Grove Rd 2025 with Dev Weekday Morning Peak Hour

	•	•	†	_	-	ļ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		f)			र्स
Traffic Volume (vph)	170	30	178	41	18	131
Future Volume (vph)	170	30	178	41	18	131
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.975			
Flt Protected	0.959					0.994
Satd. Flow (prot)	1630	0	1727	0	0	1757
Flt Permitted	0.959					0.994
Satd. Flow (perm)	1630	0	1727	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	191	34	200	46	20	147
Shared Lane Traffic (%	6)					
Lane Group Flow (vph) 225	0	246	0	0	167
Sign Control	Stop		Free			Free
Intersection Summary						
Area Type:	Other					

Control Type: Unsignalized

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	4.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configuration			1>			4
Traffic Vol., veh/h	170	30	178	41	18	131
Future Vol, veh/h	170	30	178	41	18	131
Conflicting Peds, #	#/hr 0	0	0	0	0	0
Sign Control		Stop	Free	Free	Free	Free
RT Channelized		None		None		None
Storage Length	0	-	-		-	-
Veh in Median Sto	rage0	# -	0	-	-	0
Grade. %	0		0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	6 2	14	2	0	8	1
Mymt Flow	191	34	200	46	20	147
		٠.		.0		
Major/Minor N	/linor1	M	lajor1	M	lajor2	
Conflicting Flow A			0			0
Stage 1	223		-	-		-
Stage 2	187	-		-		-
Critical Hdwy		6.34		-	4.4	-
Critical Hdwy Stg		0.01	-			_
Critical Hdwy Stg		-		_		_
Follow-up Hdwy	3	3.2	-		3.1	_
Pot Cap-1 Maneuv			_		954	_
Stage 1	940	-	_		334	_
Stage 2	978		-			_
Platoon blocked. 9			_			
Mov Cap-1 Maneu		027	-	-	954	
Mov Cap-1 Maneu		031	-	-	954	-
			-	-	-	-
Stage 1	940	-	-	-	-	-
Stage 2	956	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Dela	y,1 2 .8		0		1.1	
HCM LOS	В					
Minor Lane/Major	Mvmt	NBT	NBR	/BLn1	SBL	SBT
Capacity (veh/h)		-		687		-
HCM Lane V/C Ra	atio			0.327		_
HCM Control Dela		-		12.8	8.9	0
HCM Lane LOS	y (3)		-		6.9 A	A
HCM 95th %tile Q	(veh)	-	-	1.4	0.1	-
TOWN JOHN JOHNE Q	(1011)			1.4	0.1	

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withBree\BeakBenario 2A\W

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withB\textbf{Equiv}\textbf{R}\textbf{Dev}\textbf{B}\textbf{C}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\textbf{A}\textbf{eq}\text

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	۶	→	•	€	←	•	•	†	~	/	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- €			4	7		4			- €	
Traffic Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		1	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998				0.850		0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1564	1379	0	1580	0	0	1547	0
Flt Permitted		0.930			0.940			0.974			0.930	
Satd. Flow (perm)	0	1518	0	0	1474	1379	0	1543	0	0	1451	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2				33						
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	67	689	13	24	385	32	9	93	43	53	178	106
Shared Lane Traffic (%)											
Lane Group Flow (vph)	,	769	0	0	409	32	0	145	0	0	337	0
Number of Detectors	1	1		1	1	1	1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6		6	8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Total Split (%)	69.0%				69.0%					31.0%		
Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0	-2.0		-1.0			-1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

1: New St & Rt 926

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)		5.0			5.0	4.0		5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0		5.0	5.0	5.0	3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0	2.0	3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0	42.0	0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0	21.0	0.0	0.0		0.0	0.0	
Recall Mode	C-Max	C-Max		C-Max	C-Max	C-Max	None	None		None	None	
Intersection Summary												
Area Type: (Other											
Cycle Length: 100												
Actuated Cycle Length:	100											
Offset: 0 (0%), Referen	ced to p	hase 2:	EBTL a	nd 6:W	BTL, Sta	art of Ye	llow					
Natural Cycle: 65												
Control Type: Actuated-	Coordi	nated										

Splits and Phases: 1: New St & Rt 926



Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8y\2020\end{6}enario 2A\W

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	۶	→	•	•	•	•	4	†	/	/	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4	7		4			4	
Traffic Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	67	689	13	24	385	32	9	93	43	53	178	106
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	114	1057	19	74	1049	1008	49	275	121	87	213	119
Arrive On Green Sat Flow, veh/h	0.68	0.67 1579	0.66 29	1.00 54	1.00 1567	1.00 1485	0.24 48	0.23	0.22 522	0.24 197	0.23 922	0.22 514
	769		0			32	145	0				
Grp Volume(v), veh/h		0	0	409 1621	0	1485	1761	0	0	337 1633	0	0
Grp Sat Flow(s), veh/h/ln	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0
Q Serve(g_s), s Cycle Q Clear(q_c), s	25.1	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	19.7	0.0	0.0
Prop In Lane	0.09	0.0	0.02	0.06	0.0	1.00	0.06	0.0	0.30	0.16	0.0	0.0
Lane Grp Cap(c), veh/h		0	0.02	1139	0	1008	462	0	0.30	435	0	0.51
V/C Ratio(X)	0.64	0.00	0.00	0.36	0.00	0.03	0.31	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1207	0.00	0.00	1139	0.00	1008	512	0.00	0.00	482	0.00	0.00
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	0.0	0.0	0.0	32.3	0.0	0.0	37.1	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.9	0.0	0.1	0.4	0.0	0.0	7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/ln12.6	0.0	0.0	0.5	0.0	0.0	5.3	0.0	0.0	13.2	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	12.1	0.0	0.0	0.9	0.0	0.1	32.7	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	В	Α	Α	Α	Α	Α	С	Α	Α	D	Α	Α
Approach Vol, veh/h		769			441			145			337	
Approach Delay, s/veh		12.1			0.8			32.7			44.1	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		71.9		28.1		71.9		28.1				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+	l1), s	27.1		21.7		2.5		8.9				
Green Ext Time (p_c), s		7.4		0.4		3.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßy ው**ድሎል **6**enario 2A\W

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	^	7	ሻ	*	7	ሻ	<u> </u>		ሻ	<u></u>	
Traffic Volume (vph)	124	582	38	21	301	49	17	40	12	29	260	128
Future Volume (vph)	124	582	38	21	301	49	17	40	12	29	260	128
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		75	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.965			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1678	1567	1637	1817	1560	1719	1684	0	1676	1678	0
Flt Permitted	0.545			0.341			0.208		Ů	0.721		
Satd. Flow (perm)	923	1678	1567	588	1817	1560	376	1684	0	1272	1678	0
Right Turn on Red	020		Yes	000		Yes	0.0		Yes			Yes
Satd. Flow (RTOR)			40			51		13	. 00		25	. 00
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			1108	
Travel Time (s)		36.9			35.6			11.3			21.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	3%	0.30	5%	3%	2%	0.30	2%	9%	2%	2%	2%
Adj. Flow (vph)	129	606	40	22	314	51	18	42	13	30	271	133
Shared Lane Traffic (%)		000	70	22	314	31	10	72	13	30	211	100
Lane Group Flow (vph)	129	606	40	22	314	51	18	55	0	30	404	0
Number of Detectors	1_1	1	1	1	1	1	1	2	Ŭ	1	2	Ŭ
Detector Template	•	Thru	Right	Left	Thru	•	Left	_		•	_	
Leading Detector (ft)	30	30	30	30	30	30	20	100		30	100	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	20	40		40	40	
Detector 1 Type					CI+Ex						CI+Ex	
Detector 1 Channel	OITEX	OIILX	OIILX	OIILX	OIILX	OIILX	OIILX	OIILX		OIILX	OITEX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	94		0.0	94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								Cl+Ex			Cl+Ex	
								CI+EX			CI+EX	
Detector 2 Channel								0.0			0.0	
Detector 2 Extend (s)	Perm	NIA	Dorm	Dorm	NA	Dorm	Dorm			Dorm		
Turn Type Protected Phases	reim	NA 2	Perm	Perm	NA 6	Perm	Perm	NA 8		Perm	NA 4	
	_	2	_	_	ь	_		8			4	
Permitted Phases	2	_	2	6	_	6	8	_		4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase	0.0		0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	34.0	34.0		34.0	34.0	

Lanes, Volumes, Timings
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ß**y**ጋ**፱ላሴ ይenario 2A\W

Robinson Tract

2: Bridlewood Blvd/Collector Road & Rt 926

2025 with Dev Weekday Afternoon Peak Hour

	•	-	•	•	•	•	1	†	/	/	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%		34.0%	34.0%	
Maximum Green (s)	60.0	60.0	60.0	60.0	60.0	60.0	28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Cycle Length: 100 Other

Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

	۶	→	•	•	•	•	1	†	1	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	,	†	7	J.	†	7	ľ	f)		۲	fa fa	
Traffic Volume (veh/h)	124	582	38	21	301	49	17	40	12	29	260	128
Future Volume (veh/h)	124	582	38	21	301	49	17	40	12	29	260	128
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1415	1401	1501	2027	2055	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	129	606	40	22	314	51	18	42	12	30	271	133
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	3	0	5	3	2	0	2	2	2	2	2
Cap, veh/h	522	872	792	631	1279	1092	125	375	107	422	311	153
Arrive On Green	1.00	1.00	1.00	0.62	0.62	0.62	0.28	0.28	0.27	0.28	0.28	0.27
Sat Flow, veh/h	812	1401	1272	897	2055	1754	1017	1353	387	1350	1122	551
Grp Volume(v), veh/h	129	606	40	22	314	51	18	0	54	30	0	404
Grp Sat Flow(s),veh/h/ln		1401	1272	897	2055	1754	1017	0	1739	1350	0	1673
Q Serve(q s), s	2.3	0.0	0.0	0.9	6.8	1.1	1.7	0.0	2.3	1.7	0.0	23.0
Cycle Q Clear(q c), s	9.1	0.0	0.0	0.9	6.8	1.1	24.2	0.0	2.3	3.5	0.0	23.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		0.33
Lane Grp Cap(c), veh/h	522	872	792	631	1279	1092	125	0	483	422	0	464
V/C Ratio(X)	0.25	0.70	0.05	0.03	0.25	0.05	0.14	0.00	0.11	0.07	0.00	0.87
Avail Cap(c_a), veh/h	522	872	792	631	1279	1092	138	0	504	439	0	485
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	0.23	0.23	0.23	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.0	0.0	7.3	8.4	7.3	45.7	0.0	27.0	28.1	0.0	34.6
Incr Delay (d2), s/veh	0.6	2.4	0.1	0.0	0.1	0.0	0.5	0.0	0.1	0.1	0.0	15.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/		1.1	0.0	0.3	3.9	0.7	0.8	0.0	1.8	1.0	0.0	16.5
Unsig. Movement Delay,		•••	0.0	0.0	0.0	0.7	0.0	0.0	1.0	1.0	0.0	10.0
LnGrp Delay(d),s/veh	1.1	2.4	0.1	7.3	8.5	7.4	46.2	0.0	27.1	28.1	0.0	49.8
LnGrp LOS	Α	Α.	A	Α.	A	A	D	Α	C	C	Α.	D
Approach Vol, veh/h		775			387			72			434	
Approach Delay, s/veh		2.1			8.3			31.9			48.3	
Approach LOS		2.1 A			6.5 A			31.9 C			46.3 D	
Approacti LOS					A						U	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		67.2		32.8		67.2		32.8				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		60.0		28.0		60.0		28.0				
Max Q Clear Time (g_c+l	l1), s	11.6		25.0		9.3		26.7				
Green Ext Time (p_c), s		3.3		0.7		1.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			16.8									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary

2025 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8yDet\66enario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4		ሻ	↑	7	ች	^	7	ሻ	↑ ↑	
Traffic Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (vph)	320	214	43	205	245	66	62	1626	125	95	1286	67
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981				0.850			0.850		0.993	
Flt Protected	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Flt Permitted	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	330	221	44	211	253	68	64	1676	129	98	1326	69
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	247	348	0	211	253	68	64	1676	129	98	1395	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	25.0	25.0		22.0	22.0	22.0	14.0	58.0	58.0	15.0	59.0	
Total Split (%)	20.8%	20.8%		18.3%	18.3%	18.3%	11.7%	48.3%	48.3%	12.5%	49.2%	
Maximum Green (s)	18.0	18.0		15.0	15.0	15.0	8.0	52.0	52.0	9.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ß**yඛლከናይ enario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings

2025 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8y Det\600006 enario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	۶	→	•	•	←	•	4	†	<i>></i>	-	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	44		ች		1	ኘ	^	7	ች	† î>	
Traffic Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Future Volume (veh/h)	320	214	43	205	245	66	62	1626	125	95	1286	67
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	298	266	44	211	253	68	64	1676	129	98	1326	69
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	278	301	7	247	258	222	105	1605	750	140	1558	30
Arrive On Green	0.16	0.16	0.15	0.13	0.13	0.13	0.06	0.44	0.44	0.08	0.47	0.46
Sat Flow, veh/h	1753	1639	271	1856	1935	1668	1856	3622	1693	1714	3204	166
Grp Volume(v), veh/h	298	0	310	211	253	68	64	1676	129	98	685	710
Grp Sat Flow(s), veh/h/ln	1753	0	1910	1856	1935	1668	1856	1811	1693	1714	1657	1714
Q Serve(g_s), s	19.0	0.0	19.0	13.3	15.6	4.4	4.0	53.2	5.5	6.7	44.9	45.2
Cycle Q Clear(q c), s	19.0	0.0	19.0	13.3	15.6	4.4	4.0	53.2	5.5	6.7	44.9	45.2
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	278	0	309	247	258	222	105	1605	750	140	776	812
V/C Ratio(X)	1.07	0.00	1.00	0.85	0.98	0.31	0.61	1.04	0.17	0.70	0.88	0.88
Avail Cap(c_a), veh/h	278	0	302	247	258	222	139	1605	750	143	776	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.00	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	50.5	50.8	51.8	47.0	55.3	33.4	20.1	53.6	31.9	31.9
Incr Delay (d2), s/veh	69.9	0.0	47.4	23.8	50.5	0.8	5.6	35.0	0.5	13.7	13.8	12.7
Initial Q Delay(d3),s/veh	38.9	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	318.0	298.8
%ile BackOfQ(95%),veh	/ln22.6	0.0	23.4	12.2	16.4	3.3	3.6	39.6	4.0	6.0	100.1	99.9
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	159.3	0.0	156.2	74.6	102.3	47.8	60.9	68.4	20.6	67.3	363.6	343.4
LnGrp LOS	F	Α	F	Е	F	D	Е	F	С	Е	F	F
Approach Vol, veh/h		608			532			1869			1493	
Approach Delay, s/veh		157.7			84.4			64.9			334.5	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s14.8	58.2		22.0	11.8	61.2		25.0				
Change Period (Y+Rc),		6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		52.0		15.0	8.0	53.0		18.0				
Max Q Clear Time (g_c+	,,	55.7		18.1	6.5	47.4		21.5				
Green Ext Time (p_c), s		0.0		0.0	0.0	4.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			169.1									
HCM 6th LOS			F									
Notes												
User approved pedestria	n inter	val to be	e less th	an pha	se max	green.						

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßy ው**ድሎል **6**enario 2A\W

User approved volume balancing among the lanes for turning movement.

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	A		ሻ	<u></u>	7		^	7		^	7
Traffic Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3223	1810	0	1693	1901	1616	0	3256	1616	0	3370	1709
Flt Permitted	0.950			0.627								
Satd. Flow (perm)	3223	1810	0	1117	1901	1616	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	360	146	63	61	45	67	0	1977	77	0	1907	390
Shared Lane Traffic (%)												
Lane Group Flow (vph)	360	209	0	61	45	67	0	1977	77	0	1907	390
Number of Detectors	1	1		1	1	1		5	1		5	1
Detector Template						Right		-	Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	69		40	69	40		40	40		40	40
Detector 1 Type	CI+Ex				CI+Ex				CI+Ex			CI+Ex
Detector 1 Channel	0 <u>-</u> x	0 <u>_</u>		0 <u>L</u> X	0 <u></u>	01.12X		0 <u>L</u> X	0 <u>L</u> x		0 <u></u> X	0 <u>_</u>
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)	0.0	0.0		0.0	0.0	0.0		113	0.0		113	0.0
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel								OITEX			OITEX	
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			CI+Ex	
Detector 3 Channel								OIILX			OIILX	
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								CI+Ex			CI+Ex	
Detector 4 Type								CITEX			CITEX	

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8yው።ነ**ል **6**enario 2A\W

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								CI+Ex			CI+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	20.0	45.0		25.0	25.0	25.0		75.0	75.0		75.0	75.0
Total Split (%)	16.7%		2		20.8%				62.5%			62.5%
Maximum Green (s)	14.0	37.0		17.0	17.0	17.0		68.0	68.0		68.0	68.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	0.0		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	3.0	5.0		5.0	5.0	8.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max
Intersection Summary												
Area Type: (Other											

Cycle Length: 120

Actuated Cycle Length: 120

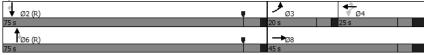
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 90

Control Type: Actuated-Coordinated

Description: Signal

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



Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8yDetw\6enario 2A\W McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Afternoon Peak Hour

Robinson Tract

EBL **NBT** SBT Movement Lane Configurations Traffic Volume (veh/h) 349 142 59 1918 75 1850 378 65 Future Volume (veh/h) 349 142 61 59 44 65 0 1918 75 0 1850 378 Initial Q (Qb), veh 0 0 0 0 0 0 0 0 0 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 1958 2066 2066 1849 1849 1722 1849 1869 1944 Adj Sat Flow, veh/h/ln Adj Flow Rate, veh/h 360 146 63 61 45 67 0 1977 77 0 1907 390 Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97 Percent Heavy Veh, % 0 0 0 0 0 0 3 510 362 156 176 182 115 0 2134 1022 0 2317 Cap, veh/h 1075 Arrive On Green 0.26 0.27 0.10 0.07 0.65 0.65 0.65 0.14 0.10 0.00 0.00 0.65 Sat Flow, veh/h 3617 1369 591 1177 1849 1567 0 3357 1567 0 3645 1647 Grp Volume(v), veh/h 360 0 209 61 45 67 0 1977 77 0 1907 390 1567 1635 1776 1647 Grp Sat Flow(s), veh/h/ln 1809 0 1959 1177 1849 0 1567 0 Q Serve(g_s), s 11.4 0.0 10.5 5.9 2.7 5.0 0.0 63.7 2.2 0.0 48.4 12.9 Cycle Q Clear(g_c), s 11.4 12.9 0.0 10.5 5.9 2.7 5.0 0.0 2.2 0.0 Prop In Lane 1.00 0.30 1.00 1.00 0.00 1.00 0.00 1.00 Lane Grp Cap(c), veh/h 510 518 176 115 1022 0 1075 182 0 2134 2317 V/C Ratio(X) 0.71 0.00 0.40 0.35 0.25 0.58 0.00 0.93 0.08 0.00 0.82 0.36 Avail Cap(c_a), veh/h 512 0 653 256 308 222 0 2134 1022 0 2317 1075 **HCM Platoon Ratio** 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Upstream Filter(I) 1.00 0.00 1.00 1.00 1.00 1.00 0.00 1.00 1.00 0.00 1.00 1.00 Uniform Delay (d), s/veh 49.2 0.0 36.2 51.4 50.0 53.8 0.0 18.3 7.6 0.0 15.7 9.5 Incr Delay (d2), s/veh 4.6 4.4 0.0 0.5 1.2 0.7 0.0 8.5 0.1 0.0 3.5 1.0 Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 %ile BackOfQ(95%),veh/ln 9.3 0.0 8.9 3.3 2.3 3.8 0.0 30.4 0.0 24.6 Unsig. Movement Delay, s/veh LnGrp Delay(d),s/veh 53.6 36.7 52.6 50.7 58.4 0.0 26.8 0.0 19.1 10.5 0.0 LnGrp LOS D Α D D D Α С Α В Approach Vol, veh/h 569 173 2054 2297 Approach Delay, s/veh 47.4 54.4 26.1 17.7 Approach LOS D D С Timer - Assigned Phs Phs Duration (G+Y+Rc), s 83.3 19.9 83.3 36.7 16.8 Change Period (Y+Rc), s 6.0 8.0 7.0 8.0 7.0 Max Green Setting (Gmax), s 68.0 14.0 17.0 68.0 37.0 Max Q Clear Time (g_c+l1), s 50.9 13 9 8 4 66.2 12.5 Green Ext Time (p_c), s 0.0 1.8 1.0 17.1 0.4 Intersection Summary HCM 6th Ctrl Delay 25.6 HCM 6th LOS

HCM 6th Signalized Intersection Summary

2025 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8yDctn\6enario 2A\W

С

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

110 1492

372

Lane Group EBR Lane Configurations Traffic Volume (vph) 56 50 1925 108 1462 365 Future Volume (vph) 0 56 0 0 42 50 1925 60 108 1462 365 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 Lane Width (ft) 16 16 16 12 12 12 11 12 12 11 12 12 Grade (%) -3% Storage Length (ft) 0 0 350 0 380 325 Storage Lanes 0 0 Taper Length (ft) 25 25 25 25 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.95 0.95 1.00 0.95 1.00 Frt 0.865 0.865 0.995 0.850 Flt Protected 0.950 0.950 Satd. Flow (prot) 0 0 1773 0 1573 1636 3243 0 1678 3370 1538 0 Flt Permitted 0.950 0.950 Satd. Flow (perm) 1773 3243 0 1678 3370 1538 0 0 0 0 1573 1636 Link Speed (mph) 45 45 35 35 553 858 3154 1356 Link Distance (ft) Travel Time (s) 10.8 16.7 47.8 20.5 Peak Hour Factor 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 Heavy Vehicles (%) 0% 0% 0% 0% 0% 4% 0% 3% 1% Adj. Flow (vph) 1964 110 1492 372 0 0 57 0 0 43 51 61

0 43

Stop

51 2025

Free

Intersection Summary
Area Type: Other

Shared Lane Traffic (%) Lane Group Flow (vph)

Sign Control

0 57

Stop

Control Type: Unsignalized

Lanes, Volumes, Timings

2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi\\$\particle{\text{DurMs}\end{\text{\eng}}\end{\text{\text{Revised TIS\Synchro\3}} - 2025 wi\\$\particle{\text{\text{\text{\text{\eng}}}\text{\tex

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Movement I	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	;		7			7	ሻ	↑ ↑		ሻ	^	7	
Traffic Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365	
Future Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365	
Conflicting Peds, #/h	nr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control S	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325	
Veh in Median Stora	age,#	ŧ 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1	
Mymt Flow	0	0	57	0	0	43	51	1964	61	110	1492	372	
	_												
Major/Minor Mir	nor2			1inor1			loior4		N./	nior?			
Major/Minor Mir Conflicting Flow All	1012	-	746	- 10011		1013	lajor1	0		ajor2 2025	0	0	
Stage 1	-		740	-	-	1013	1004	-	-	2025	0	-	
Stage 2	-	-		-	-	_	-		-	-	-	-	
				-	-	7.2	2.0	-	-	2.0			
Critical Hdwy	-	-	7.1		-	1.2	3.9		-	3.9	-	-	
Critical Hdwy Stg 1	-			-	-	-	-	-	-	-	-		
Critical Hdwy Stg 2		-	-	-	-	-	-	-	-	-	-	-	
Follow-up Hdwy	-	-	2.9	-	-	_	2.4	-	-	2.4	-	-	
Pot Cap-1 Maneuve		0	*561	0	0		468	-	-	*397	-	-	
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-	
Stage 2	0	0	-	0	0		-	-	-	-	-	-	
Platoon blocked, %			1			1	1	-	-	1	-	-	
Mov Cap-1 Maneuv		-	*561	-	-	*317	468	-	-	*397	-	-	
Mov Cap-2 Maneuv	er -	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay;	18.1			18.1			0.3			1			
HCM LOS	В			С									
Minor Lane/Major M	vmt	NIRI	NIRT	NBRE	RI nW	/RIn1	SBL	SBT	SBR				
Capacity (veh/h)	VIIIL	468	IND I				* 397	<u> </u>	ODK -				
Capacity (ven/n) HCM Lane V/C Rati		468	-			0.135		-	-				
		13.6	-					-	-				
HCM Control Delay	(5)		-	-	12.1 B	18.1		-	-				
HCM Lane LOS	- 1- \	В	-	-	_	C	C	-					
HCM 95th %tile Q(v	en)	0.4	-	-	0.3	0.5	1.1	-	-				
Notes													

HCM 6th TWSC 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**\\$\partition{8}**\end{alignment}

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

5: Church Access & Pleasant Grove Rd

	-	•	•	•			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	î,			ર્ન	J.	7	
Traffic Volume (vph)	52	0	5	410	1	4	
Future Volume (vph)	52	0	5	410	1	4	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	11	10	
Grade (%)	4%			-4%	2%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt						0.850	
Flt Protected				0.999	0.950		
Satd. Flow (prot)	1705	0	0	1756	1636	1414	
Flt Permitted				0.999	0.950		
Satd. Flow (perm)	1705	0	0	1756	1636	1414	
Link Speed (mph)	35			35	35		
Link Distance (ft)	85			553	359		
Travel Time (s)	1.7			10.8	7.0		
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%	
Adj. Flow (vph)	69	0	7	547	1	5	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	69	0	0	554	1	5	
Sign Control	Free			Free	Stop		

Intersection Summary
Area Type: Othe
Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8yDeh\66enario 2A\W

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection							
Int Delay, s/veh	0.2						
Movement	EBT	EBR	WBL	WBT	NBL	NBR	Į
Lane Configuration:				4	ኘ	7	1
Traffic Vol. veh/h	52		5	410	1	4	
Future Vol. veh/h	52			410	1	4	
Conflicting Peds, #/		0	0	0	0	0	
		Free	_	_	_	•	
RT Channelized		None		None		None	
Storage Length					0	0	
Veh in Median Stor				0	0	-	
	agey				2	-	
Grade, %	75			-4 75	75		
Peak Hour Factor						75	
Heavy Vehicles, %			-	1	0	0	
Mvmt Flow	69	0	7	547	1	5	
Major/Minor Ma	ajor1	N	1ajor2	N	linor1		į
Conflicting Flow All				0		69	
Stage 1	-			-	69	- 69	
Stage 2	-			-		-	
Critical Hdwy	-			-	6.8	6.4	
Critical Hdwy Stg 1		-		-	0.0	-	
Critical Hdwy Stg 2		-	-	-	5.8	-	
Follow-up Hdwy	-		_	-	3	3.1	
Pot Cap-1 Maneuve	er -	-	1137	-		1058	
Stage 1	-	-	-	-	1105	-	
Stage 2	-	-	-	-	608	-	
Platoon blocked, %	, -	-		-			
Mov Cap-1 Maneuv		-	1137	-	465	1058	
Mov Cap-2 Maneuv			-	-		-	
Stage 1	-		_		1105	_	
Stage 2	-					-	
Stage 2					003		
Approach	EB		WB		NB		
HCM Control Delay	/, s 0		0.1		9.3		
HCM LOS	,				Α		
						1115	
Minor Lane/Major N	/Ivm i N			EBT			ĺ
Capacity (veh/h)		465	1058	-	-	1137	
HCM Lane V/C Rat	tio	0.003	0.005	-	-	0.006	
HCM Control Delay	/ (s)	12.8	8.4	-	-	8.2	
HCM Lane LOS	` '	В	Α	-	-	Α	
HCM 95th %tile Q(v	veh)	0		-	-	0	
	/		0			- 0	

HCM 6th TWSC 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ enario 2A\W

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

6: Pleasant Grove Rd & Orvis Way

Lane Group EBL EBT WBT WBR SBL SBR Lane Configurations ↓
Traffic Volume (vph) 191 36 390 21 20 235 Future Volume (vph) 191 36 390 21 20 235 Ideal Flow (vphpl) 1800
Future Volume (vph) 191 36 390 21 20 235 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Grade (%) 4% -3% 0% Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 Frt 0.993 0.875 0.875 0.875 0.875 0.875
Ideal Flow (vphpl) 1800
Grade (%) 4% -3% 0% Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Frt 0.993 0.875
Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Frt 0.993 0.875
Frt 0.993 0.875
Flt Protected 0.960 0.996
1 11 10100104
Satd. Flow (prot) 0 1665 1795 0 1538 0
Flt Permitted 0.960 0.996
Satd. Flow (perm) 0 1665 1795 0 1538 0
Link Speed (mph) 35 35 25
Link Distance (ft) 300 85 315
Travel Time (s) 5.8 1.7 8.6
Peak Hour Factor 0.90 0.90 0.90 0.90 0.90 0.90
Heavy Vehicles (%) 2% 0% 1% 2% 2% 2%
Adj. Flow (vph) 212 40 433 23 22 261
Shared Lane Traffic (%)
Lane Group Flow (vph) 0 252 456 0 283 0
Sign Control Free Free Stop

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Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection Int Delay, s/veh Movement Lane Configurat Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelizec Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	tions h h s, #/l d Stora	s 191 191 /hr 0 Free - N - age, #	36 36 0 Free None - # 0 4	390 390 0 Free	21 21	20 20 20 0	SBR 235 235 0
Movement Lane Configural Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelizec Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	tions h h s, #/l d Stora	EBL s 191 191 /hr 0 Free - N - age, #	36 36 0 Free None - # 0 4	390 390 0 Free	21 21 0 Free	20 20 20 0	235 235
Lane Configural Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelizec Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mymt Flow Major/Minor	tions th th s, #/l d Stora	s 191 191 /hr 0 Free - N - age, #	36 36 0 Free None - # 0 4	390 390 0 Free	21 21 0 Free	20 20 20 0	235 235
Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mymt Flow	h h s, #/l d Stora	191 191 /hr 0 Free - N - age, # - 90 2	36 36 0 Free None - # 0 4	390 390 0 Free	21 21 0 Free	20 20 0	235
Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	/h s, #/l d Stora	191 /hr 0 Free - N - age, # - 90 2	36 36 0 Free None - # 0 4	390 390 0 Free	21 21 0 Free	20	235
Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	/h s, #/l d Stora	hr 0 Free - N - age, # - 90 2	0 Free None - # 0 4	0 Free -	0 Free	0	
Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	d Stora	Free - N - age, # - 90 2	Free None - # 0 4	Free - -	Free		0
Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	d Stora	Free - N - age, # - 90 2	None - # 0 4	-		Stop	
RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	d Stora	- N - age, # - 90 2	None - # 0 4	-			Stop
Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	Stora	- age, # - 90 2	# 0 4	-			None
Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	Stora or	90	4	_			-
Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor	or	90	4	0			-
Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor		2				-	
Heavy Vehicles Mvmt Flow Major/Minor		2	90	90			90
Mvmt Flow Major/Minor	, ,,		0	1			2
Major/Minor		212	40	433		22	
			40	433	23	22	201
	Ma	ajor1	M	lajor2	M	linor2	
Conflicting Flow	All	456	0	-	0	909	445
Stage 1		-	-	-	-	445	-
Stage 2		-	-	-	-	464	-
Critical Hdwy		4.3	-	-	-	6.42	6.22
Critical Hdwy St	tq 1	-	-	-	-	5.42	-
Critical Hdwy St		-	-	-		5.42	-
Follow-up Hdwy		3	-	-		-	
Pot Cap-1 Mane			-	-	-	338	
Stage 1		-	-	-			-
Stage 2		_	-	-			_
Platoon blocked	1 %		_			, 20	
Mov Cap-1 Man			-	-		250	648
Mov Cap-1 Man			-	-			040
	ieuv	/er -		-			-
Stage 1			-				
Stage 2		-	-	-	-	720	-
Approach		EB		WB		SB	
HCM Control De	elav	9.1		0		17.1	
HCM LOS	ciuy,	,		- 0		C	
						J	
				EBT	WBT	WBRS	BLn1
Minor Lane/Maj	or M	1vmt			_	-	576
Minor Lane/Maj Capacity (veh/h		1vmt	837	-	-		
)		837).254	-			0.492
Capacity (veh/h HCM Lane V/C) Rati	io 0			-	-1	0.492 17.1
Capacity (veh/h) Rati elay	io 0).254	-	-		
Capacity (veh/h HCM Lane V/C HCM Control De) Rati elay	io 0 '(s)).254 10.8	0	- - -		17.1 C

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ eenario 2A\W

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2025 with Dev Weekday Afternoon Peak Hour

	\rightarrow	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			↑	¥	
Traffic Volume (vph)	223	0	0	625	0	0
Future Volume (vph)	223	0	0	625	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	228			300	323	
Travel Time (s)	4.4			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	297	0	0	833	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	0	0	833	0	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

7: Church Egress Access & Pleasant Grove Rd

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configuration				^	¥	
Traffic Vol, veh/h	223	0	0	625	0	0
Future Vol. veh/h	223	0	0	625	0	0
Conflicting Peds, #	/hr 0	0	0	0	0	0
		Free	Free	Free	Stop	Stop
RT Channelized		None		None		None
Storage Length	-	-	-	-	0	-
Veh in Median Stor	rage0:	# -	-	0	0	-
Grade, %	3		-	-3	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mymt Flow	297	0	0	833	0	0
Major/Minor M	ajor1	N.	lajor2	N/	linor1	
Conflicting Flow All		- 10	-		1130	297
Stage 1	-	-	-	-		291
Stage 2	-	-	-	-		
Critical Hdwy	-		-	-	6	
Critical Hdwy Stg 1			-	-	5	
Critical Hdwy Stg 2		-	-	-	5	-
Follow-up Hdwy	-				-	
Pot Cap-1 Maneuv		0	0	-	-	
Stage 1	ei - -	0	0	-		002
	-	0	0	-		-
Stage 2		U	U		0_0	-
Platoon blocked, %				-		000
Mov Cap-1 Maneu		-	-	-	282	
Mov Cap-2 Maneu		-		-		
Stage 1	-	-	-	-		
Stage 2	-	-	-	-	523	-
Approach	EB		WB		NB	
HCM Control Delay	/, s 0		0		0	
HCM LOS	,				A	
Minar Lana/Majar N	A. 100 A.	DI n1	ГРТ	WDT		
Minor Lane/Major N	vivmin					
Capacity (veh/h)		-	-	-		
HCM Lane V/C Ra		-	-	-		
HCM Control Delay	/ (S)	0	-	-		
HCM Lane LOS		Α	-	-		
HCM 95th %tile Q(veh)	-	-	-		

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

HCM 6th TWSC
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8yoeth**&**e**enario 2A\W

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	→	•	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	₽			ર્ન	¥	
Traffic Volume (vph)	65	4	410	215	3	158
Future Volume (vph)	65	4	410	215	3	158
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.868	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1530	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1530	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	547	287	4	211
Shared Lane Traffic (%)						
Lane Group Flow (vph)	92	0	0	834	215	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Control Type: Unsignalized

McMahon Associates, Inc. 8: Collector Road & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	7.5					
Movement	EBT	FBR	WBI	WBT	NBI	NBR
Lane Configuration			TUL	4	¥	.1011
Traffic Vol, veh/h	113 pp 65	4	410	215	3	158
Future Vol, veh/h	65	4			3	158
Conflicting Peds,		0	0	0	0	0
Sign Control		Free				
RT Channelized		None		None		None
Storage Length	_			-	0	-
Veh in Median Sto				0	0	_
Grade. %	3		_	-	0	_
Peak Hour Factor		75	75	75	75	75
Heavy Vehicles, %		2	2	1	2	2
Mymt Flow	87	5	547	287	4	
IVIVIIIL I IOW	01	J	341	201	4	211
	/lajor1		lajor2		linor1	
Conflicting Flow A	II O	0	92		1471	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-		1381	-
Critical Hdwy	-	-	4.3	-	6.42	6.22
Critical Hdwy Stg		-	-		5.42	-
Critical Hdwy Stg:	2 -	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneu	ver -	-	1117	-	151	1033
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	253	-
Platoon blocked.	% -	-		-		
Mov Cap-1 Maneu	ıver -	-	1117	-	63	1033
Mov Cap-2 Maneu		-	-	-	63	-
Stage 1	-	-	-	-	1088	-
Stage 2			-		106	
Olago Z					100	
Approach	EB		WB		NB	
HCM Control Dela	y, s 0		7.4		11.1	
HCM LOS					В	
Minor Lane/Major	MvmN	IBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)		803	-		1117	
	atio	0.267	-		0.489	-
HCM Lane V/C Ra					11.3	0
HCM Control Dela	v (s)	111				
HCM Control Dela	ıy (s)	11.1 B	-	-		-
	, , ,	11.1 B		-	11.3 B 2.8	A

HCM 6th TWSC
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8yoeth**&**e**enario 2A\W

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	-	•	•	•	1		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	֔			र्स	¥		
Traffic Volume (vph)	73	2	14	229	1	9	
Future Volume (vph)	73	2	14	229	1	9	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	12	12	
Grade (%)	6%			-3%	0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.996				0.875		
Flt Protected				0.997	0.996		
Satd. Flow (prot)	1680	0	0	1742	1538	0	
Flt Permitted				0.997	0.996		
Satd. Flow (perm)	1680	0	0	1742	1538	0	
Link Speed (mph)	35			35	25		
Link Distance (ft)	787			1811	415		
Travel Time (s)	15.3			35.3	11.3		
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%	
Adj. Flow (vph)	97	3	19	305	1	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	100	0	0	324	13	0	
Sign Control	Free			Free	Stop		

Intersection Summary Area Type: Control Type: Unsignalized

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection						
Intersection	0.0					
Int Delay, s/veh	0.6					
Movement		EBR	WBL			NBR
Lane Configuration				ર્ન	¥	
Traffic Vol, veh/h	73	=			1	9
Future Vol, veh/h		_				9
Conflicting Peds,						0
Sign Control		Free				
RT Channelized		None	-	None	-	None
Storage Length			-	-	0	-
Veh in Median Sto	orageQ	# -	-	0	0	-
Grade, %	6		-	-3	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, 9	% O	2	2	1	2	2
Mymt Flow	97		19	305	1	12
	- 31			000		
	Major1		/lajor2		1inor1	
Conflicting Flow A			100		442	
Stage 1		-	-	-	- 00	-
Stage 2	-	-	-	-	343	-
Critical Hdwy			4.12	-	6.42	6.22
Critical Hdwy Stg	1 -		-	-	5.42	-
Critical Hdwy Stg	2 -	-	-	-	5.42	-
Follow-up Hdwy		-	2.218		3.518	3.318
Pot Cap-1 Maneu	ver -	-	1493	-	573	957
Stage 1			-	-	925	-
Stage 2			-	-	719	-
Platoon blocked.	% -			-		
Mov Cap-1 Mane			1493		564	957
Mov Cap-2 Mane			-			
Stage 1	uvci -		_		925	
Stage 2			-			
Stage 2		_		_	100	
Approach	EB		WB		NB	
HCM Control Dela	ay, s 0)	0.4		9.1	
HCM LOS	•				Α	
		IDI 1		EDE	14/D:	WDT
Minor Lane/Major	ivivm					
Capacity (veh/h)		895			1493	-
HCM Lane V/C R		0.015			0.013	
HCM Control Dela	ay (s)	9.1		-		0
HCM Lane LOS		Α	-	-	Α	Α
HCM 95th %tile C	(veh)	0	-	-	0	-

HCM 6th TWSC 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ enario 2A\W

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2025 with Dev Weekday Afternoon Peak Hour

	۶	-	•	•	•	•	1	†	~	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	3	68	13	10	209	11	7	0	6	1	0	2
Future Volume (vph)	3	68	13	10	209	11	7	0	6	1	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.993			0.936			0.899	
Flt Protected		0.998			0.998			0.974			0.988	
Satd. Flow (prot)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Flt Permitted		0.998			0.998			0.974			0.988	
Satd. Flow (perm)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		591			787			452			385	
Travel Time (s)		11.5			15.3			12.3			10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	2%	2%	1%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	4	91	17	13	279	15	9	0	8	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	112	0	0	307	0	0	17	0	0	4	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2025 with Dev Weekday Afternoon Peak Hour

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	ns	4			4			4			4	
Traffic Vol, veh/h	3	68	13	10	209	11	7	0	6	1	0	2
Future Vol, veh/h	3	68	13	10	209	11	7	0	6	1	0	2
Conflicting Peds, #	#/hr 0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Sto	rage, #	# 0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	6 0	0	2	2	1	0	2	2	2	0	2	0
Mvmt Flow	4	91	17	13	279	15	9	0	8	1	0	3
Majar/Minar M	laiar1		N.	laiara		D.	linor1		N.	linor2		
	1ajor1			lajor2				100			100	
Conflicting Flow Al	11 294	0	0	108	0	0	422	428	100	425	429	287
Stage 1	-	-	-	•	-	-	108	108	-	313	313	-
Stage 2	-	-	-	-	-	-	314	320	-	112	116	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.3
Critical Hdwy Stg 1		-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2		-	-	-	-	-		5.52		6.3		-
Follow-up Hdwy	3	-	-	3	-	-		4.018	3.1		4.018	3.1
Pot Cap-1 Maneuv	/e952	-	-	1103	-	-	618		1020	602	506	793
Stage 1	-	-	-	-	-	-	1044	806	-	788	646	-
Stage 2	-	-	-	-	-	-	800	652	-	1033	794	-
Platoon blocked, %	6	-	-		-	-						
Mov Cap-1 Maneu	ıv ⊕ 52	-	-	1103	-	-	607		1020	589	497	793
Mov Cap-2 Maneu	ıver -	-	-	-	-	-	607	510	-	589	497	-
Stage 1	-	-	-	-	-	-	1040	803	-	785	637	-

Minor Lane/Major Mvml	NBLn1	EBL	EBT	EBR \	WBL	WBT	WBRS	BLn1
Capacity (veh/h)	747	952	-	- 1	1103	-	-	711
HCM Lane V/C Ratio	0.023	0.004	-	-0	.012	-	- (0.006
HCM Control Delay (s)	9.9	8.8	0	-	8.3	0	-	10.1
HCM Lane LOS	Α	Α	Α	-	Α	Α	-	В
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

- 786 643

9.9

- 1021 791

10.1

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

Stage 2

Approach EB
HCM Control Delay, §.3
HCM LOS

HCM 6th TWSC 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y\beta\66**enario 2A\W

11: New Street & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

•	_	T		-	¥	
WBL	WBR	NBT	NBR	SBL	SBT	
¥		1>			4	
163	54	148	56	29	173	
163	54	148	56	29	173	
1800	1800	1800	1800	1800	1800	
1.00	1.00	1.00	1.00	1.00	1.00	
0.966		0.963				
	0	1721	0	0		
	0		0	0		
35		35			35	
591		636			619	
11.5		12.4			12.1	
0.89	0.89	0.89	0.89	0.89	0.89	
1%	2%	1%	0%	0%	2%	
183	61	166	63	33	194	
244	0	229	0	0	227	
Stop		Free			Free	
Other						
zed						
	163 163 1800 1.00 0.966 0.964 1656 0.964 1656 35 591 11.5 0.89 1% 183	163 54 1800 1800 1.00 0.966 0.964 1656 0 0.964 1656 0 35 591 11.5 0.89 0.89 1% 2% 183 61 244 0 Stop	163 54 148 163 54 148 1800 1800 1800 1.00 1.00 1.00 0.966 0.963 0.964 1656 0 1721 0.964 1656 0 1721 35 35 591 636 11.5 12.4 0.89 0.89 0.89 1% 2% 1% 183 61 166 244 0 229 Stop Free	163 54 148 56 163 54 148 56 1800 1800 1800 1800 1.00 1.00 1.00 1.00 0.966 0.963 0.964 1656 0 1721 0 0.964 1656 0 1721 0 35 35 591 636 11.5 12.4 0.89 0.89 0.89 0.89 1% 2% 1% 0% 183 61 166 63 244 0 229 0 Stop Free	163 54 148 56 29 1800 1800 1800 1800 1800 1.00 1.00 1.00 1.00 1.00 0.966 0.963 0.964 1656 0 1721 0 0 0.964 1656 0 1721 0 0 35 35 591 636 11.5 12.4 0.89 0.89 0.89 0.89 1% 2% 1% 0% 0% 183 61 166 63 33 244 0 229 0 0 Stop Free	163 54 148 56 29 173 1800 1800 1800 1800 1800 1800 1.00 1.00 1.00 1.00 1.00 1.00 0.966 0.963 0.964 0.963 0.964 0.993 1656 0 1721 0 0 1757 0.964 0.993 1656 0 1721 0 0 1757 35 35 35 35 591 636 619 11.5 12.4 12.1 0.89 0.89 0.89 0.89 0.89 1% 2% 1% 0% 0% 2% 183 61 166 63 33 194 244 0 229 0 0 227 Stop Free Enter

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	5.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configuration			1>			4
Traffic Vol, veh/h	163	54	148	56	29	173
Future Vol. veh/h	163	54	148	56	29	173
Conflicting Peds, #		0	0	0	0	0
Sign Control				Free		_
RT Channelized		None		None		None
Storage Length	0	-	-			
Veh in Median Sto	-	# -	0	_	-	0
Grade, %	0		0			0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %			1	0	0	
	183	61	166	63	33	
Mvmt Flow	183	6.1	100	63	33	194
Major/Minor N	/linor1	N	1ajor1	M	lajor2	
Conflicting Flow A	II 458	198	0	0	229	0
Stage 1	198	-	-	-	-	-
Stage 2	260	-	-	-	-	-
Critical Hdwy	6.41	6.22	-	-	4.3	-
Critical Hdwy Stg	15.41	-	-	-	-	-
Critical Hdwy Stg		-	-	-	-	-
Follow-up Hdwy	3	3.1			3	-
Pot Cap-1 Maneuv		897	-	-	1003	-
Stage 1	967	-	-		-	-
Stage 2	903		_	_	-	_
Platoon blocked. 9						_
		907	-		1002	
Mov Cap-1 Maneu				-	1003	-
Mov Cap-2 Maneu		-	-	-	-	-
Stage 1	967	-	-	-	-	-
Stage 2	870	-	-	-	-	-
Approach	WB		NB		SB	
HCM Control Dela	v18.5		0		1.3	
HCM LOS	,,. 		Ū			
TIOM LOO						
Minor Lane/Major	Mvmt	NBT	NBRV			SBT
Capacity (veh/h)		-	-	667	1003	-
HCM Lane V/C Ra	atio	-	- 1	0.366	0.032	-
HCM Control Dela	ıy (s)	-	-	13.5	8.7	0
HCM Lane LOS		-	-	В	Α	Α
HCM 95th %tile Q	(veh)	-	-	1.7	0.1	-
	. ,					

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

HCM 6th TWSC 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ enario 2A\W



1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (vph)	83	645	5	12	383	37	9	103	43	8	130	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.988			0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1550	0	0	1587	0	0	1530	0
Flt Permitted		0.902			0.979			0.925			0.991	
Satd. Flow (perm)	0	1474	0	0	1519	0	0	1472	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			13							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	86	665	5	12	395	38	9	106	44	8	134	158
Shared Lane Traffic (%))											
Lane Group Flow (vph)	0	756	0	0	445	0	0	159	0	0	300	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
	76.7%			76.7%			23.3%			23.3%		
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2926:\width@Re\806denario 2A\W

McMahon Associates, Inc. 1: New St & Rt 926

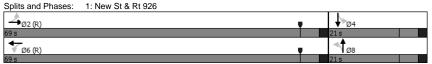
Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Lane Group WBT WBR NBT Total Lost Time (s) 5.0 Lead/Lag
Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 C-Max C-Max Recall Mode C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 90 Actuated Cycle Length: 90

Control Type: Actuated-Coordinated

Natural Cycle: 60

Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow



Lanes, Volumes, Timings

2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2926\widhBre\806\end{analysis}

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

1. New 3t & Rt 920					_	_				, wom	1	/
		→	•	•	_	_	1	T		-	¥	*
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			ቆ			4	
Traffic Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
Future Volume (veh/h)	83	645	5	12	383	37	9	103	43	8	130	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	86	665	5	12	395	38	9	106	44	8	134	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	149	1089	8	52	1062	100	50	221	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	147	1531	11	16	1493	141	42	1244	492	17	755	860
Grp Volume(v), veh/h	756	0	0	445	0	0	159	0	0	300	0	0
Grp Sat Flow(s), veh/h/ln	1690	0	0	1650	0	0	1778	0	0	1632	0	0
Q Serve(g_s), s	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	19.8	0.0	0.0	2.1	0.0	0.0	7.4	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		0.09	0.06		0.28	0.03		0.53
Lane Grp Cap(c), veh/h	1227	0	0	1196	0	0	339	0	0	313	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.37	0.00	0.00	0.47	0.00	0.00	0.96	0.00	0.00
Avail Cap(c_a), veh/h	1227	0	0	1196	0	0	339	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.5	0.0	0.0	0.8	0.0	0.0	33.6	0.0	0.0	37.5	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.9	0.0	0.0	1.0	0.0	0.0	39.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	0.0	1.2	0.0	0.0	5.9	0.0	0.0	15.2	0.0	0.0
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	8.9	0.0	0.0	1.7	0.0	0.0	34.6	0.0	0.0	77.2	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	E	Α	Α
Approach Vol, veh/h		756			445			159			300	
Approach Delay, s/veh		8.9			1.7			34.6			77.2	
Approach LOS		Α			Α			С			Е	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	S	69.0		21.0		69.0		21.0				
Change Period (Y+Rc),	s	6.0		6.0		6.0		6.0				
Max Green Setting (Gma	ax), s	63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+	·I1), s	21.8		17.0		4.1		9.4				
Green Ext Time (p_c), s		7.5		0.0		3.5		0.2				
Int												
Intersection Summary												
HCM 6th Ctrl Delay	_	_	21.7			_	_	_	_	_		

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2026withBPec6denario 2A\W



McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		Ĭ	↑ }	
Traffic Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Future Volume (vph)	0	0	43	0	0	34	32	2086	70	53	1733	258
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.981	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	45	0	0	35	33	2173	73	55	1805	269
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	45	0	0	35	33	2246	0	55	2074	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\3 - 2026\with BPap\6denario 2A\W

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Morning Peak Hour

Int Delay, s/veh	0.7												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configuration			7			7	Ĭ	↑ ↑		٦	^ }		
Traffic Vol, veh/h	0	0	43		0			2086			1733		
Future Vol, veh/h	0	0	43	0	0	34	32	2086	70	53	1733	258	
Conflicting Peds, #		0	0	0	0			0		0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-	
Veh in Median Sto	rage,	# 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3	
Mvmt Flow	0	0	45	0	0	35	33	2173	73	55	1805	269	
Major/Minor M	linor2		, N	1inor1		, N	1ajor1		M	lajor2			
Conflicting Flow Al		_	1037	-	-	1123		0		2246	0	0	
Stage 1	-	-	-	-	-	- 1120		-	-		-	-	
Stage 2	-	-			-	_			-		-	-	
Critical Hdwy		_	7.2		-	7.3	4.1	_	_	4	_	_	
Critical Hdwy Stg 1		_	1.2			-				-			
Critical Hdwy Stg 2			_		_	_	_	_	_		_	_	
Follow-up Hdwy	-	_	2.9	_	_	3.1	2.5	_		2.4			
Pot Cap-1 Maneuv			*415	0		*225		_		*291	_	_	
Stage 1	0	0		-	_			_		201	_	_	
Stage 2	0	0		-			_	_	_	_	_	_	
Platoon blocked. %	_	U	1	U	U	1	1			1			
Mov Cap-1 Maneu			*415	_	_	*225	399	_		*291			
Mov Cap-1 Maneu Mov Cap-2 Maneu		_	413	_	_	223	333	_	_	231	_	_	
Stage 1	vei -		_	-	_	_	_	_	_	-		_	
Stage 2		_							_				
Stage 2													
Approach	EB			WB			NB			SB			
HCM Control Dela				24			0.2			0.5			
HCM LOS	В			С									
Minor Lane/Major I	Mvmt					/BLn1		SBT					
Capacity (veh/h)		399	-			225		-	-				
HCM Lane V/C Ra		0.084				0.157		-	-				
HCM Control Dela	y (s)	14.8	-	-	14.7			-	-				
HCM Lane LOS		В	-	-	В	-	С	-	-				
HCM 95th %tile Q((veh)	0.3	-	-	0.4	0.5	0.7	-	-				
Notes													

HCM 6th TWSC
2025 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\3 - 20/26/withBDeah8denario 2A\W

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract

2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	†	7	*	1			^	7		^	7
Traffic Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Future Volume (vph)	240	149	34	86	138	61	0	2040	56	0	1957	307
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%		- '-	2%			-3%	10
Storage Length (ft)	200	070	200	350	270	0	0	270	220	0	070	200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75		•	100		U	75		•	75		•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.850	1.00	0.954	1.00	1.00	0.55	0.850	1.00	0.55	0.850
Flt Protected	0.950		0.000	0.950	0.554				0.000			0.000
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.520	1703	1434	0.619	1007	U	U	3223	1010	U	3214	1070
Satd. Flow (perm)	875	1765	1434	1061	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red	6/3	1700	No	1001	1007	No	U	3223	No	U	3214	No
			INO			INO			INO			INO
Satd. Flow (RTOR)		0.5			05			45			45	
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)	0.05	17.4	0.05	0.05	15.3	0.05	0.05	20.5	0.05	0.05	14.2	0.05
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	253	157	36	91	145	64	0	2147	59	0	2060	323
Shared Lane Traffic (%												
Lane Group Flow (vph)		157	36	91	209	0	0	2147	59	0	2060	323
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel												
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		CI+Ex			CI+Ex							

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 29\26\withBree\BeakBenario 2A\W

McMahon Associates, Inc.

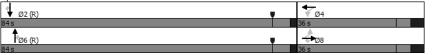
Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL SBT	SBR
Detector 4 Channel											
Detector 4 Extend (s)		0.0			0.0						
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm	NA.	Perm
Protected Phases		8			4			6		2	2
Permitted Phases	8		8	4					6		2
Detector Phase	8	8	8	4	4			6	6	2	
Switch Phase											
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0	15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0	22.0	22.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0			84.0	84.0	84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%	70.0%	70.0%
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0			77.0	77.0	77.0	77.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0	5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0			-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0	6.0	6.0
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0	6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0	48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0	24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max	C-Max	C-Max
Intersection Summary											
Area Type: C	Other										
Cycle Length: 120											
Actuated Cycle Length:	120										
Offset: 83 (69%), Refere	enced t	o phase	2:SBT	and 6:N	NBT, Sta	rt of Yel	low				
Natural Cycle: 110											
Control Type: Actuated-	Coordi	nated									

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



Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2026\width@Rev08denario 2A\W

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Morning Peak Hour

12. IXI 202 & SIEISUI	1 Ochic	01 01/0	Jitiloo	Diva		2020 Will DOV Wookday Worming Foak Floo							
	۶	→	\rightarrow	•	←	•	4	†	/	-	ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	ሻ	<u></u>	7	7	f			^	7		^	7	
Traffic Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307	
Future Volume (veh/h)	240	149	34	86	138	61	0	2040	56	0	1957	307	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914	
Adj Flow Rate, veh/h	253	157	36	91	145	64	0	2147	59	0	2060	323	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5	
Cap, veh/h	228	471	370	263	273	120	0	2109	1018	0	2221	1054	
Arrive On Green	0.24	0.24	0.23	0.24	0.24	0.23	0.00	0.65	0.65	0.00	0.65	0.65	
Sat Flow, veh/h	1258	1947	1588	1156	1129	498	0	3330	1567	0	3506	1622	
Grp Volume(v), veh/h	253	157	36	91	0	209	0	2147	59	0	2060	323	
Grp Sat Flow(s), veh/h/ln		1947	1588	1156	0	1628	0	1622	1567	0	1708	1622	
Q Serve(g_s), s	16.1	8.0	2.1	8.5	0.0	13.4	0.0	78.0	1.6	0.0	63.8	10.4	
Cycle Q Clear(q c), s	29.0	8.0	2.1	16.4	0.0	13.4	0.0	78.0	1.6	0.0	63.8	10.4	
Prop In Lane	1.00		1.00	1.00		0.31	0.00		1.00	0.00		1.00	
Lane Grp Cap(c), veh/h	228	471	370	263	0	393	0	2109	1018	0	2221	1054	
V/C Ratio(X)	1.11	0.33	0.10	0.35	0.00	0.53	0.00	1.02	0.06	0.00	0.93	0.31	
Avail Cap(c_a), veh/h	228	471	370	263	0	393	0	2109	1018	0	2221	1054	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	
Uniform Delay (d), s/veh	54.1	37.5	36.1	44.3	0.0	39.7	0.0	21.0	7.6	0.0	18.5	9.2	
Incr Delay (d2), s/veh	91.3	0.4	0.1	0.8	0.0	1.4	0.0	24.3	0.1	0.0	8.3	0.8	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh	/ln19.7	7.0	1.5	4.5	0.0	9.5	0.0	41.4	0.9	0.0	31.5	6.3	
Unsig. Movement Delay	, s/veh												
LnGrp Delay(d),s/veh	145.4	37.9	36.2	45.1	0.0	41.1	0.0	45.3	7.7	0.0	26.8	9.9	
LnGrp LOS	F	D	D	D	Α	D	Α	F	Α	Α	С	Α	
Approach Vol, veh/h		446			300			2206			2383		
Approach Delay, s/veh		98.7			42.3			44.3			24.5		
Approach LOS		F			D			D			С		
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc)	S	84.0		36.0		84.0		36.0					
Change Period (Y+Rc),	S	7.0		8.0		7.0		8.0					
Max Green Setting (Gma	ax), s	77.0		28.0		77.0		28.0					
Max Q Clear Time (g_c+	-l1), s	66.3		18.9		80.5		31.5					
Green Ext Time (p_c), s		10.7		0.9		0.0		0.0					
Intersection Summary													
HCM 6th Ctrl Delay			39.9										
HCM 6th LOS			D										

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2026withBPec6denario 2A\W



1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		- €			4			€			- €}-	
Traffic Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (vph)	65	668	13	23	373	31	9	90	42	51	173	103
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25		-	25		-	25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.990			0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1552	0	0	1580	0	0	1547	0
Flt Permitted		0.926			0.944			0.974			0.930	
Satd. Flow (perm)	0	1511	0	0	1469	0	0	1543	0	0	1451	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	67	689	13	24	385	32	9	93	43	53	178	106
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	769	0	0	441	0	0	145	0	0	337	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0		31.0	31.0	
Total Split (%)	69.0%			69.0%			31.0%			31.0%		
Maximum Green (s)	63.0	63.0		63.0	63.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**\$y\De\x\66**enario 2A\W

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Lane Group WBT WBR NBT Total Lost Time (s) 5.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 C-Max C-Max Recall Mode C-Max C-Max None None None None Intersection Summary

Area Type: Other Cycle Length: 100

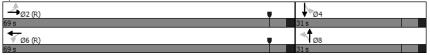
Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 70

Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Lanes, Volumes, Timings

2025 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8ynewi66enario 2A\W

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

1: New St & Rt 926						۷.	JZJ WILI	I DCV VV	eekuay	Alterio	on ca	Kiloui
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43-			43-			43-			43-	
Traffic Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Future Volume (veh/h)	65	668	13	23	373	31	9	90	42	51	173	103
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	h	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	67	689	13	24	385	32	9	93	43	53	178	106
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	114	1057	19	70	966	78	49	275	121	87	213	119
Arrive On Green	0.68	0.67	0.66	1.00	1.00	1.00	0.24	0.23	0.22	0.24	0.23	0.22
Sat Flow, veh/h	112	1579	29	48	1444	117	48	1190	522	197	922	514
Grp Volume(v), veh/h	769	0	0	441	0	0	145	0	0	337	0	0
Grp Sat Flow(s), veh/h/ln	1720	0	0	1609	0	0	1761	0	0	1633	0	0
Q Serve(g_s), s	8.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.8	0.0	0.0
Cycle Q Clear(g_c), s	25.1	0.0	0.0	0.0	0.0	0.0	6.9	0.0	0.0	19.7	0.0	0.0
Prop In Lane	0.09		0.02	0.05		0.07	0.06		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1207	0	0	1131	0	0	462	0	0	435	0	0
V/C Ratio(X)	0.64	0.00	0.00	0.39	0.00	0.00	0.31	0.00	0.00	0.77	0.00	0.00
Avail Cap(c_a), veh/h	1207	0	0	1131	0	0	512	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.5	0.0	0.0	0.0	0.0	0.0	32.3	0.0	0.0	37.1	0.0	0.0
Incr Delay (d2), s/veh	2.6	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	7.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/l 1 12.6	0.0	0.0	0.6	0.0	0.0	5.3	0.0	0.0	13.2	0.0	0.0
Unsig. Movement Delay	, s/veh											
LnGrp Delay(d),s/veh	12.1	0.0	0.0	1.0	0.0	0.0	32.7	0.0	0.0	44.1	0.0	0.0
LnGrp LOS	В	Α	Α	Α	Α	Α	С	Α	Α	D	Α	A
Approach Vol, veh/h		769			441			145			337	
Approach Delay, s/veh		12.1			1.0			32.7			44.1	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc).	, S	71.9		28.1		71.9		28.1				
Change Period (Y+Rc),	S	6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		25.0		63.0		25.0				
Max Q Clear Time (q c+		27.1		21.7		2.5		8.9				
Green Ext Time (p_c), s		7.4		0.4		3.6		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.3									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ enario 2A\W



Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

4: Rt 202 & Pleasant Grove Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	۲	↑ ↑		ሻ	↑ î>	
Traffic Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Future Volume (vph)	0	0	56	0	0	42	50	1925	60	108	1462	365
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.970	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3282	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3282	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	43	51	1964	61	110	1492	372
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	43	51	2025	0	110	1864	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\3 - 2025 wi8yoetnoo

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Int Delay, s/veh	1												
Movement	EBL	EBT	EBR	WBL	WBT				NBR	SBL		SBR	
Lane Configurations			7			7	ŗ			Ĭ			
Traffic Vol, veh/h	0	0	56	0	0	42		1925	60		1462		
Future Vol, veh/h	0	0	56	0	0	42	50	1925	60	108	1462	365	
Conflicting Peds, #/I		0	0	0	0		0	0		0	0	0	
Sign Control S	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-	
Veh in Median Stora	age,#	ŧ 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1	
Mvmt Flow	0	0	57	0	0	43	51	1964	61	110	1492	372	
	nor2		N	1inor1		N	lajor1		M	lajor2			
Conflicting Flow All	-	-	932	-	-	1013	_	0		2025	0	0	
Stage 1	-	-	-	-	-		-	-	-		-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Critical Hdwy	_	_	7.1	-	_	7.2	3.9	-	_	3.9	_	-	
Critical Hdwy Stg 1	-						-		-	-		-	
Critical Hdwy Stg 2	-	_		-	_	-	_	-	_		_	-	
Follow-up Hdwy	-		2.9		-	3	2.4			2.4		-	
Pot Cap-1 Maneuve	er O	0		0	0	*317	468		-	*397	_	-	
Stage 1	0	0	-	-			-		-	-		-	
Stage 2	0	0		0			-		-	-	_	-	
Platoon blocked. %	•	·	1	·	·	1	1			1		_	
Mov Cap-1 Maneuv	er -		*561	_		*317	468		-	*397		-	
Mov Cap-2 Maneuv			-	_	_	017	-100	_	_	-	_	_	
Stage 1	-		_		_	_	_	_	_	_		_	
Stage 2	_				_	_		_		_		_	
Olago E													
Approach	EB			WB			NB			SB			
HCM Control Delay				18.1			0.3			1			
HCM LOS	В			С									
									005				
Minor Lane/Major M	lvmt							SBT					
Capacity (veh/h)		468	-		٠.		* 397	-	-				
HCM Lane V/C Rati		0.109	-			0.135		-	-				
HCM Control Delay	(s)	13.6	-	-	12.1		17.5	-	-				
HCM Lane LOS		В	-	-	В	С	С	-	-				
HCM 95th %tile Q(v	eh)	0.4	-	-	0.3	0.5	1.1	-	-				
Notes													
~: Volume exceeds	cana	city	\$: E	elav e	excee	ds 300	s +	: Con	putation	on No	t Defir	ned	*: All major volume in

HCM 6th TWSC
2025 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8yoeth**&**e**enario 2A\W

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Afternoon Peak Hour

12. 11. 202 & 010100	ʹ	_	_		—	•	•	†	<i>></i>	\ <u></u>	Ţ	→
Lane Group	EBL	EBT	EBR	₩BL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	T)		7	**************************************	1	WDIX	INDL	<u>↑</u>	NDIX	JDL	<u> </u>	30K
Traffic Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (vph)	349	142	61	59	44	65	0	1918	75	0	1850	378
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
(1 1 /					14	14	12	12	14	12	12	1600
Lane Width (ft)	11	13	13	12	2%	14	12	2%	14	12		16
Grade (%)	200	-5%	000	250	2%	0	0	2%	200	0	-3%	200
Storage Length (ft)	200		200	350 1		0	-		220	-		200
Storage Lanes	1		1			U	0		1	0		1
Taper Length (ft)	25	4.00	4.00	25	4.00	4.00	25	0.05	4.00	25	0.05	4.00
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.910				0.850			0.850
Flt Protected	0.950			0.950		_						
Satd. Flow (prot)	1661	1906	1589	1693	1730	0	0	3256	1616	0	3370	1709
Flt Permitted	0.669			0.610								
Satd. Flow (perm)	1170	1906	1589	1087	1730	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	360	146	63	61	45	67	0	1977	77	0	1907	390
Shared Lane Traffic (%))											
Lane Group Flow (vph)	360	146	63	61	112	0	0	1977	77	0	1907	390
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type			CI+Ex		CI+Ex				CI+Ex			CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)	0.0	0.0	0.0	0.0	0.0			113	0.0		113	0.0
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel								CITLX			CITLX	
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
. ,								CI+Ex			CI+Ex	
Detector 3 Type								CI+EX			OI+EX	
Detector 3 Channel								0.0			0.0	
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								Cl+Ex			Cl+Ex	

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**ßу**ጋ፱ተለፍ **6**enario 2A\W

McMahon Associates, Inc.

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								CI+Ex			CI+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Perm	NA		Perm	NA			NA	Perm			Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0		15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	38.0	38.0	38.0	38.0	38.0			82.0	82.0		82.0	82.0
			31.7%						68.3%	(68.3%	
Maximum Green (s)	30.0	30.0	30.0	30.0	30.0			75.0	75.0		75.0	75.0
Yellow Time (s)	4.0			4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0		4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0			-3.0	-3.0			-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0		5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0	0.0	0.0	0.0			48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max	(C-Max	C-Max
Intersection Summary												
	Other											
Cycle Length: 120												
Actuated Cycle Length:												
Offset: 84 (70%), Refer	enced t	o phase	2:SBT	and 6:N	√BT, Sta	rt of Yel	low					
Natural Cycle: 90												
Control Type: Actuated-	Coordi	nated										
Description: Signal												
Splits and Phases: 12). Bt 20	12 & Sta	teon Sc	hool Dr	/Skiles E	lvd						
d	IXI Z	/2 G OIC	13011 00	IIOOI DI	OKIICS L	iva		+				
♥ Ø2 (R) 82 s							•	∜ Ø	4			
4								A				
Ø6 (R)								30 c	8			
82 s								38 S				

Lanes, Volumes, Timings 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8yን፱ተለ**ፍ enario 2A\W

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2025 with Dev Weekday Afternoon Peak Hour

12. IXI 202 & SIEISOII		01 01/0	Jikiico	Diva								
	ᄼ	-	•	•	•	•	1	†	1	-	ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ţ	†	7	ሻ	1→			^	7		^	7
Traffic Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
Future Volume (veh/h)	349	142	61	59	44	65	0	1918	75	0	1850	378
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	360	146	63	61	45	67	0	1977	77	0	1907	390
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	380	568	489	319	184	275	0	2099	1005	0	2279	1057
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.25	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	1415	2066	1726	1177	671	998	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	360	146	63	61	0	112	0	1977	77	0	1907	390
Grp Sat Flow(s), veh/h/ln	1415	2066	1726	1177	0	1669	0	1635	1567	0	1776	1647
Q Serve(g_s), s	27.1	6.6	3.3	5.1	0.0	6.4	0.0	65.7	2.2	0.0	49.9	13.3
Cycle Q Clear(g_c), s	33.0	6.6	3.3	11.7	0.0	6.4	0.0	65.7	2.2	0.0	49.9	13.3
Prop In Lane	1.00		1.00	1.00		0.60	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	380	568	489	319	0	459	0	2099	1005	0	2279	1057
V/C Ratio(X)	0.95	0.26	0.13	0.19	0.00	0.24	0.00	0.94	0.08	0.00	0.84	0.37
Avail Cap(c_a), veh/h	380	568	489	319	0	459	0	2099	1005	0	2279	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	33.9	32.0	38.5	0.0	34.5	0.0	19.5	8.1	0.0	16.6	10.1
Incr Delay (d2), s/veh	32.8	0.2	0.1	0.3	0.0	0.3	0.0	10.1	0.1	0.0	3.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/	/ln20.7	6.1	2.5	2.7	0.0	4.8	0.0	31.9	1.3	0.0	25.5	8.1
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	80.7	34.2	32.1	38.8	0.0	34.8	0.0	29.5	8.3	0.0	20.5	11.1
LnGrp LOS	F	С	С	D	Α	С	Α	С	Α	Α	С	В
Approach Vol, veh/h		569			173			2054			2297	
Approach Delay, s/veh		63.4			36.2			28.7			18.9	
Approach LOS		Е			D			С			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	S	82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s	3	7.0		8.0		7.0		8.0				
Max Green Setting (Gma		75.0		30.0		75.0		30.0				
Max Q Clear Time (g_c+	$i \wedge j$, o					00.0		25.5				
		52.4		14.2		68.2		35.5				
Green Ext Time (p_c), s		52.4 22.6		14.2 0.6		68.2		0.0				
Green Ext Time (p_c), s Intersection Summary												
			28.4		_							

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\3 - 2025 wi**8y**ን፱ተለፍ enario 2A\W



Appendix R

Future (2030) Capacity/Level-of-Service Without Development Analysis Worksheets

1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	۶	→	•	•	+	•	1	†	~	/	↓	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.919	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0	1626	0	0	1547	0	0	1586	0	0	1512	0
Flt Permitted	•	0.914	•	•	0.986	•	•	0.869	•	•	0.992	·
Satd. Flow (perm)	0	1493	0	0	1527	0	0	1383	0	0	1502	0
Right Turn on Red	U	1433	Yes	U	1021	Yes	U	1000	No	U	1302	No
Satd. Flow (RTOR)		1	103		16	103			140			140
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0.97	0.97	7%	3%	11%	1%	5%	13%	0.97	2%
	84	680	5	8	340	39	11%	108	44	13%	134	210
Adj. Flow (vph)		000	5	0	340	39	10	100	44	0	134	210
Shared Lane Traffic (%)		700	0	^	207	0	^	162	0	^	250	0
Lane Group Flow (vph)	0	769	U	0	387 1	U	0	162	U	0	352 1	0
Number of Detectors	Left	1		Left	- 1		Left	Thru		Left	Thru	
Detector Template		_			_							
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+EX	CI+Ex		CI+EX	CI+Ex		CI+EX	CI+Ex		CI+EX	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	_	2		_	6		_	8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)		76.7%		76.7%			23.3%			23.3%		
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0	15.0		15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 20@@twitheRedPert\1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	•	-	•	•	•	•	1	Ť	-	-	ŧ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

♣ _{Ø2}	₩04
69 s	21 s
₩ Ø6	↑ Ø8
69 s	21 s

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2000@withbRdpen\1 - Base\We

1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT	SBR
Lane Configurations 💠 💠 💠	
Traffic Volume (veh/h) 81 660 5 8 330 38 10 105 43 8 130	204
Future Volume (veh/h) 81 660 5 8 330 38 10 105 43 8 130	204
Initial Q (Qb), veh 0 0 0 0 0 0 0 0 0 0	0
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 1.0	1.00
Work Zone On Approach No No No No	
Adj Sat Flow, veh/h/ln 1818 1818 1818 1696 1696 1696 1860 1860 1860 1794 1794	1794
Adj Flow Rate, veh/h 84 680 5 8 340 39 10 108 44 8 134	210
Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97	0.97
Percent Heavy Veh, % 4 4 4 7 7 7 1 1 1 0 0	0
Cap, veh/h 146 1104 8 48 1050 118 51 221 86 44 113	171
Arrive On Green 0.70 0.71 0.70 0.70 0.71 0.70 0.17 0.18 0.17 0.18	0.17
Sat Flow, veh/h 142 1553 11 10 1476 167 48 1244 482 15 637	963
Grp Volume(v), veh/h 769 0 0 387 0 0 162 0 0 352 0	0
Grp Sat Flow(s),veh/h/ln 1707	0
Q Serve(q s), s 6.2 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 6.0 0.0	0.0
Cycle Q Clear(q c), s 20.2 0.0 0.0 7.9 0.0 0.0 7.5 0.0 0.0 15.0 0.0	0.0
Prop In Lane 0.11 0.01 0.02 0.10 0.06 0.27 0.02	0.60
Lane Grp Cap(c), veh/h 1239 0 0 1198 0 0 338 0 0 310 0	0
V/C Ratio(X) 0.62 0.00 0.00 0.32 0.00 0.00 0.48 0.00 0.00 1.14 0.00	0.00
Avail Cap(c a), veh/h 1239 0 0 1198 0 0 338 0 0 310 0	0
HCM Platoon Ratio 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00
Upstream Filter(I) 1.00 0.00 0.00 1.00 0.00 1.00 0.00 0.0	0.00
Uniform Delay (d), s/veh 6.6 0.0 0.0 4.9 0.0 0.0 33.7 0.0 0.0 37.9 0.0	0.0
Incr Delay (d2), s/veh 2.3 0.0 0.0 0.7 0.0 0.0 1.1 0.0 0.0 92.9 0.0	0.0
Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	0.0
%ile BackOfQ(95%),veh/lri0.1 0.0 0.0 4.0 0.0 0.0 6.0 0.0 0.0 22.5 0.0	0.0
Unsig. Movement Delay, s/veh	0.0
LnGrp Delay(d),s/veh 9.0 0.0 0.0 5.6 0.0 0.0 34.7 0.0 0.0 130.7 0.0	0.0
LnGrp LOS A A A A A A C A A F A	A
Approach Vol, veh/h 769 387 162 352	
Approach Delay, s/veh 9.0 5.6 34.7 130.7	
Approach LOS A A C F	
Timer - Assigned Phs 2 4 6 8	
Phs Duration (G+Y+Rc), s 69.0 21.0 69.0 21.0	
Change Period (Y+Rc), s 6.0 6.0 6.0	
Max Green Setting (Gmax), s 63.0 15.0 63.0 15.0	
Max Q Clear Time (g_c+l1), s 22.2 17.0 9.9 9.5	
Green Ext Time (p_c), s 7.6 0.0 3.0 0.2	
Intersection Summary	
HCM 6th Ctrl Delay 36.4	
HCM 6th LOS D	

HCM 6th Signalized Intersection Summary 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 20@@twother.41 - Base\We

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	4		7	^	7	Ť	^	7	ሻ	↑ ↑	
Traffic Volume (vph)	536	234	8	150	167	58	13	1672	160	57	1577	194
Future Volume (vph)	536	234	8	150	167	58	13	1672	160	57	1577	194
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.997				0.850			0.850		0.984	
Flt Protected	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1735	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Flt Permitted	0.950	0.981		0.950			0.950			0.950		
Satd. Flow (perm)	1494	1735	0	1565	1765	1556	1491	3291	1635	1487	3087	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		14	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	553	241	8	155	172	60	13	1724	165	59	1626	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	398	404	0	155	172	60	13	1724	165	59	1826	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type		CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex		CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases	_			-		4		_	2	•		
Detector Phase	8	8		4	4	4	5		_	1		
Switch Phase	_			-		-				•		
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
	25.8%				15.0%							
Maximum Green (s)	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Lost Time Aujust (8)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings
2030 without Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 23@@#withb@depevt1 - Base\We

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



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Robinson Tract 2030 without Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ቆ		ሻ	↑	7	ሻ	^	7	ሻ	∱ }	
Traffic Volume (veh/h)	536	234	8	150	167	58	13	1672	160	57	1577	194
Future Volume (veh/h)	536	234	8	150	167	58	13	1672	160	57	1577	194
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	401	454	8	155	172	60	13	1724	165	59	1626	200
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	397	2	180	189	163	30	1591	743	90	1399	169
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.02	0.45	0.45	0.06	0.49	0.48
Sat Flow, veh/h	1780	1875	33	1802	1892	1630	1626	3541	1655	1514	2856	346
Grp Volume(v), veh/h	401	0	462	155	172	60	13	1724	165	59	894	932
Grp Sat Flow(s),veh/h/ln	1780	0	1908	1802	1892	1630	1626	1771	1655	1514	1590	1611
Q Serve(g_s), s	25.0	0.0	25.0	10.2	10.8	4.1	0.9	53.9	7.3	4.6	58.8	58.8
Cycle Q Clear(g_c), s	25.0	0.0	25.0	10.2	10.8	4.1	0.9	53.9	7.3	4.6	58.8	58.8
Prop In Lane	1.00		0.02	1.00		1.00	1.00		1.00	1.00		0.21
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	30	1591	743	90	779	789
V/C Ratio(X)	1.08	0.00	1.16	0.86	0.91	0.37	0.43	1.08	0.22	0.66	1.15	1.18
Avail Cap(c_a), veh/h	371	0	398	180	189	163	122	1591	743	114	779	789
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	47.5	53.2	53.5	50.5	58.3	33.0	20.2	55.3	30.6	30.7
Incr Delay (d2), s/veh	70.2	0.0	96.2	31.8	40.8	1.4	9.6	49.0	0.7	9.1	81.0	94.3
Initial Q Delay(d3),s/veh		0.0	63.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.		0.0	39.3	10.1	11.5	3.1	8.0	44.1	5.1	3.5	53.4	58.8
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	195.4	0.0	206.9	85.0	94.3	51.8	67.8	82.0	20.9	64.3	111.6	125.0
LnGrp LOS	F	Α	F	F	F	D	E	F	С	E	F	F
Approach Vol, veh/h		863			387			1902			1885	
Approach Delay, s/veh		201.6			84.0			76.6			116.8	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s12.1	58.9		18.0	7.2	63.8		31.0				
Change Period (Y+Rc), s	s 6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+		56.4		13.3	3.4	61.3		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			113.6									
HCM 6th LOS			F									

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2030 without Dev Weekday Morning Peak Hour

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12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract

2030 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	*	7	J.	f)			^	7		^	7
Traffic Volume (vph)	143	153	35	87	142	62	0	2135	57	0	1998	304
Future Volume (vph)	143	153	35	87	142	62	0	2135	57	0	1998	304
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350	_,-	0	0	_,-,-	220	0	- , ,	200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75		-	100		-	75		•	75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.954				0.850			0.850
Flt Protected	0.950		0.000	0.950	0.00				0.000			0.000
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.477			0.593				0220			02	
Satd. Flow (perm)	803	1765	1434	1016	1687	0	0	3225	1616	0	3214	1676
Right Turn on Red	000		No			No		0220	No	Ŭ	02	No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0.33	5%	0.33	0.33	8%	5%
Adj. Flow (vph)	151	161	37	92	149	65	0.0	2247	60	0 /0	2103	320
Shared Lane Traffic (%)		101	31	32	173	0.5	U	2271	00	U	2100	320
Lane Group Flow (vph)	151	161	37	92	214	0	0	2247	60	0	2103	320
Number of Detectors	1	4	1	1	4		· ·	2	1	U	2103	1
Detector Template		4	Right		7				Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type			CI+Ex						CI+Ex		CI+Ex	
Detector 1 Channel	CITLX	CITLX	CITLX	CITLX	CITLX			CITLX	CITLX		CITLX	CITLX
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)	0.0	15	0.0	0.0	15			450	0.0		450	0.0
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		CI+Ex			Cl+Ex			Cl+Ex			CI+Ex	
Detector 2 Channel		CITLX			CITLX			CITLX			CITLX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36			0.0			0.0	
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel		CITLX			CITLX							
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Position(II) Detector 4 Size(ft)		6			6							
Detector 4 Type		CI+Ex			Cl+Ex							
Detector 4 Type		OITLX			OITLX							

Lanes, Volumes, Timings

2030 without Dev Weekday Morning Peak Hour

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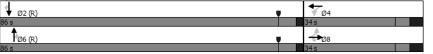
12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Lane Group EBT EBR WBL WBT WBR NBL Detector 4 Channel Detector 4 Extend (s) 0.0 0.0 Turn Type Perm NA Perm Perm NA NA Perm NA Perm Protected Phases 8 2 Permitted Phases **Detector Phase** 6 2 Switch Phase 3.0 15.0 15.0 15.0 15.0 Minimum Initial (s) 3.0 3.0 3.0 3.0 Minimum Split (s) 15.0 15.0 15.0 15.0 15.0 22.0 22.0 22.0 22.0 Total Split (s) 34.0 34.0 34.0 34.0 34.0 86.0 86.0 86.0 86.0 Total Split (%) 28.3% 28.3% 28.3% 28.3% 28.3% 71.7% 71.7% 71.7% 71.7% Maximum Green (s) 26.0 26.0 79.0 79.0 26.0 26.0 26.0 79.0 79.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 5.0 5.0 5.0 5.0 2.0 All-Red Time (s) 4.0 4.0 4.0 4.0 4.0 2.0 2.0 2.0 Lost Time Adjust (s) -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 0.0 -1.0 Total Lost Time (s) 6.0 7.0 7.0 8.0 7.0 7.0 6.0 6.0 6.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 3.0 3.0 3.0 3.0 3.0 6.0 6.0 6.0 6.0 Minimum Gap (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 48.0 Time Before Reduce (s) 0.0 0.0 0.0 0.0 0.0 48.0 48.0 48.0 Time To Reduce (s) 0.0 0.0 0.0 0.0 0.0 24.0 24.0 24.0 24.0 Recall Mode C-Max C-Max C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 120 Actuated Cycle Length: 120 Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 90 Control Type: Actuated-Coordinated

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



Lanes, Volumes, Timings

2030 without Dev Weekday Morning Peak Hour

l:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - **മുമൂ് നിടെല്ലെ** 1 - Base\W€

Robinson Tract

12: Rt 202 & Stetson	Scho	ol Dr/S	Skiles I	Blvd		203	0 witho	ut Dev \	Weekda	y Morn	ing Pea	k Hour
	ᄼ	-	\rightarrow	•	•	•	4	†	/	-	ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	^	7	ř	f)			^	7		^	7
Traffic Volume (veh/h)	143	153	35	87	142	62	0	2135	57	0	1998	304
Future Volume (veh/h)	143	153	35	87	142	62	0	2135	57	0	1998	304
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	151	161	37	92	149	65	0	2247	60	0	2103	320
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	200	438	344	239	255	111	0	2163	1045	0	2277	1082
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.22	0.00	0.67	0.67	0.00	0.67	0.67
Sat Flow, veh/h	1252	1947	1588	1151	1134	495	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	151	161	37	92	0	214	0	2247	60	0	2103	320
Grp Sat Flow(s),veh/h/ln		1947	1588	1151	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	13.4	8.4	2.2	8.8	0.0	14.1	0.0	80.0	1.6	0.0	64.1	9.8
Cycle Q Clear(g_c), s	27.0	8.4	2.2	17.2	0.0	14.1	0.0	80.0	1.6	0.0	64.1	9.8
Prop In Lane	1.00	• • •	1.00	1.00		0.30	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	200	438	344	239	0	366	0	2163	1045	0	2277	1082
V/C Ratio(X)	0.76	0.37	0.11	0.39	0.00	0.58	0.00	1.04	0.06	0.00	0.92	0.30
Avail Cap(c_a), veh/h	200	438	344	239	0	366	0	2163	1045	0	2277	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		39.3	37.7	46.5	0.0	41.6	0.0	20.0	6.9	0.0	17.3	8.3
Incr Delay (d2), s/veh	15.1	0.5	0.1	1.0	0.0	2.4	0.0	30.3	0.1	0.0	7.8	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		7.4	1.6	4.7	0.0	10.0	0.0	44.6	0.9	0.0	31.0	5.8
Unsig. Movement Delay,				•••	0.0		0.0		0.0	0.0	0	0.0
LnGrp Delay(d),s/veh	68.9	39.8	37.8	47.6	0.0	44.0	0.0	50.3	7.0	0.0	25.1	9.0
LnGrp LOS	E	D	D	D	A	D	A	F	A	A	C	A
Approach Vol, veh/h		349			306			2307	- / \		2423	
Approach Delay, s/veh		52.2			45.1			49.2			23.0	
Approach LOS		D D			73.1 D			73.2 D			23.0 C	
					D						U	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		86.0		34.0		86.0		34.0				
Change Period (Y+Rc), s		7.0		8.0		7.0		8.0				
Max Green Setting (Gma		79.0		26.0		79.0		26.0				
Max Q Clear Time (g_c+	l1), s	66.6		19.7		82.5		29.5				
Green Ext Time (p_c), s		12.4		8.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			37.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 29@@withb@defpent1 - Base\We



McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	7	Ţ	↑	٦	7
Traffic Volume (vph)	696	33	14	346	26	41
Future Volume (vph)	696	33	14	346	26	41
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			75		75	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1662	1521	1719	1733	1719	1592
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1662	1521	1719	1733	1719	1592
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	3%	0%	8%	0%	3%
Adj. Flow (vph)	718	34	14	357	27	42
Shared Lane Traffic (%)						
Lane Group Flow (vph)	718	34	14	357	27	42
Sign Control	Free			Free	Stop	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@withbRdepex\1 - Base\We

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

ntersection						
Int Delay, s/veh	1.1					
Movement	FBT	EBR	WBI	WRT	NBI	NBR
Lane Configuration			*	*	Ť	7
Traffic Vol. veh/h	696		14	346	26	41
Future Vol, veh/h			14		26	41
Conflicting Peds, #			0	0	0	-0
Sign Control		Free				•
RT Channelized		None		None		None
Storage Length	-		120	-		0
Veh in Median Sto			120	0	0	-
Grade. %	1 aye.): 8		-	-	-1	
Peak Hour Factor	97		97	97		97
Heavy Vehicles, %			0	8	0	3
Mymt Flow	718	34	14	357	27	42
IVIVIIIL I IOW	710	34	14	331	21	42
	1ajor1	N	lajor2	N	linor1	
Conflicting Flow Al	II 0	0	752		1103	718
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	385	-
Critical Hdwy	-	-	4.3	-	6.2	6.13
Critical Hdwy Stg 1	1 -	-	-	-	5.2	-
Critical Hdwy Stg 2	2 -	-	-	-	5.2	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	er -	-	658	-	275	458
Stage 1	-	-	-	-	565	-
Stage 2	-	-	-	-	804	-
Platoon blocked, %	6 -	-		-		
Mov Cap-1 Maneu	ıver -	-	658	-	269	458
Mov Cap-2 Maneu			-	-		
Stage 1	-	-	-	-	565	-
Stage 2			-		787	
Olago Z					, 01	
Approach	EB		WB		NB	
	V S O		0.4		16.1	
	y, 0 0				С	
HCM Control Dela HCM LOS	.y, 0 0					
HCM Control Dela HCM LOS	y, o o					
HCM LOS	•	IBIn1N	Bl n2	FRT	FBR	WBI
HCM LOS Minor Lane/Major	•					
Minor Lane/Major Capacity (veh/h)	MvmN	269	458	-	-	658
Minor Lane/Major Capacity (veh/h) HCM Lane V/C Ra	MvmN atio	269 0.1	458 0.092	-	-	658 0.022
Minor Lane/Major Capacity (veh/h) HCM Lane V/C Ra HCM Control Dela	MvmN atio	269 0.1 19.9	458 0.092 13.7	- - -	- -!	658 0.022 10.6
Minor Lane/Major Capacity (veh/h) HCM Lane V/C Ra	MvmN atio y (s)	269 0.1	458 0.092 13.7	-	-	658 0.022 10.6 B

HCM 6th TWSC
2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@witoBetPevt\1 - Base\We

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Lane Group EBR Lane Configurations Traffic Volume (vph) 28 33 2180 1875 158 Future Volume (vph) 0 28 0 0 34 33 2180 71 54 1875 158 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 Lane Width (ft) 16 16 16 12 12 12 11 12 12 11 12 12 Grade (%) -3% Storage Length (ft) 0 0 350 0 380 Storage Lanes 0 0 Taper Length (ft) 75 75 75 75 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 0.95 0.95 Frt 0.865 0.865 0.995 0.988 Flt Protected 0.950 0.950 Satd. Flow (prot) 0 1773 0 1379 1488 3200 0 1629 3160 0 0 Flt Permitted 0.950 0.950 Satd. Flow (perm) 1773 0 1379 1488 3200 3160 0 0 0 1629 0 Link Speed (mph) 45 45 35 499 858 3154 1356 Link Distance (ft) Travel Time (s) 9.7 16.7 47.8 20.5 Peak Hour Factor 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 Heavy Vehicles (%) 0% 0% 0% 14% 10% 5% 9% 3% Adj. Flow (vph) 29 34 2271 74 56 1953 165 0 0 0 0 35 Shared Lane Traffic (%) Lane Group Flow (vph) 0 29 0 35 34 2345 56 2118 Sign Control Stop Stop Free Intersection Summary

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2000\text{index} & Analysis\2020-02 Robinson Tract Revised TIS\Synchro\8 - 2000\text{index} & Analysis\2020-02 Robinson Tract Revised TIS\Synchro\8 - 2000\text{index} & Analysis\2020-02 Robinson Tract Revised TIS\Synchro\8 - 2000\text{index} & Analysis\8 & Ana

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configuratio	ns		7			7	ሻ	↑ ↑		ሻ	↑ ↑		
Traffic Vol, veh/h	0	0	28	0	0	34	33	2180	71	54	1875	158	
Future Vol, veh/h	0	0	28	0	0	34	33	2180	71	54	1875	158	
Conflicting Peds,	#/hr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-	
Veh in Median Sto	orage.	# 0	-	-	0	-	-	0	-	-	0	_	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	6 0	0	0	0	0	14	10	5	14	3	9	3	
Mvmt Flow	0	0	29	0	0	35	34	2271	74	56	1953	165	
	*												
Major/Minor N	/linor2		I.	1inor1		N/	lajor1		N/	lajor2			
Conflicting Flow A		-	1059	-	-	1173		0		2345	0	0	
Stage 1	-	_	1000		_	- 1173	2110	-	-	2040	-	-	
Stage 2	_												
Critical Hdwy			7.2		-	7.3	4.1		_	4	_		
Critical Hdwy Stg	1 -	-	1.2	-		1.3	4.1		-	4	-		
Critical Hdwy Stg		-	-	-									
Follow-up Hdwy	Z - -	-		-	-	3.1	2.5	-	-	2.4	-	-	
			*357	0	0			-		*255	-		
Pot Cap-1 Maneu			337				415		-	255	-	-	
Stage 1	0	0		0	0		-	-	-	-	-	-	
Stage 2	0	0	-	0	0		- :	-	-	- :	-	-	
Platoon blocked,			1			1	1	-	-	1	-	-	
Mov Cap-1 Maneu		-	*357	-		*197	*415	-		*255	-	-	
Mov Cap-2 Maneu	ıver -	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Dela	y, s16			27.2			0.2			0.6			
HCM LOS	С			D									
Minor Lane/Major	Mvmt	NBL	NBT	NBRE	BLn\n\	/BLn1	SBL	SBT	SBR				
Capacity (veh/h)		* 415	-	-			* 255	-	-				
HCM Lane V/C Ra		0.083	-			0.18			-				
HCM Control Dela		14.5	-						-				
HCM Lane LOS	., (0)	В.			C	D	C						
HCM 95th %tile Q	(veh)	0.3	-	-	0.3	0.6	0.8	-	-				
Notes													

5: Church Access & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	→	•	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	î»			ર્ન	ľ	7
Traffic Volume (vph)	28	1	8	182	1	0
Future Volume (vph)	28	1	8	182	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.997					
Flt Protected				0.998	0.950	
Satd. Flow (prot)	1700	0	0	1722	1636	1663
Flt Permitted				0.998	0.950	
Satd. Flow (perm)	1700	0	0	1722	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	40	1	11	260	1	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	41	0	0	271	1	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Control Type: Unsignalized McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.3	3				
Movement	EBT	ΓEBR	WBL	WBT	NBL	NBR
Lane Configuratio				4	ኘ	
Traffic Vol, veh/h	28		8	182	1	0
Future Vol. veh/h	28	3 1	8	182	1	0
Conflicting Peds,	#/hr (0 0	0	0	0	0
Sign Control		Free	Free	Free	Stop	Stop
RT Channelized		- None		None		None
Storage Length			-	-	0	0
Veh in Median Sto	orage)# -	-	0	0	-
Grade, %	- 2	4 -	-	-4	2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	6 (0 0	0	3	0	0
Mvmt Flow	40) 1	11	260	1	0
Major/Minor N	/lajor	1 N	lajor2	N/	linor1	
Conflicting Flow A) ()	41	0	323	41
Stage 1			-	-	41	41
Stage 2						
Critical Hdwy			4.3	-	6.8	6.4
Critical Hdwy Stq			7.5		5.8	
Critical Hdwy Stg			-	-	5.8	
Follow-up Hdwy			3			
Pot Cap-1 Maneu			1162		-	1099
Stage 1					1143	-
Stage 2			-	-	855	-
Platoon blocked.	2/6					
Mov Cap-1 Maneu			1162	_		1099
Mov Cap-1 Manet			1102			
Stage 1			_		1143	
Stage 2			_			
Olage 2					070	
Approach	E		WB		NB	
HCM Control Dela	ay,s ()	0.3		9.9	
HCM LOS					Α	
Minor Lane/Major	Mvm	NBLn1	IBLn2	EBT	EBR	WBL
Capacity (veh/h)		736	-	-		1162
HCM Lane V/C Ra	atio	0.002	-			0.01
HCM Control Dela		9.9	0	-	-	8.1
HCM Lane LOS	, (-)	Α	A	-	-	Α
HCM 95th %tile Q	(veh)	0	-	-	-	0
	. ,					

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@withbRdepex\1 - Base\We

HCM 6th TWSC
2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@witoBetPevt\1 - Base\We

6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	_	-	•	_	-	*
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	4		Y	
Traffic Volume (vph)	34	13	155	28	15	12
Future Volume (vph)	34	13	155	28	15	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-4%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.979		0.940	
Flt Protected		0.965			0.973	
Satd. Flow (prot)	0	1678	1748	0	1614	0
Flt Permitted		0.965			0.973	
Satd. Flow (perm)	0	1678	1748	0	1614	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		322	108		349	
Travel Time (s)		6.3	2.1		9.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%
Adj. Flow (vph)	49	19	221	40	21	17
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	68	261	0	38	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	2.2					
Movement	ERI	ERT	W/RT	WBR	CRI	SRP
Lane Configuration		€Î	_{VVD1}	MOK	SDL W	SDR
Traffic Vol, veh/h	34		155	28	15	12
Future Vol. veh/h	34		155	28	15	12
Conflicting Peds, #	٠.	0	0	0	0	0
Sign Control				Free		_
RT Channelized		None		None		None
Storage Length	-		-		0	
Veh in Median Sto			0	-	0	
Grade. %	aye;		-4		0	
Peak Hour Factor	70		70	70	70	
Heavy Vehicles, %		-	3		2	
Mvmt Flow	49	19	221	40	21	17
Major/Minor M	lajor1	N	lajor2	N	linor2	
Conflicting Flow Al	I 261	0		0	358	241
Stage 1	-	-	-	-	241	-
Stage 2	-	-	-	-	117	-
Critical Hdwy	4.3	_	_	-	6.42	6 22
Critical Hdwy Stg 1					5.42	
Critical Hdwy Stg 2			_		5.42	
Follow-up Hdwy					3.42	
Pot Cap-1 Maneuv					733	
Stage 1	-		-	-		040
Stage 1	-		-		1056	
						-
Platoon blocked, 9		-		-		0.10
Mov Cap-1 Maneu			-	-	696	
Mov Cap-2 Maneu			-		696	
Stage 1	-		-	-	· · ·	
Stage 2	-	-	-	-	1056	-
Approach	EB		WB		SB	
HCM Control Dela			0		10	
HCM LOS	y, 5 .4		U		B	
TICIVI LOG						
Minor Lane/Major	Mvmt	EBL	EBT	WBT	WBR5	BLn1
Capacity (veh/h)		978	-	-	-	756
HCM Lane V/C Ra	itio	0.05	-	-	-	0.051
HCM Control Dela	y (s)	8.9	0	-	-	10
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q	(veh)	0.2	-	-	-	0.2
	. /					

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 without Dev Weekday Morning Peak Hour

	-	•	•	•	1	~
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations				†	Y	
Traffic Volume (vph)	48	0	0	167	0	0
Future Volume (vph)	48	0	0	167	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2929			322	436	
Travel Time (s)	57.1			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	69	0	0	239	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	69	0	0	239	0	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 without Dev Weekday Morning Peak Hour

Intersection	_					
Int Delay, s/veh	0					
		EBR	WBL	WBT		NBR
Lane Configurations	s †			↑	Y	
Traffic Vol, veh/h	48	0	0	167	0	0
Future Vol, veh/h	48	0	0		0	0
Conflicting Peds, #/	hr 0	0	0	0	0	0
Sign Control I	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Stora	ageQ;	# -	-	0	0	-
Grade, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0		0	0
Mymt Flow	69	0	0		0	0
	00		•	_00	·	Ū
	ajor1		lajor2		linor1	
Conflicting Flow All	0	-	-	-	308	69
Stage 1	-	-	-	-	69	-
Stage 2	-	-	-		239	-
Critical Hdwy	-	-	-	-	6	6
Critical Hdwy Stg 1	-	-	-	-	5	-
Critical Hdwy Stg 2	-	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3	3.1
Pot Cap-1 Maneuve	er -	0	0	-	814	1066
Stage 1	-	0	0	-	1122	-
Stage 2	-	0	0	-	950	-
Platoon blocked. %	-			-		
Mov Cap-1 Maneuv			-	-	814	1066
Mov Cap-2 Maneuv						-
Stage 1	-		-		1122	
Stage 2	-		-		950	
Stage 2	-		-		950	-
Approach	EB		WB		NB	
HCM Control Delay	, s 0		0		0	
HCM LOS					Α	
Minor Lane/Major M	h (mhl	DI n1	EDT	WBT	_	_
	IVIIIIN					_
Capacity (veh/h)		-	-			
HCM Lane V/C Rati		-	-			
HCM Control Delay	(s)	0	-			
HCM Lane LOS		Α	-	-		
HCM 95th %tile Q(v	/eh)	-	-	-		

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 20@@twohb@deper\1 - Base\We

HCM 6th TWSC
2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@witoBetPevt\1 - Base\We

Robinson Tract

10: Pleasant Grove Rd & Dunvegan Road

2030 without Dev Weekday Morning Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	f)		¥	
Traffic Volume (vph)	0	54	240	3	5	2
Future Volume (vph)	0	54	240	3	5	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.998		0.959	
Flt Protected					0.966	
Satd. Flow (prot)	0	1576	1644	0	1441	0
Flt Permitted					0.966	
Satd. Flow (perm)	0	1576	1644	0	1441	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		496	2929		306	
Travel Time (s)		9.7	57.1		8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	3%	50%	0%	25%
Adj. Flow (vph)	0	77	343	4	7	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	77	347	0	10	0
Sign Control		Free	Free		Stop	
I-t						

Area Type: Control Type: Unsignalized 10: Pleasant Grove Rd & Dunvegan Road

McMahon Associates, Inc.

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	FRI	FRT	W/RT	WBR	SBI	SRP
Lane Configuration		4	14 1	WDIN	N/	JUIN
Traffic Vol, veh/h	0	~4	240	3	'T' 5	2
Future Vol. veh/h	0	54	240	3	5 5	2
	-		240	-	-	0
Conflicting Peds, #		0	_	0	O Cton	_
Sign Control	Free					
RT Channelized		None		None		None
Storage Length	-		-		0	-
Veh in Median Sto	0 ,		0	-	0	-
Grade, %	-	-			1	
Peak Hour Factor		70	70	70	70	70
Heavy Vehicles, %		5	3	50	0	
Mvmt Flow	0	77	343	4	7	3
Major/Minor M	1ajor1	N/	lajor2	N.	linor2	
Conflicting Flow A		0	-	0		345
		-		-		345
Stage 1	-		-			
Stage 2	-	-	-	-		-
Critical Hdwy	4.3	-	-	-		6.55
Critical Hdwy Stg		-	-	-	0.0	
Critical Hdwy Stg 2	2 -	-	-	-	5.6	-
Follow-up Hdwy	3	-	-	-	3	3.3
Pot Cap-1 Maneuv	/eØ13	-	-	-	657	679
Stage 1	-	-	-	-	807	-
Stage 2	-	-	-	-	1099	-
Platoon blocked. 9	6					
Mov Cap-1 Maneu		_		_	657	679
Mov Cap-1 Maneu		-	-	-		
	- 1961	-	-	-		
Stage 1			-			-
Stage 2	-	-	-	-	1099	-
Approach	EB		WB		SB	
HCM Control Dela	v. s 0		0		10.5	
HCM LOS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·		В	
					٥	
Minor Lane/Major	Mvmt	EBL	EBT	WBT	WBR	BLn1
Capacity (veh/h)		913	-	-	-	663
	atio	-	-	-	-	0.015
HCM Lane V/C Ra						10.5
HCM Lane V/C Ra HCM Control Dela	y (s)	0	-	-	-	
	y (s)	0 A	-	-	-	10.3 B
HCM Control Dela	, ,				-	

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 20@@twohb@deper\1 - Base\We

HCM 6th TWSC
2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 29@@witoBetPevt\1 - Base\We

Area Type: Other Control Type: Unsignalized

11: New Street & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	•	•	T		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		î,			र्स
Traffic Volume (vph)	219	23	183	38	16	134
Future Volume (vph)	219	23	183	38	16	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.987		0.977			
Flt Protected	0.957					0.995
Satd. Flow (prot)	1648	0	1730	0	0	1760
Flt Permitted	0.957					0.995
Satd. Flow (perm)	1648	0	1730	0	0	1760
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	246	26	206	43	18	151
Shared Lane Traffic (%))					
Lane Group Flow (vph)	272	0	249	0	0	169
Sign Control	Stop		Free			Free
Intersection Summary						

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	5.7					
Movement	WRI	WRR	NRT	NBR	SRI	SRT
Lane Configuration			1 <u>1001</u>		JDL	<u>361</u>
Traffic Vol, veh/h	219		183		16	
Future Vol. veh/h	219	23	183		16	
Conflicting Peds, #		0	0		0	
						-
Sign Control				Free		
RT Channelized		None		None		None
Storage Length	0				-	
Veh in Median Sto			_		-	0
Grade, %	0					U
Peak Hour Factor			89		89	
Heavy Vehicles, %			2	-	8	
Mvmt Flow	246	26	206	43	18	151
Major/Minor N	/linor1	M	1ajor1	M	lajor2	
Conflicting Flow Al			0		249	
Stage 1	228					
Stage 2	187	-				
Critical Hdwy		6.34	_		4.4	
Critical Hdwy Stg 1		0.34	-			
Critical Hdwy Stg 2			-		-	-
Follow-up Hdwy	3		-			
Pot Cap-1 Maneuv			-	-		
Stage 1	935	-				
Stage 2	978	-	-	-	-	-
Platoon blocked, %	%		-	-		-
Mov Cap-1 Maneu	uv € 163	832	-	-	952	-
Mov Cap-2 Maneu	ıv ⊕ 63	-	-	-	-	-
Stage 1	935	-	-	-	-	-
Stage 2	957		-	-	-	-
- 13.gc =						
	14/5				0.0	
Approach	WB		NB		SB	
HCM Control Dela			0		0.9	
HCM LOS	В					
Minor Lane/Major	Mvmt	NBT	NBR	/BLn1	SBL	SBT
Capacity (veh/h)		-		676		-
HCM Lane V/C Ra	atio			0.402		
HCM Control Dela		-		13.9	8.9	
	, (0)	_		В		
HCM Lane LOS HCM 95th %tile Q	(veh)	_	_		0.1	-

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 20@@twohb@deper\1 - Base\We

1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			43	
Traffic Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)	10	-2%	10		1%			-2%		10	1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.998	1.00	1.00	0.989	1.00	1.00	0.962	1.00	1.00	0.946	1.00
Flt Protected		0.996			0.997			0.996			0.993	
Satd. Flow (prot)	0		0	0	1551	0	0	1581	0	0		0
Flt Permitted	U	0.940	U	U	0.946	U	U	0.969	U	U	0.939	U
Satd. Flow (perm)	0		0	0	1471	0	0	1538	0	0	1447	0
Right Turn on Red	U	1334	Yes	U	1471	Yes	U	1330	No	U	1447	No
Satd. Flow (RTOR)		2	163		8	163			INO			140
Link Speed (mph)		45			45			25			35	
Link Opeed (mpn) Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.07	0.07	0.97	0.07	0.07	0.97	0.97	0.07	0.97	0.07
			0.97	0.97		0.97	0.97			0.97		0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	60	698	14	21	335	33	10	92	40	54	181	158
Shared Lane Traffic (%)		770	•	^	000	•	^	4.40	•	•	000	0
Lane Group Flow (vph)	0	772	0	0	389	0	0	142	0	0	393	0
Number of Detectors	1	1		1	1		1	_ 1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	Cl+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		36.0	36.0		36.0	36.0	
Total Split (%)	65.7%	65.7%		65.7%	65.7%		34.3%	34.3%		34.3%	34.3%	
Maximum Green (s)	63.0	63.0		63.0	63.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**synutiDev**\1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

•	-	•	•	•	•	1	†	~	-	ţ	4
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Max	Max		Max	Max		None	None		None	None	
	5.0 2.0 42.0 21.0	5.0 5.0 2.0 2.0 42.0 42.0 21.0 21.0	5.0 5.0 2.0 2.0 42.0 42.0 21.0 21.0	5.0 5.0 5.0 2.0 2.0 2.0 42.0 42.0 42.0 21.0 21.0 21.0	5.0 5.0 5.0 5.0 2.0 2.0 2.0 2.0 42.0 42.0 42.0 42.0 21.0 21.0 21.0 21.0	5.0 5.0 5.0 5.0 2.0 2.0 2.0 2.0 42.0 42.0 42.0 42.0 21.0 21.0 21.0 21.0	5.0 5.0 5.0 5.0 3.0 2.0 2.0 2.0 2.0 3.0 42.0 42.0 42.0 0.0 0.0 21.0 21.0 21.0 21.0 0.0	5.0 5.0 5.0 5.0 3.0 3.0 2.0 2.0 2.0 2.0 3.0 3.0 42.0 42.0 42.0 0.0 0.0 21.0 21.0 21.0 0.0 0.0	5.0 5.0 5.0 5.0 3.0 3.0 2.0 2.0 2.0 2.0 3.0 3.0 42.0 42.0 42.0 0.0 0.0 21.0 21.0 21.0 0.0 0.0	5.0 5.0 5.0 5.0 3.0 3.0 3.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0	5.0 5.0 5.0 3.0 3.0 3.0 3.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 104.2
Natural Cycle: 80
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}	₩ Ø4	
69 s	36 s	
₩ Ø6	₽ø8	
69 s	36 s	

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**-\$1 - Base\We

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour 1: New St & Rt 926

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			€}•			4			4	
Traffic Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	ľ	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	60	698	14	21	335	33	10	92	40	54	181	158
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	100	1017	20	67	901	86	52	323	132	86	214	174
Arrive On Green	0.64	0.63	0.62	0.64	0.63	0.62	0.28	0.27	0.26	0.28	0.27	0.26
Sat Flow, veh/h	98	1609	32	46	1424	136	53	1203	493	168	795	647
Grp Volume(v), veh/h	772	0	0	389	0	0	142	0	0	393	0	0
Grp Sat Flow(s),veh/h/ln	1739	0	0	1607	0	0	1749	0	0	1609	0	0
Q Serve(g_s), s	11.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.0	0.0	0.0
Cycle Q Clear(g_c), s	28.4	0.0	0.0	11.3	0.0	0.0	6.4	0.0	0.0	23.6	0.0	0.0
Prop In Lane	0.08		0.02	0.05		0.08	0.07		0.28	0.14		0.40
Lane Grp Cap(c), veh/h	1155	0	0	1069	0	0	526	0	0	489	0	0
V/C Ratio(X)	0.67	0.00	0.00	0.36	0.00	0.00	0.27	0.00	0.00	0.80	0.00	0.00
Avail Cap(c_a), veh/h	1155	0	0	1069	0	0	589	0	0	549	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	11.9	0.0	0.0	8.9	0.0	0.0	29.5	0.0	0.0	35.7	0.0	0.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	1.0	0.0	0.0	0.3	0.0	0.0	7.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/ln14.8	0.0	0.0	6.4	0.0	0.0	5.0	0.0	0.0	15.1	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	15.0	0.0	0.0	9.9	0.0	0.0	29.8	0.0	0.0	43.4	0.0	0.0
LnGrp LOS	В	Α	Α	Α	Α	Α	С	Α	Α	D	Α	Α
Approach Vol, veh/h		772			389			142			393	
Approach Delay, s/veh		15.0			9.9			29.8			43.4	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	69.0		32.2		69.0		32.2				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		30.0		63.0		30.0				
Max Q Clear Time (q c+		30.4		25.6		13.3		8.4				
Green Ext Time (p_c), s	, , .	7.3		0.6		3.1		0.4				
Intersection Summary				0.0		0		0				
			21.6									
HCM 6th Ctrl Delay			21.6 C									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\ynutiDe** €1 - Base\W€

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	4		ሻ	*	7	ř	^	7	ሻ	↑ ↑	
Traffic Volume (vph)	456	216	29	211	234	67	31	1668	128	92	1570	138
Future Volume (vph)	456	216	29	211	234	67	31	1668	128	92	1570	138
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		-
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.988	
Flt Protected	0.950	0.984		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Flt Permitted	0.950	0.984	Ů	0.950			0.950	0001	. 550	0.950	00	J
Satd. Flow (perm)	1466	1736	0	1628	1818	1601	1744	3387	1683	1710	3246	0
Right Turn on Red			No	.020		No		000.	Yes		02.0	Yes
Satd. Flow (RTOR)									155		10	. 00
Link Speed (mph)		45			45			45	100		45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0.37	1%	4%	0.57	3%	2%	0.57	4%	5%
Adj. Flow (vph)	470	223	30	218	241	69	32	1720	132	95	1619	142
Shared Lane Traffic (%)		220	30	210	271	03	32	1720	132	33	1013	172
Lane Group Flow (vph)	352	371	0	218	241	69	32	1720	132	95	1761	0
Number of Detectors	1	1	U	1	1	1	1	1720	1	1	1,01	J
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5 -5	-5	-5 -5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type		Cl+Ex			CI+Ex							
Detector 1 Channel	CITEX	CITEX		CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	CITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
• • •							Prot				NA	
Turn Type	Split	NA 8		Split 4	NA 4	Perm	Prot 5	NA 2	Perm	Prot 1	NA 6	
Protected Phases	8	0		4	4	4	5	2	2		0	
Permitted Phases	8	8		4	4	4	5			1		
Detector Phase	ð	8		4	4	4	5			1		
Switch Phase	2.0	2.0		2.0	2.0	2.0	2.0	20.0	20.0	2.0	20.0	
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	27.0	27.0		21.0	21.0	21.0	14.0	58.0	58.0	14.0	58.0	
	22.5%				17.5%							
Maximum Green (s)	20.0	20.0		14.0	14.0	14.0	8.0	52.0	52.0	8.0	52.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We

Robinson Tract

3: Rt 202 & Rt 926

2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type: Other

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ቆ		ሻ	↑	7	ሻ	^	7	٦	∱ î≽	
Traffic Volume (veh/h)	456	216	29	211	234	67	31	1668	128	92	1570	138
Future Volume (veh/h)	456	216	29	211	234	67	31	1668	128	92	1570	138
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	362	375	30	218	241	69	32	1720	132	95	1619	142
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	307	336	6	232	242	208	62	1600	748	129	1571	62
Arrive On Green	0.17	0.17	0.17	0.13	0.13	0.13	0.03	0.44	0.44	0.08	0.48	0.48
Sat Flow, veh/h	1753	1790	143	1856	1935	1668	1856	3622	1693	1714	3084	268
Grp Volume(v), veh/h	362	0	405	218	241	69	32	1720	132	95	862	899
Grp Sat Flow(s), veh/h/ln	1753	0	1933	1856	1935	1668	1856	1811	1693	1714	1657	1696
Q Serve(g_s), s	21.0	0.0	21.0	14.0	14.9	4.5	2.0	53.0	5.7	6.5	58.0	58.0
Cycle Q Clear(g_c), s	21.0	0.0	21.0	14.0	14.9	4.5	2.0	53.0	5.7	6.5	58.0	58.0
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.16
Lane Grp Cap(c), veh/h	307	0	342	232	242	208	62	1600	748	129	801	832
V/C Ratio(X)	1.18	0.00	1.19	0.94	1.00	0.33	0.52	1.08	0.18	0.74	1.08	1.08
Avail Cap(c_a), veh/h	307	0	338	232	242	208	139	1600	748	129	801	820
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.5	0.0	49.5	52.1	52.5	47.9	57.1	33.5	20.3	54.3	31.0	31.0
Incr Delay (d2), s/veh	109.5	0.0	109.0	42.6	56.8	0.9	6.6	45.7	0.5	20.0	54.4	55.2
Initial Q Delay(d3),s/veh	35.2	0.0	52.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	359.6	346.1
%ile BackOfQ(95%),veh	/lß0.3	0.0	35.0	14.0	16.3	3.4	1.9	43.2	4.1	6.2	125.3	127.1
Unsig. Movement Delay,	, s/veh											
LnGrp Delay(d),s/veh	194.2	0.0	211.2	94.6	109.3	48.8	63.7	79.2	20.8	74.3	445.0	432.3
LnGrp LOS	F	Α	F	F	F	D	Е	F	С	Е	F	F
Approach Vol, veh/h		767			528			1884			1856	
Approach Delay, s/veh		203.2			95.3			74.9			419.9	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s14.0	58.0		21.0	9.0	63.0		27.0				
Change Period (Y+Rc),	s 6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma	088(xe	52.0		14.0	8.0	52.0		20.0				
Max Q Clear Time (g_c+	-I1)9s0	55.5		17.4	4.5	60.5		23.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			223.7									
HCM 6th LOS			F									

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

2030 without Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi8youth Dev\1 - Base\W€

2030 without Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**ßynut/Dæ®**1 - Base\W€

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	*	7	ŗ	f)			^	7		^	7
Traffic Volume (vph)	189	146	63	60	46	66	0	2096	77	0	2050	169
Future Volume (vph)	189	146	63	60	46	66	0	2096	77	0	2050	169
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.911				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1732	0	0	3256	1616	0	3370	1709
Flt Permitted	0.642			0.562								
Satd. Flow (perm)	1123	1906	1589	1001	1732	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	195	151	65	62	47	68	0	2161	79	0	2113	174
Shared Lane Traffic (%)							ŭ			Ŭ		
Lane Group Flow (vph)	195	151	65	62	115	0	0	2161	79	0	2113	174
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template	-		Right		•			-	Right		-	Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type			CI+Ex		CI+Ex				CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			Cl+Ex	
Detector 2 Channel								011 EX			0Ex	
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			CI+Ex	
Detector 3 Channel								011 EX			0 <u></u>	
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								CI+Ex			CI+Ex	
											J/\	

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\ynut**li⊅e⊗1 - Base\W€

McMahon Associates, Inc.

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL SB	T SBF
Detector 4 Channel											
Detector 4 Extend (s)								0.0		0.	0
Detector 5 Position(ft)								484		48	4
Detector 5 Size(ft)								6			6
Detector 5 Type								CI+Ex		CI+E	x
Detector 5 Channel											
Detector 5 Extend (s)								0.0		0.	
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm	N.	
Protected Phases		8			4			6			2
Permitted Phases	8		8	4					6		2
Detector Phase	8	8	8	4	4			6	6		2 2
Switch Phase											
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0	15.	0 15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0	22.	22.0
Total Split (s)	31.0	31.0	31.0	31.0	31.0			89.0	89.0	89.	0 89.0
Total Split (%)	25.8%	25.8%	25.8%	25.8%	25.8%			74.2%	74.2%	74.29	6 74.2%
Maximum Green (s)	23.0	23.0	23.0	23.0	23.0			82.0	82.0	82.	0 82.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0	5.	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0	2.	0 2.0
Lost Time Adjust (s)	-3.0	-3.0	-4.0	-3.0	-3.0			-2.0	-2.0	-2.	0 -2.0
Total Lost Time (s)	5.0	5.0	4.0	5.0	5.0			5.0	5.0	5.	5.0
Lead/Lag											
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0	6.	0.6
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0	3.	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0	48.	0 48.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0	24.	24.0
Recall Mode	None	None	None	None	None			C-Max	C-Max	C-Ma	x C-Max
Intersection Summary											
Area Type:	Other										
Cycle Length: 120											
Actuated Cycle Length:	120										
Offset: 84 (70%), Refere	enced t	o phase	2:SBT	and 6:1	NBT, Sta	rt of Yel	low				
Natural Cycle: 75											
Control Type: Actuated-	-Coordi	nated									
Description: Signal											
Splits and Phases: 12	2: Rt 20)2 & Ste	etson Sc	:hool Dr	/Skiles E	Blvd					
d		- 4 010	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11001 DI	, Citiles L	,,,,,		_	+		
▼ Ø2 (R)									₩ Ø4		

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 without Dev Weekday Afternoon Peak Hour

12: Rt 202 & Stetson	1 Scho	אום וטנ	Skiles	Biva		2030	withou	L Dev vv	eekuay	Aitemic	onrea	k Houi
	۶	→	•	•	←	*	4	†	<i>></i>	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	<u></u>	7	ሻ	4			^	7		^	7
Traffic Volume (veh/h)	189	146	63	60	46	66	0	2096	77	0	2050	169
Future Volume (veh/h)	189	146	63	60	46	66	0	2096	77	0	2050	169
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	195	151	65	62	47	68	0	2161	79	0	2113	174
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	289	448	388	241	148	214	0	2290	1097	0	2486	1153
Arrive On Green	0.22	0.22	0.22	0.22	0.22	0.19	0.00	0.70	0.70	0.00	0.70	0.70
Sat Flow, veh/h	1411	2066	1726	1169	683	988	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	195	151	65	62	0	115	0	2161	79	0	2113	174
Grp Sat Flow(s), veh/h/ln	1411	2066	1726	1169	0	1671	0	1635	1567	0	1776	1647
Q Serve(g_s), s	16.1	7.4	3.6	5.7	0.0	7.0	0.0	70.1	1.9	0.0	52.9	4.3
Cycle Q Clear(g_c), s	22.7	7.4	3.6	13.1	0.0	7.0	0.0	70.1	1.9	0.0	52.9	4.3
Prop In Lane	1.00		1.00	1.00		0.59	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	289	448	388	241	0	362	0	2290	1097	0	2486	1153
V/C Ratio(X)	0.68	0.34	0.17	0.26	0.00	0.32	0.00	0.94	0.07	0.00	0.85	0.15
Avail Cap(c_a), veh/h	289	448	388	241	0	362	0	2290	1097	0	2486	1153
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.9	39.7	37.4	45.3	0.0	40.3	0.0	15.9	5.7	0.0	13.3	6.0
Incr Delay (d2), s/veh	6.1	0.4	0.2	0.6	0.0	0.5	0.0	9.6	0.1	0.0	3.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		7.0	2.9	3.1	0.0	5.4	0.0	31.5	1.0	0.0	25.1	2.4
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	55.0	40.2	37.6	45.8	0.0	40.8	0.0	25.5	5.8	0.0	17.2	6.3
LnGrp LOS	D	D	D	D	Α	D	Α	С	Α	Α	В	Α
Approach Vol, veh/h		411			177			2240			2287	
Approach Delay, s/veh		46.8			42.6			24.8			16.4	
Approach LOS		D			D			С			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	89.0		31.0		89.0		31.0				
Change Period (Y+Rc), s	3	7.0		8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	82.0		23.0		82.0		23.0				
Max Q Clear Time (g_c+	l1), s	55.4		15.6		72.6		25.2				
Green Ext Time (p_c), s		26.6		0.4		9.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			23.4									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary
2030 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndtDe**®\1 - Base\W€

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

	-	•	•	•	1	_
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†	۴	Ţ	↑	Ţ	7
Traffic Volume (vph)	712	39	21	380	17	36
Future Volume (vph)	712	39	21	380	17	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	11	12	12	14
Grade (%)	8%			-8%	-1%	
Storage Length (ft)		350	120		0	0
Storage Lanes		1	1		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	1678	1567	1637	1817	1719	1505
Flt Permitted			0.950		0.950	
Satd. Flow (perm)	1678	1567	1637	1817	1719	1505
Link Speed (mph)	45			45	25	
Link Distance (ft)	2436			2349	414	
Travel Time (s)	36.9			35.6	11.3	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	3%	0%	5%	3%	0%	9%
Adj. Flow (vph)	742	41	22	396	18	38
Shared Lane Traffic (%)						
Lane Group Flow (vph)	742	41	22	396	18	38
Sign Control	Free			Free	Stop	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndr**Dev&1 - Base\We

McMahon Associates, Inc. 2: Bridlewood Blvd & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Intersection							ĺ
Int Delay, s/veh	0.9						•
Movement	EBT	EBR	WBL	WBT	NBL	NBR	l
Lane Configuration			ሻ		ሻ		
Traffic Vol, veh/h	712		21	380	17	36	
Future Vol. veh/h	712	39	21	380	17	36	
Conflicting Peds,		0	0	0	0	0	
Sign Control		Free				Stop	
RT Channelized		None		None		None	
Storage Length		350	120	-		0	
Veh in Median Sto	orage0		-	0	0	-	
Grade, %	8		-		_	-	
Peak Hour Factor			96		96	96	
Heavy Vehicles, %	6 3	0	5	3	0	9	
Mymt Flow	742	41	22	396	18	38	
101011111111111111111111111111111111111	7 12			000	10	00	
	/lajor1		lajor2		1inor1		j
Conflicting Flow A					1182		
Stage 1	-	-	-	-	742	-	
Stage 2	-	-	-	-	440	-	
Critical Hdwy	-	-	4.3	-	6.2	6.19	
Critical Hdwy Stg	1 -	-	-	-	5.2	-	
Critical Hdwy Stg:	2 -	-	-	-	5.2	-	
Follow-up Hdwy	-	-	3	-	3	3.1	
Pot Cap-1 Maneu	ver -	-	641	-	246	439	
Stage 1	-	-	-	-	551	-	
Stage 2	-	-	-	-	759	-	
Platoon blocked, 9	% -	-		-			
Mov Cap-1 Maneu			641	-	238	439	
Mov Cap-2 Maneu			-			-	
Stage 1	-		-	-		-	
Stage 2	_		_			_	
Olage 2					7 00		
Approach	EB		WB		NB		
HCM Control Dela	y, s 0		0.6		16.3		
HCM LOS					С		
Minor Lane/Major	Mumh	IRI nAI	RI no	ERT	ERP	W/RI	i
	IVIVIII						į
Capacity (veh/h)	-4! -		439			641	
HCM Lane V/C Ra		0.074				0.034	
HCM Control Dela	y (s)	21.3				10.8	
HCM Lane LOS	,	С				В	
HCM 95th %tile Q	(veh)	0.2	0.3	-	-	0.1	

HCM 6th TWSC 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract

2030 without Dev Weekday Afternoon Peak Hour

	۶	-	•	•	←	*	4	†	/	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	Ĭ	↑ ↑		Ĭ	↑ ↑	
Traffic Volume (vph)	0	0	45	0	0	43	51	2104	62	110	1825	202
Future Volume (vph)	0	0	45	0	0	43	51	2104	62	110	1825	202
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.996			0.985	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3246	0	1678	3326	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	46	0	0	44	52	2147	63	112	1862	206
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	44	52	2210	0	112	2068	0
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized

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Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndt**Dev \81 - Base\W€

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Movement	EBL	EBT	FBR	WBI	WRT	WBR	NRI	NBT	NBR	SBL	SBT	SBR	
Lane Configurations			7	*****	***	7	ሻ		HUIT	ሻ	↑ ↑	ODIT	
Traffic Vol, veh/h	0	0	45	0	0	43		2104	62		1825	202	
Future Vol. veh/h	0	0	45	0	0	43		2104	62		1825	202	
Conflicting Peds, #/I		0	0	0	0	0	0	0	0	0	0	0	
		Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-		Yield	-		None	-		None	-		None	
Storage Length			0		-	0	350		-	380		-	
Veh in Median Stora	ano.t		-	_	0	-	-	0		-	0	_	
Grade. %	лус, п -	-1	-	-	-2	_		2		_	-3		
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1	
Mvmt Flow	0	0	46	0	0	44		2147	63		1862	206	
WIVIIIL FIOW	U	U	40	U	U	44	32	2141	03	112	1002	200	
Major/Minor Min	nor2		N/	linor1		N	lajor1		M	lajor2			
Conflicting Flow All	-		1034	-	-	1105		0		2210	0	0	
Stage 1		_	100-		_	1105	2000	-	-	-	-	-	
Stage 2	_												
Critical Hdwy			7.1			7.2	3.9		-	3.9			
Critical Hdwy Stg 1	-	-	7.1	-	-	1.2	3.9		_	3.9	-	_	
Critical Hdwy Stg 2	-		-										
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-		2.4	_	_	
		0	*386			*232	464	-		*291			
Pot Cap-1 Maneuve	0	0	300	0		232	404		-	291	-	-	
Stage 1	0	0		0	0		-	-					
Stage 2	U	U		U	U	- :			-		-	-	
Platoon blocked, %			1			1	1	-	-	1	-	-	
Mov Cap-1 Maneuv		-	000	-		*232	464		-	_0.	-	-	
Mov Cap-2 Maneuv	er -	-	-	-	-	-	-	-	-	-	-	-	
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-	
Approach	EB			WB			NB			SB			
HCM Control Delay,	1 5 .6			24.1			0.3			1.3			
HCM LOS	С			С									
Minor Lane/Major M	lvmt						SBL						
Capacity (veh/h)		464	-	-		232		-	-				
HCM Lane V/C Rati).112	-			0.189		-	-				
HCM Control Delay	(s)	13.7	-	-		24.1		-	-				
HCM Lane LOS		В	-	-	С	С	С	-	-				
HCM 95th %tile Q(v	eh)	0.4	-	-	0.4	0.7	1.7	-	-				
Notes													

HCM 6th TWSC
2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**6**1 - Base\We

5: Church Access & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	f)			ર્ન	Ĭ	7
Traffic Volume (vph)	41	0	5	247	1	4
Future Volume (vph)	41	0	5	247	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	55	0	7	329	1	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	0	336	1	5
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type: Oth

Control Type: Unsignalized

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configuration				4	ኘ	
Traffic Vol, veh/h	41	0	5	247	1	4
Future Vol, veh/h	41	0	5	247	1	4
Conflicting Peds, #	#/hr 0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Sto	rage0	# -	-	0	0	-
Grade, %	4	-	-	-4	2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	55	0	7	329	1	5
Major/Minor M	lajor1	N	lajor2	M	linor1	
Conflicting Flow Al			55	0	398	55
Stage 1		-	-		55	
Stage 2		-		-	343	-
Critical Hdwy		_	4.3		6.8	
Critical Hdwy Stg 1	1 -	-	-	-	5.8	
Critical Hdwy Stg 2		-	-	-	5.8	
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	er -	-	1150		665	1078
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	794	-
Platoon blocked, %	6 -	-		-		
Mov Cap-1 Maneu	ver -	-	1150	-	660	1078
Mov Cap-2 Maneu	ver -	-	-	-	660	-
Stage 1	-	-	-	-	1124	-
Stage 2	-	-	-	-	788	-
Approach	EB		WB		NB	
HCM Control Dela			0.2		8.8	
HCM LOS	y, s u		0.2		0.0 A	
HCIVI LOS					A	
Minor Lane/Major	Mvm l \	IBLn1N	BLn2	EBT	EBR	WBL
Capacity (veh/h)			1078	-	-	1150
HCM Lane V/C Ra		0.002	0.005	-	-	0.006
HCM Control Dela	y (s)	10.5	8.4	-	-	8.1
HCM Lane LOS		В	Α	-	-	
HCM 95th %tile Q	(veh)	0	0	-	-	0
TOWN SSUIT /BUILD Q	(VCII)	U	U			U

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndr**Dev&1 - Base\We

HCM 6th TWSC 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We

Robinson Tract

6: Pleasant Grove Rd & Orvis Way

2030 without Dev Weekday Afternoon Peak Hour

Lane Group EBL EBT WBT WBR SBL SBR Lane Configurations ♣ ♣ ♣ ♣ ★ 22 22 22 228 21 20 22 22 Idea 1800 1900		•	-	-	•	-	4
Traffic Volume (vph) 28 25 228 21 20 22 Future Volume (vph) 28 25 228 21 20 22 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 Grade (%) 4% -3% 0% 0% Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 Fit Protected 0.974 0.976 Satd. Flow (prot) 0 1700 1788 0 1602 0 Fit Permitted 0.974 0.976 Satd. Flow (perm) 0 1700 1788 0 1602 0 Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Future Volume (vph) 28 25 228 21 20 22 Ideal Flow (vphpl) 1800 1900 1900 1800 1800 </td <td>Lane Configurations</td> <td></td> <td>र्स</td> <td>f)</td> <td></td> <td>¥</td> <td></td>	Lane Configurations		र्स	f)		¥	
Ideal Flow (vphph)	Traffic Volume (vph)	28	25	228	21	20	22
Grade (%) 4% -3% 0% Lane Util. Factor 1.00	Future Volume (vph)	28	25	228	21	20	22
Lane Util. Factor 1.00 <td>Ideal Flow (vphpl)</td> <td>1800</td> <td>1800</td> <td>1800</td> <td>1800</td> <td>1800</td> <td>1800</td>	Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Frt 0.989 0.930 Fit Protected 0.974 0.976 Satd. Flow (prot) 0 1700 1788 0 1602 0 Fit Permitted 0.974 0.976 Satd. Flow (perm) 0 1700 1788 0 1602 0 Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Grade (%)		4%	-3%		0%	
Fit Protected 0.974 0.976 Satd. Flow (prot) 0 1700 1788 0 1602 0 Fit Permitted 0.974 0.976 0.976 Satd. Flow (perm) 0 1700 1788 0 1602 0 Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot) 0 1700 1788 0 1602 0 Fit Permitted 0.974 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.976 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.75	Frt			0.989		0.930	
Fit Permitted 0.974 0.976 Satd. Flow (perm) 0 1700 1788 0 1602 0 Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Flt Protected		0.974			0.976	
Satd. Flow (perm) 0 1700 1788 0 1602 0 Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Satd. Flow (prot)	0	1700	1788	0	1602	0
Link Speed (mph) 35 35 25 Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75	Flt Permitted		0.974			0.976	
Link Distance (ft) 300 85 315 Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Satd. Flow (perm)	0	1700	1788	0	1602	0
Travel Time (s) 5.8 1.7 8.6 Peak Hour Factor 0.75 0.75 0.75 0.75 0.75 Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) 2 70 332 0 56 0	Link Speed (mph)		35	35		25	
Peak Hour Factor 0.75	Link Distance (ft)		300	85		315	
Heavy Vehicles (%) 2% 0% 1% 2% 2% 2% Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) Value Group Flow (vph) 0 70 332 0 56 0	Travel Time (s)		5.8	1.7		8.6	
Adj. Flow (vph) 37 33 304 28 27 29 Shared Lane Traffic (%) 33 332 0 56 0 Lane Group Flow (vph) 0 70 332 0 56 0	Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Shared Lane Traffic (%) Lane Group Flow (vph) 0 70 332 0 56 0	Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Lane Group Flow (vph) 0 70 332 0 56 0	Adj. Flow (vph)	37	33	304	28	27	29
	Shared Lane Traffic (%)						
	Lane Group Flow (vph)	0	70	332	0	56	0
Sign Control Free Free Stop	Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndr**Dev&1 - Base\We

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Intersection Int Delay, s/veh Movement Lane Configurat Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelizec Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1 Stage 2	tions h h s, #/hr Fr i Storag	28 28 0 eee - N	25 25 0 Free None - - 0 4 75 0 33	228 228 228 0 Free	21 21 0 Free None - - - 75	0 0 0 75	22 22 0 Stop None - - - 75
Movement Lane Configurat Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	tions h h s, #/hr Fr i Storag	28 28 28 0 eee - N 75 2 37	25 25 0 Free None - - 0 4 75 0 33	228 228 0 Free - 0 -3 75 1	21 21 0 Free None - - - 75 2	20 20 0 Stop - 0 0 0 75 2	22 22 0 Stop None - - - 75
Lane Configural Traffic Vol, veh/ Future Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	tions h h h s, #/hr Fr l Storag or , %	28 28 0 eee - N	25 25 0 Free None - - 0 4 75 0 33	228 228 0 Free - 0 -3 75 1	21 21 0 Free None - - - 75 2	20 20 0 Stop - 0 0 0 75 2	22 22 0 Stop None - - - 75
Traffic Vol, veh/ Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mymt Flow Major/Minor Conflicting Flow Stage 1	h /h s, #/hr Fr I Storag or , %	28 0 ee - N - ge, # - 75 2 37	25 25 0 Free None - 4 75 0 33	228 228 0 Free - 0 -3 75 1	21 0 Free None - - - 75 2	20 20 0 Stop - 0 0 0 75 2	22 0 Stop None - - - 75
Future Vol, veh/ Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mymt Flow Major/Minor Conflicting Flow Stage 1	/h fh Fr I Storag or , %	28 0 ee - N - ge, # - 75 2 37	25 0 Free None - - - 0 4 75 0 33	228 228 0 Free - 0 -3 75 1	21 0 Free None - - - 75 2	20 0 Stop 0 0 0 75 2	22 0 Stop None - - - 75
Conflicting Peds Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	s, #/hr Fr I Storag or , %	- 0 ree - N - ge, # - 75 2 37	0 Free None - - 0 4 75 0 33	0 Free - 0 -3 75 1	0 Free None - - - 75 2	0 Stop - 0 0 0 75 2	0 Stop None - - - 75
Sign Control RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	Fr I Storag or , % Majo	ree - N - ge, # - 75 2 37	Free None - 0 4 75 0 33	Free - 0 -3 75 1	Free None - - 75 2	Stop - 0 0 75 2	Stop None - - - 75
RT Channelized Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mymt Flow Major/Minor Conflicting Flow Stage 1	Storag or , % Majo	- N - ge, # - 75 2 37	None - 0 4 75 0 33	- 0 -3 75 1	None - - - 75 2	0 0 0 75 2	None - - - 75
Storage Length Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	Storag or , % Majo	- ge, # 75 2 37	75 0 33	0 -3 75 1	- - 75 2	0 0 0 75 2	- - - 75
Veh in Median S Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	or , % Majo	75 2 37	0 4 75 0 33	0 -3 75 1	- 75 2	0 0 75 2	- - 75
Grade, % Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	or , % Majo	75 2 37	4 75 0 33	-3 75 1	- 75 2	75 2	- 75
Peak Hour Fact Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	, % Majo	75 2 37 or1	75 0 33	75 1	75 2	75 2	75
Heavy Vehicles Mvmt Flow Major/Minor Conflicting Flow Stage 1	, % Majo	2 37 or1	33	1	2	2	
Mvmt Flow Major/Minor Conflicting Flow Stage 1	Majo	37 or1	33			_	
Mvmt Flow Major/Minor Conflicting Flow Stage 1	Majo	or1		304	28	27	2
Conflicting Flow Stage 1							29
Conflicting Flow Stage 1							
Conflicting Flow Stage 1					-		
Stage 1	All 3			ajor2		linor2	0.46
			0	-		425	318
		-	-	-	-	0.0	-
		-	-	-			-
Critical Hdwy		4.3	-	-		6.42	
Critical Hdwy St		-	-	-		5.42	-
Critical Hdwy St		-	-	-	-	5.42	-
Follow-up Hdwy		3	-	-	-	-	3.1
Pot Cap-1 Mane	euve®		-	-	-	668	766
Stage 1		-	-	-			-
Stage 2		-	-	-	-	1068	-
Platoon blocked	l, %		-	-	-		
Mov Cap-1 Man			-	-	-	641	766
Mov Cap-2 Man	euvei	r -	-	-	-	641	-
Stage 1		-	-	-	-	811	-
Stage 2		-	-	-	-	1068	-
3 / =							
				14/5			
Approach		EB		WB		SB	
HCM Control De		4.8		0		10.6	
	ziay, E					В	
HCM LOS	elay, E						
	ziay, e						
HCM LOS		mt	EBL	EBT	WBT	WBRS	BLn1
HCM LOS Minor Lane/Maj	or Mv	mt				WBRS	
HCM LOS Minor Lane/Maj Capacity (veh/h	or Mv		924	EBT -	-	-	701
Minor Lane/Maj Capacity (veh/h HCM Lane V/C	or Mv) Ratio		924 0.04	-	-	-	701 0.08
Minor Lane/Maj Capacity (veh/h HCM Lane V/C HCM Control De	or Mv) Ratio		924 0.04 9.1	- - 0	-	-	701 0.08 10.6
Minor Lane/Maj Capacity (veh/h HCM Lane V/C	or Mv) Ratio elay (s	s)	924 0.04	-	-	-	701 0.08

HCM 6th TWSC 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 without Dev Weekday Afternoon Peak Hour

	\rightarrow	•	•	—	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			†	¥	
Traffic Volume (vph)	49	0	0	250	0	0
Future Volume (vph)	49	0	0	250	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	2826			300	323	
Travel Time (s)	55.1			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	65	0	0	333	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	65	0	0	333	0	0
Sign Control	Free			Free	Stop	
Internaction Cumment						

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 without Dev Weekday Afternoon Peak Hour

Interportion						
Intersection Int Delay, s/veh	0					
		EBR	WBL	WBT		NBR
Lane Configurations	s 🕈				¥	
Traffic Vol, veh/h	49	0	0		0	0
Future Vol, veh/h	49	0	0		0	0
Conflicting Peds, #/		0	0	0	0	0
				Free		
RT Channelized		None		None		None
Storage Length	-		-		0	
Veh in Median Stor			-	0	0	
Grade, %	3		-	_	-2	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	0	-	0		0	-
Mvmt Flow	65	0	0	333	0	0
Major/Minor Ma	ajor1	N	lajor2	N	linor1	
Conflicting Flow All		-				65
Stage 1	-	-	-	-	65	
Stage 2	-	-	-	-	333	-
Critical Hdwy	-	_	-	_	6	6
Critical Hdwy Stg 1	-		-		5	
Critical Hdwy Stg 2	-	_	-	_	5	_
Follow-up Hdwy	-	-		-	3	3.1
Pot Cap-1 Maneuve	er -	0	0	-		1071
Stage 1	-	0	0		1126	-
Stage 2	-	0	0	-		-
Platoon blocked, %	-					
Mov Cap-1 Maneuv		-	_		726	1071
Mov Cap-2 Maneuv		-			-	
Stage 1	-	-	_		1126	
Stage 2	_					
Olage 2					000	
Approach	EB		WB		NB	
HCM Control Delay	, s 0		0		0	
HCM LOS					Α	
Minor Lane/Major M	1vmN	BLn1	EBT	WBT		
		-	-	-		
Capacity (yeh/h)			_			
Capacity (veh/h) HCM Lane V/C Rati	io	-				
HCM Lane V/C Rat		0	-	-		
HCM Lane V/C Rat HCM Control Delay			-	-		
HCM Lane V/C Rat	(s)	0				

Robinson Tract

10: Pleasant Grove Rd & Dunvegan Road

2030 without Dev Weekday Afternoon Peak Hour

	•	-	•	•	-	4
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		4	f)		¥	
Traffic Volume (vph)	3	62	263	12	1	2
Future Volume (vph)	3	62	263	12	1	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10
Grade (%)		3%	-3%		1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.994		0.899	
Flt Protected		0.998			0.988	
Satd. Flow (prot)	0	1651	1679	0	1485	0
Flt Permitted		0.998			0.988	
Satd. Flow (perm)	0	1651	1679	0	1485	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		591	2826		385	
Travel Time (s)		11.5	55.1		10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%
Adj. Flow (vph)	4	83	351	16	1	3
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	87	367	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summar

Area Type: Other Control Type: Unsignalized

10: Pleasant Grove Rd & Dunvegan Road

McMahon Associates, Inc.

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	0.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configuration		4	1>		¥	
Traffic Vol, veh/h	3	62	263	12	1	2
Future Vol., veh/h	3	62	263	12	1	2
Conflicting Peds, #	#/hr 0	0	0	0	0	0
Sign Control		Free	Free			Stop
RT Channelized		None		None		None
Storage Length					0	-
Veh in Median Sto	rage-	# 0	0	_	0	_
Grade. %	rugo, -		-3		1	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %			1	0	0	
Mymt Flow	4	-	351	16	1	3
MALLE LIOW	4	ಂತ	351	10	- 1	3
	1ajor1		lajor2	N	linor2	
Conflicting Flow Al	II 367		-	-	450	359
Stage 1	-	-	-	-	359	-
Stage 2	-	-	-	-	91	-
Critical Hdwy	4.3	-	-	-	6.6	6.3
Critical Hdwy Stg 1	1 -	-	-	-	5.6	-
Critical Hdwy Stg 2		_	-	_	5.6	-
Follow-up Hdwy	- 3				3	3.1
Pot Cap-1 Maneuv			-		631	720
Stage 1	-				794	
Stage 2		-	_		1082	_
Platoon blocked, %			_		1002	_
			-	-	000	700
Mov Cap-1 Maneu			-	-	628	
Mov Cap-2 Maneu			-			-
Stage 1	-		-	-		-
Stage 2	-	-	-	-	1082	-
Approach	EB		WB		SB	
HCM Control Dela	v. g .4		0		10.3	
HCM LOS	<i>)</i> , U		·		В	
I IOW EOO						
Minor Lane/Major I	Mvmt			WBT		
Capacity (veh/h)		899	-	-	-	686
HCM Lane V/C Ra	tio	0.004	-	-	-	0.006
HCM Control Delay	y (s)	9	0	-	-	10.3
HCM Lane LOS		Α	Α	-	-	В
HCM 95th %tile Q((veh)	0	-	-	-	0

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\ynut**li⊅e⊗1 - Base\W€

HCM 6th TWSC
2030 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndf⊅æ**41 - Base\W€

11: New Street & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

	•	•	Ť	_	-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		î,			4
Traffic Volume (vph)	214	52	151	45	20	178
Future Volume (vph)	214	52	151	45	20	178
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.974		0.969			
Flt Protected	0.961					0.995
Satd. Flow (prot)	1665	0	1731	0	0	1759
Flt Permitted	0.961					0.995
Satd. Flow (perm)	1665	0	1731	0	0	1759
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	240	58	170	51	22	200
Shared Lane Traffic (%)					
Lane Group Flow (vph)	298	0	221	0	0	222
Sign Control	Stop		Free			Free
Intersection Summary						

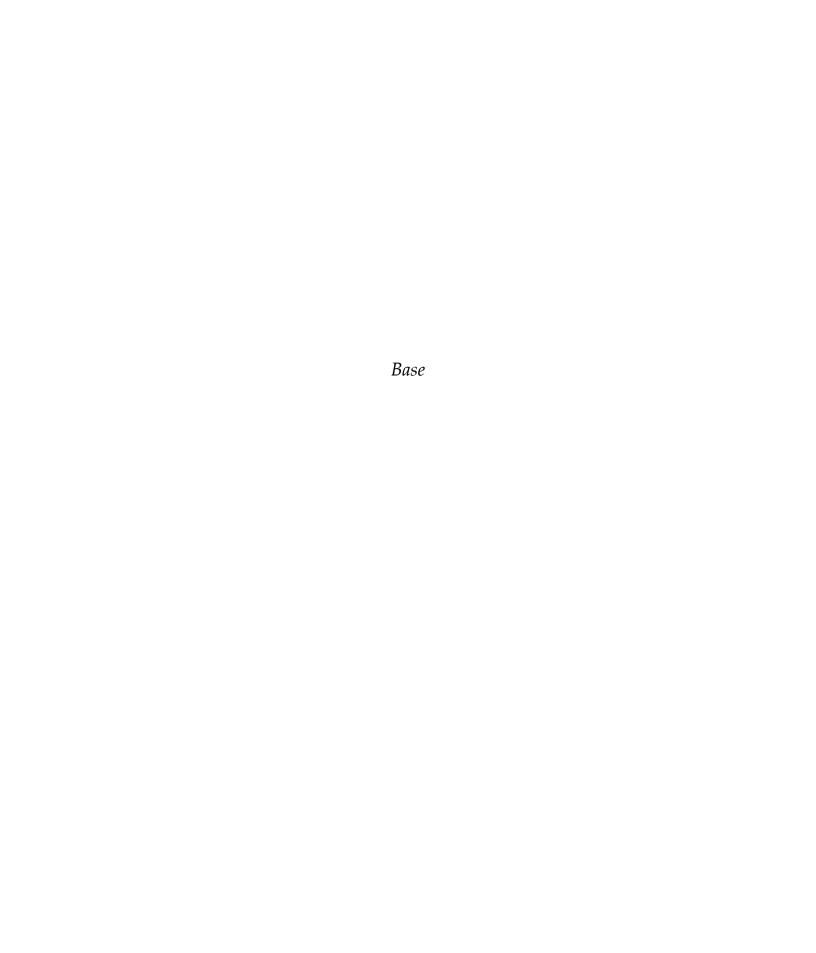
Area Type: Other Control Type: Unsignalized McMahon Associates, Inc.
11: New Street & Pleasant Grove Rd

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	6.1					
	W/DI	WIDD	NIDT	NIDD	CDI	CDT
		WBK		NBR	SBL	
Lane Configuration	_		- ∱>	45	00	4
Traffic Vol, veh/h	214	52	151	45	20	178
Future Vol, veh/h	214	52	151	45	20	178
Conflicting Peds, #		0	_ 0	_ 0	_ 0	_ 0
				Free		
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Stor			0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	2	1	0	0	2
Mvmt Flow	240	58	170	51	22	200
Major/Minor M	inar1		laiar1		laiara	
	inor1		lajor1		lajor2	
Conflicting Flow All		196	0			0
Stage 1	196	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Critical Hdwy		6.22	-	-	4.3	-
Critical Hdwy Stg 1		-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuv	e655	900	-	-	1009	-
Stage 1	969	-	-	-	-	-
Stage 2	919	-	-	-	-	-
Platoon blocked, %			-			
Mov Cap-1 Maneu		900	-		1009	-
Mov Cap-2 Maneu		-	_		1003	
Stage 1	969		-		-	
Stage 2	896	-				_
Stage 2	090		-		-	
Approach	WB		NB		SB	
HCM Control Delay	/14.5		0		0.9	
HCM LOS	,,,чо				0.0	
Minor Lane/Major N	vivmt	NBT	NBR	/BLn1	SBL	SBT
Capacity (veh/h)		-	-	677	1009	-
HCM Lane V/C Rat	tio	-	-	0.441	0.022	-
HCM Control Delay	/ (s)	-	-	14.5	8.6	0
HCM Lane LOS	,	-	-	В	Α	A
HCM 95th %tile Q(veh)	-	-	2.3	0.1	-
	,					

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\ynut**li⊅e⊗1 - Base\W€

HCM 6th TWSC 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8yout/De**v**3**1 - Base\We



1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

	۶	→	•	•	+	4	1	†	/	/	↓	- ✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (vph)	81	660	5	8	330	38	10	105	43	8	130	204
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.986			0.963			0.919	
Flt Protected		0.995			0.999			0.997			0.999	
Satd. Flow (prot)	0		0	0	1547	0	0	1586	0	0	1512	0
Flt Permitted	-	0.914	*	-	0.986	-		0.869			0.992	-
Satd. Flow (perm)	0		0	0	1527	0	0	1383	0	0	1502	0
Right Turn on Red	Ū	00	Yes	Ū	.02.	Yes	Ū	.000	No	Ū	.002	No
Satd. Flow (RTOR)		1			16							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0.37	0.57	7%	3%	11%	1%	5%	13%	0.57	2%
Adj. Flow (vph)	84	680	5	8	340	39	10	108	44	8	134	210
Shared Lane Traffic (%)		000	3	U	340	33	10	100	77	U	104	210
Lane Group Flow (vph)	0	769	0	0	387	0	0	162	0	0	352	0
Number of Detectors	1	1	U	1	1	U	1	102	U	1	1	U
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 1 Channel	OITEX	OITEX		OITEX	OIILX		OITEX	OITEX		OIILX	OITEX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	r eiiii	2		r eiiii	6		r eiiii	8		r eiiii	4	
Permitted Phases	2			6	U		8	0		4	-	
Detector Phase	2			6			8	8		4	4	
Switch Phase				O			0	0		4	4	
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (s) Total Split (%)		76.7%			76.7%			23.3%		23.3%		
- (/								15.0				
Maximum Green (s)	63.0	63.0		63.0	63.0		15.0			15.0	15.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 20@@twitheRedPert\1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}	₩ Ø4
69 s	21 s
₩ Ø6	↑ ø8
69 s	21 s

Lanes, Volumes, Timings 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 2000@withbRdpen\1 - Base\We

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Morning Peak Hour

1: New St & Rt 926 2030 Without Dev Week										ay worm	ng i ca	KTIOUI
	•	→	•	•	←	•	4	†	/	-	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		43			43-			43-			43-	
Traffic Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
Future Volume (veh/h)	81	660	5	8	330	38	10	105	43	8	130	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	า	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	84	680	5	8	340	39	10	108	44	8	134	210
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	146	1104	8	48	1050	118	51	221	86	44	113	171
Arrive On Green	0.70	0.71	0.70	0.70	0.71	0.70	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	142	1553	11	10	1476	167	48	1244	482	15	637	963
Grp Volume(v), veh/h	769	0	0	387	0	0	162	0	0	352	0	0
Grp Sat Flow(s), veh/h/ln	1707	0	0	1653	0	0	1773	0	0	1615	0	0
Q Serve(g_s), s	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.2	0.0	0.0	7.9	0.0	0.0	7.5	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.02		0.10	0.06		0.27	0.02		0.60
Lane Grp Cap(c), veh/h	1239	0	0	1198	0	0	338	0	0	310	0	0
V/C Ratio(X)	0.62	0.00	0.00	0.32	0.00	0.00	0.48	0.00	0.00	1.14	0.00	0.00
Avail Cap(c_a), veh/h	1239	0	0	1198	0	0	338	0	0	310	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.6	0.0	0.0	4.9	0.0	0.0	33.7	0.0	0.0	37.9	0.0	0.0
Incr Delay (d2), s/veh	2.3	0.0	0.0	0.7	0.0	0.0	1.1	0.0	0.0	92.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/ln10.1	0.0	0.0	4.0	0.0	0.0	6.0	0.0	0.0	22.5	0.0	0.0
Unsig. Movement Delay	, s/veh											
LnGrp Delay(d),s/veh	9.0	0.0	0.0	5.6	0.0	0.0	34.7	0.0	0.0	130.7	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	A
Approach Vol, veh/h		769			387			162			352	
Approach Delay, s/veh		9.0			5.6			34.7			130.7	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc)	, S	69.0		21.0		69.0		21.0				
Change Period (Y+Rc),	S	6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+	-l1), s	22.2		17.0		9.9		9.5				
Green Ext Time (p_c), s	,	7.6		0.0		3.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			36.4									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary 2030 without Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 29@@withb@depent1 - Base\We



Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour 1: New St & Rt 926

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Future Volume (vph)	58	677	14	20	325	32	10	89	39	52	176	153
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.989			0.962			0.946	
Flt Protected		0.996			0.997			0.996			0.993	
Satd. Flow (prot)	0	1625	0	0	1551	0	0	1581	0	0	1531	0
Flt Permitted		0.941			0.947			0.951			0.935	
Satd. Flow (perm)	0	1536	0	0	1473	0	0	1510	0	0	1441	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			9							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	60	698	14	21	335	33	10	92	40	54	181	158
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	772	0	0	389	0	0	142	0	0	393	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	74.0	74.0		74.0	74.0		31.0	31.0		31.0	31.0	
Total Split (%)	70.5%	70.5%		70.5%	70.5%		29.5%	29.5%		29.5%	29.5%	
Maximum Green (s)	68.0	68.0		68.0	68.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**synutiDev**\1 - Base\We

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0	
Minimum Gap (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0	
Time Before Reduce (s)	42.0	42.0		42.0	42.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	21.0	21.0		21.0	21.0		0.0	0.0		0.0	0.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	

Intersection Summary Area Type: Cycle Length: 105 Actuated Cycle Length: 105 Natural Cycle: 80 Control Type: Semi Act-Uncoord

Splits and Phases: 1: New St & Rt 926

→ _{Ø2}	₩94
74 s	31 s
₩ Ø6	↑ øs
74 s	31 s

Lanes, Volumes, Timings 2030 without Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\pout\Dev**\1 - Base\We

McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 without Dev Weekday Afternoon Peak Hour

1: New St & Rt 926						2030 Williout Dev Weekday Alternoon Feak Hot							
	۶	→	•	•	←	•	4	†	/	>	ļ	4	
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4			43-			4			43-		
Traffic Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153	
Future Volume (veh/h)	58	677	14	20	325	32	10	89	39	52	176	153	
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	1	No			No			No			No		
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794	
Adj Flow Rate, veh/h	60	698	14	21	335	33	10	92	40	54	181	158	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0	
Cap, veh/h	102	1057	21	68	933	89	50	295	121	81	197	161	
Arrive On Green	0.67	0.66	0.65	0.67	0.66	0.65	0.26	0.25	0.24	0.26	0.25	0.24	
Sat Flow, veh/h	99	1608	32	48	1420	136	53	1190	488	171	795	649	
Grp Volume(v), veh/h	772	0	0	389	0	0	142	0	0	393	0	0	
Grp Sat Flow(s),veh/h/ln		0	0	1604	0	0	1731	0	0	1615	0	0	
Q Serve(q s), s	9.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	0.0	
Cycle Q Clear(q c), s	27.3	0.0	0.0	10.9	0.0	0.0	6.9	0.0	0.0	25.1	0.0	0.0	
Prop In Lane	0.08	0.0	0.02	0.05	0.0	0.08	0.07	0.0	0.28	0.14	0.0	0.40	
Lane Grp Cap(c), veh/h	1196	0	0	1106	0	0	482	0	0.20	454	0	0	
V/C Ratio(X)	0.65	0.00	0.00	0.35	0.00	0.00	0.29	0.00	0.00	0.87	0.00	0.00	
Avail Cap(c_a), veh/h	1196	0.00	0.00	1106	0.00	0.00	482	0.00	0.00	454	0	0.00	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		0.0	0.0	8.0	0.0	0.0	32.4	0.0	0.0	39.1	0.0	0.0	
Incr Delay (d2), s/veh	2.7	0.0	0.0	0.9	0.0	0.0	0.3	0.0	0.0	15.9	0.0	0.0	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(95%),veh		0.0	0.0	6.1	0.0	0.0	5.4	0.0	0.0	17.2	0.0	0.0	
Unsig. Movement Delay,		0.0	0.0	0.1	0.0	0.0	О. Т	0.0	0.0	11.2	0.0	0.0	
LnGrp Delay(d),s/veh	13.4	0.0	0.0	8.9	0.0	0.0	32.7	0.0	0.0	55.0	0.0	0.0	
LnGrp LOS	В	A	Α	A	A	Α.	C	A	Α.	E	Α.	Α	
Approach Vol. veh/h		772		- '	389	- ' '		142			393		
Approach Delay, s/veh		13.4			8.9			32.7			55.0		
Approach LOS		В			Α.5			C			55.0 E		
• •													
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc),		74.0		31.0		74.0		31.0					
Change Period (Y+Rc),		6.0		6.0		6.0		6.0					
Max Green Setting (Gma	,,	68.0		25.0		68.0		25.0					
Max Q Clear Time (g_c+	I1), s	29.3		27.1		12.9		8.9					
Green Ext Time (p_c), s		7.5		0.0		3.1		0.4					
Intersection Summary													
HCM 6th Ctrl Delay			23.7										
HCM 6th LOS			С										

HCM 6th Signalized Intersection Summary
2030 without Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\4 - 2030 wi**8\yndtDe**®\1 - Base\W€





Appendix S

Future (2030) Capacity/Level-of-Service With Development Analysis Worksheets

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

•	-	•	•	←	•	4	†	~	-	↓	4
Lane Group EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4			ર્ન	7		4			4	
Traffic Volume (vph) 84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph) 84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl) 1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft) 10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)	-2%			1%			-2%			1%	
Storage Length (ft) 0		0	0		150	0		0	0		0
Storage Lanes 0		0	0		1	0		0	0		0
Taper Length (ft) 75			75			75			75		
Lane Util. Factor 1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.999				0.850		0.963			0.929	
Flt Protected	0.994			0.999			0.997			0.999	
Satd. Flow (prot) 0	1624	0	0	1564	1379	0	1586	0	0	1530	0
Flt Permitted	0.907			0.977			0.910			0.991	
Satd. Flow (perm) 0	1482	0	0	1529	1379	0	1448	0	0	1518	0
Right Turn on Red		Yes			Yes			No			No
Satd. Flow (RTOR)	1				39						
Link Speed (mph)	45			45			25			35	
Link Distance (ft)	819			2436			714			826	
Travel Time (s)	12.4			36.9			19.5			16.1	
Peak Hour Factor 0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%) 2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph) 87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%)											
Lane Group Flow (vph) 0	776	0	0	417	39	0	164	0	0	306	0
Number of Detectors 1	1		1	1	1	1	1		1	1	
Detector Template Left			Left		Right	Left	Thru		Left	Thru	
Leading Detector (ft) 30	6		30	6	30	30	35		30	35	
Trailing Detector (ft) -10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Position(ft) -10	0		-10	0	-10	-10	-5		-10	-5	
Detector 1 Size(ft) 40	6		40	6	40	40	40		40	40	
Detector 1 Type CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel											
Detector 1 Extend (s) 0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s) 0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s) 0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	2			6			8			4	
Permitted Phases 2			6		6	8			4		
Detector Phase 2			6			8	8		4	4	
Switch Phase											
Minimum Initial (s) 22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Minimum Split (s) 28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Total Split (s) 69.0	69.0		69.0	69.0	69.0	21.0	21.0		21.0	21.0	
Total Split (%) 76.7%	76.7%		76.7%	76.7%	76.7%	23.3%			23.3%	23.3%	
Maximum Green (s) 63.0			63.0	63.0	63.0	15.0	15.0		15.0	15.0	
Yellow Time (s) 4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s) 2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0			-1.0	0.0		-1.0			-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 23\000c0\000f60Re\000f60Re\000f60enario 2A\W

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Lane Group NBT Total Lost Time (s) 5.0 6.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 Recall Mode C-Max C-Max C-Max C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 90

Control Type: Actuated-Coordinated

Offset: 50 (56%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Actuated Cycle Length: 90

Natural Cycle: 65



Lanes, Volumes, Timings
2030 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29\60\forall with BD\\end{alignet}
80cm\fractare 2A\W

Robinson Tract 2030 with Dev Weekday Morning Peak Hour 1: New St & Rt 926

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4	7		4			4	
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Cap, veh/h	148	1089	8	53	1178	1040	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	146	1532	11	17	1657	1485	47	1240	487	17	756	859
Grp Volume(v), veh/h	776	0	0	417	0	39	164	0	0	306	0	0
Grp Sat Flow(s), veh/h/ln	1688	0	0	1674	0	1485	1773	0	0	1632	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	0.0	1.8	0.0	0.2	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		1.00	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	1226	0	0	1213	0	1040	338	0	0	313	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.34	0.00	0.04	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1226	0	0	1213	0	1040	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.99	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.7	0.0	0.0	0.8	0.0	0.9	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.8	0.0	0.1	1.1	0.0	0.0	44.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.	/ln10.3	0.0	0.0	1.0	0.0	0.1	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	9.2	0.0	0.0	1.5	0.0	1.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	Α	Α	Α	Α	Α	Α	С	Α	Α	F	Α	Α
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		9.2			1.5			34.8			82.2	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs	_	2	_	4	_	6	_	8	_	_	_	
Phs Duration (G+Y+Rc),		69.0		21.0		69.0		21.0				
Change Period (Y+Rc),		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		15.0		63.0		15.0				
Max Q Clear Time (q c+		22.9		17.0		3.8		9.6				
Green Ext Time (p_c), s	11), 5	7.8		0.0		3.6		0.2				
0 - 7		1.0		0.0		5.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			22.7									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 28\%@\width@Dex\85denario 2A\W

McMahon Associates, Inc.

2: Bridlewood Blvd/Collector Road & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	*	7	ሻ	<u></u>	7	ሻ	- 1→		ሻ	<u></u>	
Traffic Volume (vph)	31	669	33	14	249	14	26	31	14	46	15	164
Future Volume (vph)	31	669	33	14	249	14	26	31	14	46	15	164
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.954			0.862	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1662	1521	1719	1733	1560	1719	1687	0	1676	1521	0
Flt Permitted	0.600			0.359			0.396			0.727		
Satd. Flow (perm)	1016	1662	1521	650	1733	1560	716	1687	0	1283	1521	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			36		14			169	
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			607	
Travel Time (s)		36.9			35.6			11.3			11.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	3%	0%	8%	2%	0%	2%	3%	2%	2%	2%
Adj. Flow (vph)	32	690	34	14	257	14	27	32	14	47	15	169
Shared Lane Traffic (%)												
Lane Group Flow (vph)	32	690	34	14	257	14	27	46	0	47	184	0
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (ft)	30	30	30	30	30	30	30	30		30	30	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	-10	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	71.0	71.0	71.0	71.0	71.0	71.0	19.0	19.0		19.0	19.0	
			78.9%							21.1%		
Maximum Green (s)	65.0	65.0	65.0	65.0	65.0	65.0	13.0	13.0		13.0	13.0	
		4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Yellow Time (s)	4.0											
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	

Lanes, Volumes, Timings
2030 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 28\@@\widhB\Pea\80denario 2A\W

Robinson Tract

2: Bridlewood Blvd/Collector Road & Rt 926

2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Lengtl	ո։ 90											
Offset: 0 (0%), Refere	nced to p	hase 2:	EBTL a	and 6:W	BTL, St	art of Ye	ellow, M	aster Int	ersection	on		
Natural Cycle: 50												

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ		7	ሻ		7	ሻ	Դ		ሻ	₽	
Traffic Volume (veh/h)	31	669	33	14	249	14	26	31	14	46	15	164
Future Volume (veh/h)	31	669	33	14	249	14	26	31	14	46	15	164
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1415	1387	1457	2098	1984	2070	1837	1809	1881	1772	1772	1772
Adj Flow Rate, veh/h	32	690	34	14	257	14	27	32	14	47	15	169
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	4	3	0	8	2	0	2	2	2	2	2
Cap, veh/h	694	1017	905	682	1455	1286	135	186	81	267	19	217
Arrive On Green	0.98	0.98	0.98	0.73	0.73	0.73	0.16	0.16	0.14	0.16	0.16	0.14
Sat Flow, veh/h	885	1387	1235	864	1984	1754	1244	1193	522	1360	124	1397
Grp Volume(v), veh/h	32	690	34	14	257	14	27	0	46	47	0	184
Grp Sat Flow(s),veh/h/ln		1387	1235	864	1984	1754	1244	0	1715	1360	0	1521
Q Serve(g_s), s	0.3	3.3	0.1	0.4	3.6	0.2	1.9	0.0	2.1	2.8	0.0	10.5
Cycle Q Clear(g_c), s	3.8	3.3	0.1	3.7	3.6	0.2	11.9	0.0	2.1	4.4	0.0	10.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.92
Lane Grp Cap(c), veh/h	694	1017	905	682	1455	1286	135	0	267	267	0	237
V/C Ratio(X)	0.05	0.68	0.04	0.02	0.18	0.01	0.20	0.00	0.17	0.18	0.00	0.78
Avail Cap(c_a), veh/h	694	1017	905	682	1455	1286	135	0	267	267	0	237
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60	0.30	0.30	0.30	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.5	0.3	0.3	4.2	3.7	3.2	42.0	0.0	33.1	34.7	0.0	37.0
Incr Delay (d2), s/veh	0.1	2.2	0.0	0.0	0.1	0.0	0.7	0.0	0.3	0.3	0.0	15.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/		1.5	0.0	0.1	1.7	0.1	1.1	0.0	1.6	1.7	0.0	8.4
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	0.6	2.5	0.3	4.2	3.8	3.2	42.7	0.0	33.4	35.0	0.0	52.1
LnGrp LOS	Α	Α	Α	Α	Α	Α	D	Α	С	С	Α	D
Approach Vol, veh/h		756			285			73			231	
Approach Delay, s/veh		2.4			3.8			36.9			48.6	
Approach LOS		Α			Α			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	71.0		19.0		71.0		19.0				
Change Period (Y+Rc), s	6	6.0		6.0		6.0		6.0				
Max Green Setting (Gma	x), s	65.0		13.0		65.0		13.0				
Max Q Clear Time (g_c+	l1), s	6.3		12.5		6.2		14.4				
Green Ext Time (p_c), s		2.9		0.0		0.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			12.5									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 28\@@\withBDep\80c165denario 2A\W

3: Rt 202 & Rt 926 2030 with Dev Weekday Morning Peak Hour

3: Rt 202 & Rt 926							2030 W	illi Dev	vveeku	ay Mon	ing Pea	K HOUI
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ř	- €		7	*	7	ř	^	7	7	↑ ↑	
Traffic Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (vph)	497	242	31	150	171	58	23	1672	160	65	1585	97
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.988				0.850			0.850		0.991	
Flt Protected	0.950	0.985		0.950			0.950			0.950		
Satd. Flow (prot)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Flt Permitted	0.950	0.985		0.950			0.950			0.950		·
Satd. Flow (perm)	1494	1715	0	1565	1765	1556	1491	3291	1635	1487	3109	0
Right Turn on Red			No	.000		No		020.	Yes		0.00	Yes
Satd. Flow (RTOR)									155		7	. 00
Link Speed (mph)		45			45			45	.00		45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	512	249	32	155	176	60	24	1724	165	67	1634	100
Shared Lane Traffic (%)		2-10	02	100	170				100	0,	1001	100
Lane Group Flow (vph)	394	399	0	155	176	60	24	1724	165	67	1734	0
Number of Detectors	1	1	U	1	1,70	1	1	1/24	103	1	1/34	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type		CI+Ex			CI+Ex							
Detector 1 Channel	CITLX	CITLX		CITLX	CITLX	CITLX	CITLX	CITLX	CITLX	CITLX	CITLX	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	Spiit 8	1NA 8		Split 4	4	reiiii	5	2	reiiii	1	6	
Permitted Phases	U	U		4	7	4	J		2		U	
Detector Phase	8	8		4	4	4	5			1		
Switch Phase	0	0		4	4	4	5					
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	31.0	31.0		18.0	18.0	18.0	14.0	57.0	57.0	14.0	57.0	
	25.8%				15.0%							
	24.0	24.0		11.0	11.0	11.0	8.0	51.0	51.0	8.0	51.0	
Maximum Green (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
All-Red Time (s)												
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030@wibtBPeap8denario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030@with8Dex\83denario 2A\W

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Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	4		ሻ	<u></u>	7	ሻ	^	7	ሻ	↑ î>	
Traffic Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	ı	No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	396	411	32	155	176	60	24	1724	165	67	1634	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	371	391	7	180	189	163	45	1568	733	99	1463	89
Arrive On Green	0.21	0.21	0.20	0.10	0.10	0.10	0.03	0.44	0.44	0.07	0.48	0.47
Sat Flow, veh/h	1780	1753	137	1802	1892	1630	1626	3541	1655	1514	3045	185
Grp Volume(v), veh/h	396	0	443	155	176	60	24	1724	165	67	848	886
Grp Sat Flow(s), veh/h/ln	1780	0	1890	1802	1892	1630	1626	1771	1655	1514	1590	1640
Q Serve(g_s), s	25.0	0.0	25.0	10.2	11.1	4.1	1.7	53.1	7.4	5.2	57.7	57.7
Cycle Q Clear(g_c), s	25.0	0.0	25.0	10.2	11.1	4.1	1.7	53.1	7.4	5.2	57.7	57.7
Prop In Lane	1.00		0.07	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	371	0	398	180	189	163	45	1568	733	99	764	788
V/C Ratio(X)	1.07	0.00	1.11	0.86	0.93	0.37	0.53	1.10	0.23	0.67	1.11	1.12
Avail Cap(c_a), veh/h	371	0	394	180	189	163	122	1568	733	114	764	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.00	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.5	0.0	47.5	53.2	53.6	50.5	57.6	33.4	20.7	54.8	31.2	31.2
Incr Delay (d2), s/veh	62.1	0.0	76.4	31.8	45.9	1.4	9.3	55.1	0.7	12.4	67.2	71.9
Initial Q Delay(d3),s/veh	77.7	0.0	63.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/lr 3 2.2	0.0	35.2	10.1	12.0	3.1	1.5	45.6	5.2	4.1	47.7	50.8
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	187.2	0.0	187.3	85.0	99.5	51.8	66.8	88.6	21.4	67.2	98.3	103.1
LnGrp LOS	F	Α	F	F	F	D	Е	F	С	Е	F	F
Approach Vol, veh/h		839			391			1913			1801	
Approach Delay, s/veh		187.3			86.4			82.5			99.5	
Approach LOS		F			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s12.9	58.1		18.0	8.3	62.7		31.0				
Change Period (Y+Rc),		6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma		51.0		11.0	8.0	51.0		24.0				
Max Q Clear Time (g_c+		55.6		13.6	4.2	60.2		27.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			106.8									
HCM 6th LOS			F									
Notes												
User approved pedestria	n inter	val to be	e less th	an pha	se may	green						
User approved volume h							ont					

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29\circ with EPeapSdenario 2A\W

User approved volume balancing among the lanes for turning movement.

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12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	1>	LDIX	ኘ	↑	7	INDL	*	7	ODL	*	7
Traffic Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%	13	12	2%	14	12	2%	14	12	-3%	10
Storage Length (ft)	200	-5 /0	200	350	2/0	150	0	2 /0	220	0	-570	200
Storage Lanes	200		0	1		130	0		1	0		1
Taper Length (ft)	75		U	100			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	0.51	0.972	1.00	1.00	1.00	0.850	1.00	0.55	0.850	1.00	0.93	0.850
Flt Protected	0.950	0.512		0.950		0.000			0.000			0.000
Satd. Flow (prot)	3101	1701	0	1628	1744	1554	0	3225	1616	0	3214	1676
Flt Permitted	0.950	1701	U	0.633	1777	1004		3223	1010	U	3217	1070
Satd. Flow (perm)	3101	1701	0	1085	1744	1554	0	3225	1616	0	3214	1676
Right Turn on Red	3101	1701	No	1000	1777	No	U	3223	No	U	3217	No
Satd. Flow (RTOR)			140			140			140			140
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0.55	5%	0.33	0.33	8%	5%
Adj. Flow (vph)	256	161	37	92	149	65	0	2206	60	0 70	2114	331
Shared Lane Traffic (%)		101	31	32	173	00	U	2200	00	·	2117	331
Lane Group Flow (vph)	256	198	0	92	149	65	0	2206	60	0	2114	331
Number of Detectors	1	4	Ŭ	1	4	1	Ŭ	2	1	Ŭ	2	1
Detector Template	•	-		•	-	Right		_	Right		_	Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	6		40	6	40		40	40		40	40
Detector 1 Type		CI+Ex			CI+Ex				CI+Ex			CI+Ex
Detector 1 Channel	OITEX	OHEX		OHEX	OITEX	OHEX		OITEX	OHEX		OHEX	OITEX
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)	0.0	15		0.0	15	0.0		450	0.0		450	0.0
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel		OIILX			OITEX			OITEX			OITEX	
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36			0.0			0.0	
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel		OIILX			OITEX							
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		CI+Ex			CI+Ex							
Detector 4 Type		OITLX			OITLX							

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29\@@withBDep\80denario 2A\W

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	15.0	36.0		21.0	21.0	21.0		84.0	84.0		84.0	84.0
Total Split (%)	12.5%	30.0%		17.5%	17.5%	17.5%		70.0%	70.0%		70.0%	70.0%
Maximum Green (s)	9.0	28.0		13.0	13.0	13.0		77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	0.0		-1.0	-1.0		-1.0	-1.0
Total Lost Time (s)	5.0	7.0		7.0	7.0	8.0		6.0	6.0		6.0	6.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max
Intersection Summary												

Area Type: Other

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

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



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Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	fa fa		J.	†	7		^	7		^	7
Traffic Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1901	1947	1947	1722	1717	1790	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	256	161	37	92	149	65	0	2206	60	0	2114	331
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	8	4	9	4	0	5	0	0	8	5
Cap, veh/h	293	366	84	191	196	160	0	2118	1023	0	2230	1059
Arrive On Green	0.08	0.24	0.23	0.11	0.11	0.11	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3512	1532	352	1151	1717	1517	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	256	0	198	92	149	65	0	2206	60	0	2114	331
Grp Sat Flow(s),veh/h/ln		0	1884	1151	1717	1517	0	1622	1567	0	1708	1622
Q Serve(g_s), s	8.6	0.0	10.7	9.2	10.1	4.8	0.0	78.3	1.7	0.0	67.6	10.7
Cycle Q Clear(g_c), s	8.6	0.0	10.7	9.2	10.1	4.8	0.0	78.3	1.7	0.0	67.6	10.7
Prop In Lane	1.00		0.19	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	293	0	450	191	196	160	0	2118	1023	0	2230	1059
V/C Ratio(X)	0.87	0.00	0.44	0.48	0.76	0.41	0.00	1.04	0.06	0.00	0.95	0.31
Avail Cap(c_a), veh/h	293	0	455	194	200	164	0	2118	1023	0	2230	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	38.9	51.2	51.6	50.2	0.0	20.8	7.5	0.0	19.0	9.1
Incr Delay (d2), s/veh	24.1	0.0	0.7	1.9	15.4	1.7	0.0	31.4	0.1	0.0	10.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	8.8	5.0	9.0	3.5	0.0	44.8	1.0	0.0	33.7	7.1
Unsig. Movement Delay,		0.0	00.0	50.4	07.0	540	0.0	50.0	7.0	0.0	00.0	0.0
LnGrp Delay(d),s/veh	78.5	0.0	39.6	53.1	67.0	51.8	0.0	52.2	7.6	0.0	29.2	9.9
LnGrp LOS	E	A	D	D	E	D	A	F	A	A	C	A
Approach Vol, veh/h		454			306			2266			2445	
Approach Delay, s/veh		61.6			59.6			51.1			26.6	
Approach LOS		Е			Е			D			С	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc),	S	84.3	15.0	20.7		84.3		35.7				
Change Period (Y+Rc), s	3	7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gma		77.0	9.0	13.0		77.0		28.0				
Max Q Clear Time (g_c+	l1), s	70.1	11.1	12.6		80.8		12.7				
Green Ext Time (p_c), s		6.9	0.0	0.1		0.0		8.0				
Intersection Summary												
HCM 6th Ctrl Delay			41.5									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

2030 with Dev Weekday Morning Peak Hour

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

5: Church Access & Pleasant Grove Rd

	-	•	•	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4			ર્ન	Ţ	7
Traffic Volume (vph)	44	1	8	289	1	0
Future Volume (vph)	44	1	8	289	1	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998					
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1702	0	0	1723	1636	1663
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1702	0	0	1723	1636	1663
Link Speed (mph)	35			35	35	
Link Distance (ft)	108			499	469	
Travel Time (s)	2.1			9.7	9.1	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	63	1	11	413	1	0
Shared Lane Traffic (%))					
Lane Group Flow (vph)	64	0	0	424	1	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 5: Church Access & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Lane Configurations	Intersection							
Movement		0.0	,					
Lane Configurations Lane Configurations Lane Configurations Lane Configurations Lane Conficting Peds, #/hr 0	iiii ⊅eiay, s/ven	0.2	<u>-</u>					
Traffic Vol, Veh/h	Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Future Vol, veh/h 44 1 8 289 1 0 Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 Sign Control Free Free Free Free Stop Stop RT Channelized - None - None - None Storage Length 0 0 0 Grade, % 4 4 2 - Peak Hour Factor 70 70 70 70 70 70 Heavy Vehicles, % 0 0 0 3 0 0 Mwnt Flow 63 1 11 413 1 0 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 - Stage 2 64 - Stage 2 5.8 - Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Critical Hdwy Stg 1 5.8 - Critical H		ns 🏗	,		4	ኘ	7	
Conflicting Peds, #/hr 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Traffic Vol, veh/h			8		1	0	
Sign Control Free Free Free Free Free Free Stop Stop Stop RT Channelized None None <td>Future Vol, veh/h</td> <td></td> <td></td> <td>8</td> <td>289</td> <td>1</td> <td>•</td> <td></td>	Future Vol, veh/h			8	289	1	•	
RT Channelized - None - None - None Storage Length 0 0 0 Veh in Median Storage0# 0 0 0 - Grade, % 4 4 2							_	
Storage Length 0 0 Veh in Median Storage0# - 0 0 - Grade, % 4 4 2 - Peak Hour Factor 70 70 70 70 70 70 Heavy Vehicles, % 0 0 0 3 0 0 Mvmt Flow 63 1 11 413 1 0 Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 - Stage 2 64 - Critical Hdwy - 4.3 - 6.8 6.4 Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Critical Hdwy Stg 2 15.8 - Critical Hdwy - 3 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - Stage 2 710 - Platoon blocked, % 1112 - Stage 1 1112 - Stage 1 1112 - Stage 1 710 - Platoon blocked, % 564 - Stage 1 1112 - Stage 1 1112 - Stage 2 701 - Mov Cap-2 Maneuver - 1142 - 564 1065 Mov Cap-2 Maneuver - 1142 - 564 - Stage 1 1112 - Stage 1 1112 - Stage 1 1112 - Stage 1 1112 - Stage 2 701 - Mov Cap-2 Maneuver - 1142 - 564 - Stage 1	Sign Control	Free	Free	Free	Free			
Veh in Median Storage0	RT Channelized		- None	-	None			
Grade, % 4	Storage Length			-	-	-	-	
Peak Hour Factor 70				-	_	_		
Heavy Vehicles, % 0 0 0 0 3 0 0 Mwmt Flow 63 1 11 413 1 0	Grade, %					_		
Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 - Stage 2 435 - Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - Stage 2 710 - Platoon blocked, % Mov Cap-1 Maneuver - 1142 - 564 1065 Mov Cap-2 Maneuver 1142 - 1112 - Stage 1 1142 - 1142 - Mov Cap-2 Maneuver 1442 - 564 1065 Mov Cap-2 Maneuver 1442 - 564 1065 Mov Cap-2 Maneuver 1442 - 1142 - Stage 1 1112 - Stage 2 701 - Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Cantrol Delay (s) 11.4 0 - 8.2 0	Peak Hour Factor							
Major/Minor Major1 Major2 Minor1 Conflicting Flow All 0 0 64 0 499 64 Stage 1 - - - 64 - - 435 - Critical Hdwy - - 4.3 - 6.8 6.4 Critical Hdwy 51 - - 5.8 - - Critical Hdwy Stg 1 - - - 5.8 - - Critical Hdwy Stg 2 - - 5.8 - - Critical Hdwy Stg 2 - - 5.8 - - Critical Hdwy Stg 2 - - 5.8 - - Critical Hdwy Stg 2 - - 5.8 -			-	-	-	-	-	
Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 - 64 - 64 - 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64 64	Mvmt Flow	63	3 1	11	413	1	0	
Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 64 64 64								
Conflicting Flow All 0 0 64 0 499 64 Stage 1 64 64 64 64	Major/Minor N	Maior1	I 1	Agior2	N	linor1		
Stage 1 64 - Stage 2 435 435 68 6.4 Critical Hdwy							64	
Stage 2 435 - Critical Hdwy 5tg 1 5.8 - Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Critical Hdwy Stg 2 5.8 - Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - Stage 2 710 - Platoon blocked, % Mov Cap-1 Maneuver 1142 - 564 1065 Mov Cap-2 Maneuver 564 - Stage 1 1112 - Stage 2 701 - Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A A A								
Critical Hdwy 4.3 - 6.8 6.4 Critical Hdwy Stg 1 5.8 5.8 Critical Hdwy Stg 2 5.8 5.8 Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - 571 1065 Stage 2 710						٠.		
Critical Hdwy Stg 1 5.8 - Critical Hdwy Stg 2 5.8 - Follow-up Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - Stage 2 710 - Platoon blocked, % Mov Cap-1 Maneuver - 1142 - 564 1065 Mov Cap-2 Maneuver 1142 - 564 - Stage 1 564 - Stage 1 701 - Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.001 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A								
Critical Hdwy Stg 2 5.8 - Follow-up Hdwy 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - Stage 2 710 - Platoon blocked, % Mov Cap-1 Maneuver - 1142 - 564 1065 Mov Cap-2 Maneuver 1142 - 564 - Stage 1 1112 - Stage 2 701 - Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B NB Minor Lane/Major MvmNBLn NBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.001 - HCM Lane V/C Ratio 0.003 8.2 0 HCM Lane LOS B A A A				-				
Follow-up Hdwy - 3 - 3 3.1 Pot Cap-1 Maneuver - 1142 - 571 1065 Stage 1 1112 - 111								
Pot Cap-1 Maneuver 1142 - 571 1065 Stage 1 1112 - 710 -						0.0		
Stage 1 - - - 1112 - Stage 2 - - - 710 - Platoon blocked, % - - - - - Mov Cap-1 Maneuver - 1142 - 564 1065 Mov Cap-2 Maneuver - - 564 - Stage 1 - - 1112 - Stage 2 - - - 701 - Approach B MR HCM Control Delay, s 0 O.2 11.4 B Minor Lane/Major MvmNBLnNBLn2 B Minor Lane/Major MvmNBLnNBLn2 B Minor Lane/Major MvmNBLnNBLn2 B Minor Lane/Major MvmNBLn NBLn2 B Minor Lane/Major MvmNBLn2 B Min								
Stage 2								
Platoon blocked, %								
Mov Cap-1 Maneuver - - 1142 - 564 1065 Mov Cap-2 Maneuver - 564 - 564 Stage 1 1112 - 701 Stage 2 701 - 701 Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 0.01 10.01						, 10		
Mov Cap-2 Maneuver - - 564 - Stage 1 - - - 1112 - Stage 2 - - - 701 - Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 - - - 1142 - - Capacity (veh/h) HCM Lane V/C Ratio Outlood HCM Control Delay (s) 11.4 0 - - 8.2 O HCM Lane LOS B A - - A A							1065	
Stage 1								
Stage 2								
Approach EB WB NB HCM Control Delay, s 0 0.2 11.4 HCM LOS B Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A								
HCM Control Delay, s 0	Olago Z					, 01		
HCM Control Delay, s 0								
Minor Lane/Major MvmNBLnNBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A								
Minor Lane/Major MvmNBLn1NBLn2 EBT EBR WBL WBT Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A		ay, s C)	0.2				
Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A	HCM LOS					В		
Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A								
Capacity (veh/h) 564 1142 - HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 - 8.2 0 HCM Lane LOS B A - A A	Minor Lane/Major	Myml	NBI n1	JRI n2	FBT	FBR	WBI	WBT
HCM Lane V/C Ratio 0.003 0.01 - HCM Control Delay (s) 11.4 0 8.2 0 HCM Lane LOS B A A A		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
HCM Control Delay (s) 11.4 0 8.2 0 HCM Lane LOS B A A A		atio						
HCM Lane LOS B A A A								
		ay (3)						
TOWN JOHN JULIO Q(VEII) U U -		(veh)						
	HOW SOUT MINE G	(v C i i)	U			_	0	

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

6: Pleasant Grove Rd & Orvis Way

		-		_	-	•	
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations		ર્ન	ĵ.		Y		
Traffic Volume (vph)	134	29	262	28	15	22	
Future Volume (vph)	134	29	262	28	15	22	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Grade (%)		4%	-4%		0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt			0.987		0.920		
Flt Protected		0.960			0.980		
Satd. Flow (prot)	0	1666	1761	0	1591	0	
Flt Permitted		0.960			0.980		
Satd. Flow (perm)	0	1666	1761	0	1591	0	
Link Speed (mph)		35	35		25		
Link Distance (ft)		322	108		349		
Travel Time (s)		6.3	2.1		9.5		
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	
Heavy Vehicles (%)	2%	0%	3%	2%	2%	2%	
Adj. Flow (vph)	191	41	374	40	21	31	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	232	414	0	52	0	
Sign Control		Free	Free		Stop		

← < \ \ \ \</p>

Intersection Summary
Area Type: Other
Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2000@withBDeep8denario 2A\W

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	3.9					
		EDT	WDT	WDD	CDI	CDD
Movement	EBL			WBR		SBK
Lane Configuration		4	^}		Y	
Traffic Vol, veh/h	134	29	262	28	15	22
Future Vol, veh/h	134	29	262	28	15	22
Conflicting Peds, #		_ 0	_ 0	_ 0	0	0
Sign Control				Free		
RT Channelized		None		None		None
Storage Length	-	-		-	0	-
Veh in Median Sto	0 ,		0	-	0	-
Grade, %	-		-4	-		-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	0	3	2	2	2
Mvmt Flow	191	41	374	40	21	31
Major/Minor 14	laiart		laiar0	8.7	lin ar	
	lajor1		lajor2		linor2	00.4
Conflicting Flow Al		0	-		817	394
Stage 1	-	-	-	-	٠.	-
Stage 2	-	-				-
Critical Hdwy	4.3	-	-		6.42	-
Critical Hdwy Stg 1		-			5.42	-
Critical Hdwy Stg 2		-	-	-	5.42	-
Follow-up Hdwy	3	-			_	3.1
Pot Cap-1 Maneuv		-	-	-	000	693
Stage 1	-	-	-	-		-
Stage 2	-	-	-	-	753	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneu	v æ 65	-	-	-	298	693
Mov Cap-2 Maneu	ver -	-	-	-	298	-
Stage 1		-	-		602	-
Stage 2	-	-	-	-		-
3						
Approach	EB		WB		SB	
HCM Control Delay	y, 8 .5		0		14	
HCM LOS					В	
Minor Lane/Major I	Mumt	EBL	ERT	WBT	W/RP	RI n1
	JIIIVIVI					
Capacity (veh/h)		865	-	-		451
HCM Lane V/C Ra		0.221	-			0.117
HCM Control Delay	y (s)	10.3	0		-	
HCM Lane LOS	,	В	Α	-	-	В
HCM 95th %tile Q((veh)	0.8	-	-	-	0.4

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 with Dev Weekday Morning Peak Hour

	-	•	•	—	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	†			†	٧	
Traffic Volume (vph)	164	0	0	284	0	0
Future Volume (vph)	164	0	0	284	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	13	13
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1714	0	0	1715	1879	0
Flt Permitted						
Satd. Flow (perm)	1714	0	0	1715	1879	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	318			322	436	
Travel Time (s)	6.2			6.3	8.5	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	0%	0%	3%	0%	0%
Adj. Flow (vph)	234	0	0	406	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	234	0	0	406	0	0
Sign Control	Free			Free	Stop	
Interneting Comments						

Intersection Summary

Area Type: Control Type: Unsignalized McMahon Associates, Inc. 7: Church Egress Access & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0					
Movement	FRT	EBR	WRI	W/RT	NRI	NRP
Lane Configuration		LDIN	VVDL	**	NDL N/	
Traffic Vol, veh/h	164	0	0	284	0	
Future Vol. veh/h	164	0	0	284	0	0
Conflicting Peds, #		0	0	0	0	0
		Free				_
RT Channelized		None		None		None
Storage Length	-		-	-	0	
Veh in Median Sto	rageQ:	# -	-	0	0	-
Grade, %	3	-	-	-3	-2	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	3	0	0
Mvmt Flow	234	0	0	406	0	0
Major/Minor M	lajor1	M	lajor2	M	linor1	
Conflicting Flow Al				-		234
Stage 1	-		_	-	0.0	
Stage 2						
Critical Hdwy	-		-	-	6	
Critical Hdwy Stg 1			-		5	
Critical Hdwy Stg 2			_	-	5	
Follow-up Hdwy			-		-	
Pot Cap-1 Maneuv		0	0			
Stage 1	-	0	0	-		
Stage 2	-	0	0	-		-
Platoon blocked. %	ή -					
Mov Cap-1 Maneu			-		533	868
Mov Cap-2 Maneu						
Stage 1	-				954	
Stage 2	-		-			
		_	MD	_	ND	_
Approach	EB		WB		NB	
HCM Control Delay	y, s 0		0		0	
HCM LOS					Α	
Minor Lane/Major I	Mvm N	BLn1	EBT	WBT		
Capacity (veh/h)		-	-	-		
HCM Lane V/C Ra	tio	-	-	-		
HCM Control Delay	y (s)	0	-	-		
HCM Lane LOS		Α	-	-		
HCM 95th %tile Q((veh)	-	-	-		

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 29\@@withBDep\80enario 2A\W

HCM 6th TWSC
2030 with Dev Weekday Morning Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - இழக்குள்ளிச்செவர் 2A\W

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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

Intersection Summary

Area Type: Other Control Type: Unsignalized

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

Intersection						
Int Delay, s/veh	5.4	1				
Movement	EBT	F EBR	WBL	WBT	NBL	NBR
Lane Configuratio				4	¥	
Traffic Vol, veh/h	71		165		4	93
Future Vol. veh/h	71				4	
Conflicting Peds,					0	0
Sign Control			Free			_
RT Channelized		- None		None		None
Storage Length		- None 				
Veh in Median Sto						
					_	
Grade, %	3			_		
Peak Hour Factor						
Heavy Vehicles, 9				_		
Mvmt Flow	101	1 1	236	169	6	133
Major/Minor N	Major1	1 1	Major2		1inor1	
Conflicting Flow A					743	102
Stage 1					102	
Stage 2						-
Critical Hdwy			1.0		6.42	
Critical Hdwy Stg					5.42	
Critical Hdwy Stg			-		5.42	
Follow-up Hdwy			-		-	
Pot Cap-1 Maneu			- 1108			1017
Stage 1					1074	-
Stage 2				-	590	-
Platoon blocked, 9	% -			-		
Mov Cap-1 Maneu	uver -		- 1108	-	327	1017
Mov Cap-2 Maneu	uver -			-	327	-
Stage 1				-	1074	-
Stage 2				-	451	-
g- =						
Approach	EB		WB		NB	
HCM Control Dela	ay, s 0)	5.3		9.5	
HCM LOS					Α	
Minari ana (M.	N 4 1	NIDL :: 4		EDD	WD	MOT
Minor Lane/Major	ivivmt					
Capacity (veh/h)		936			1108	-
HCM Lane V/C Ra		0.148		-	0.213	-
HCM Control Dela	ay (s)	9.5	5 -	-	9.1	0
HCM Lane LOS		Α	٠ -	-	Α	Α
HCM 95th %tile Q	(veh)	0.5	5 -	-	0.8	-

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 29\@@withBDep\80enario 2A\W

HCM 6th TWSC I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - **29**00chrotheDeanSdenario 2A\W McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Morning Peak Hour

	-	•	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	f)			ર્ન	¥	
Traffic Volume (vph)	69	0	4	195	1	13
Future Volume (vph)	69	0	4	195	1	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	6%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.872	
Flt Protected				0.999	0.998	
Satd. Flow (prot)	1607	0	0	1713	1536	0
Flt Permitted				0.999	0.998	
Satd. Flow (perm)	1607	0	0	1713	1536	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	733			1878	268	
Travel Time (s)	14.3			36.6	5.2	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	5%	2%	2%	3%	2%	2%
Adj. Flow (vph)	99	0	6	279	1	19
Shared Lane Traffic (%)						
Lane Group Flow (vph)	99	0	0	285	20	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	0.6					
Movement	FBT	EBR	WRI	WRT	NBI	NBR
Lane Configuration			TYDL	4	NDL N/	יזטוי
Traffic Vol, veh/h	69		4	195	- T	13
Future Vol. veh/h	69		4		1	13
Conflicting Peds,		-	0	193	0	0
Sign Control		Free				_
RT Channelized		None		None		None
	-			None -	0	None -
Storage Length					0	
Veh in Median Sto			-	-3	_	-
Grade, %	6				0	
Peak Hour Factor			70	70	70	70
Heavy Vehicles, 9			2	3	2	
Mvmt Flow	99	0	6	279	1	19
Major/Minor N	Major1	N	lajor2	N	linor1	
Conflicting Flow A			99	0		99
Stage 1				-		
Stage 2	-				291	
Critical Hdwy	_		4.3			6.22
Critical Hdwy Stg			4.3		5.42	
					5.42	
Critical Hdwy Stg			-			
Follow-up Hdwy	-		3	-	3	
Pot Cap-1 Maneu			1111	-		1021
Stage 1	-		-		1077	-
Stage 2	-	-	-	-	872	-
Platoon blocked, '				-		
Mov Cap-1 Mane	uver -	-	1111	-	697	1021
Mov Cap-2 Mane	uver -	-	-	-	697	-
Stage 1	-	-	-	-	1077	-
Stage 2	-	-	-	-	867	-
5.0.95 =						
Approach	EB		WB		NB	
HCM Control Dela	ay, s 0		0.2		8.7	
HCM LOS					Α	
Minor Lane/Major	Mymk	IRI n1	FRT	FRP	WRI	WRT
	IVIVIII		<u> </u>			
Capacity (veh/h)	_4! _	988			1111	-
HCM Lane V/C R		0.02	-		0.005	-
HCM Control Dela	ay (s)	8.7	-		0.0	
HCM Lane LOS		Α	-	-	Α	Α
HCM 95th %tile C	(veh)	0.1	-	-	0	-

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	0	56	4	3	190	3	12	0	9	5	0	2
Future Volume (vph)	0	56	4	3	190	3	12	0	9	5	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.998			0.941			0.959	
Flt Protected					0.999			0.972			0.966	
Satd. Flow (prot)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Flt Permitted					0.999			0.972			0.966	
Satd. Flow (perm)	0	1565	0	0	1640	0	0	1614	0	0	1441	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		496			733			274			306	
Travel Time (s)		9.7			14.3			7.5			8.3	
Peak Hour Factor	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Heavy Vehicles (%)	0%	5%	2%	2%	3%	50%	2%	2%	2%	0%	2%	25%
Adj. Flow (vph)	0	80	6	4	271	4	17	0	13	7	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	0	0	279	0	0	30	0	0	10	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2030 with Dev Weekday Morning Peak Hour

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	าธ	4			4			4			4	
Traffic Vol, veh/h	0	56	4	3	190	3	12	0	9	5	0	2
Future Vol, veh/h	0	56	4	3	190	3	12	0	9	5	0	2
Conflicting Peds, #	#/hr 0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-		None	-		None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Sto	rage,#	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	70
Heavy Vehicles, %	0	5	2	2	3	50	2	2	2	0	2	25
Mvmt Flow	0	80	6	4	271	4	17	0	13	7	0	3
Major/Minor N	1ajor1		N	lajor2		M	linor1		N	linor2		
Conflicting Flow Al	II 275	0	0	86	0	0	366	366	83	371	367	273
Stage 1	-	-	-	-	-	-	83	83	-	281	281	-
Stage 2	-	-	-	-	-	-	283	283	-	90	86	-
Critical Hdwy	4.3	-	-	4.3	-	-	7.12	6.52	6.22	7.3	6.72	6.55
Critical Hdwy Stg 1	1 -	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Critical Hdwy Stg 2	2 -	-	-	-	-	-	6.12	5.52	-	6.3	5.72	-
Follow-up Hdwy	3	-	-	3	-	-	3.	4.018	3.1	3	4.018	3.3
Pot Cap-1 Maneuv	/e967	-	-	1122	-	-	675	562	1043	657	550	750
Stage 1	-	-	-	-	-	-	1079	826	-	823	668	-
Stage 2	-	-	-	-	-	-	833	677	-	1064	820	-
Platoon blocked, %	6	-	-		-	-						
Mov Cap-1 Maneu	ıv ⊕ 67	-	-	1122	-	-	670	560	1043	647	548	750
Mov Cap-2 Maneu		-		-	-	-	670	560		647	548	
Stage 1	-	-		-	-	-	1079	826		823	665	-
Stage 2	-	-	-	-	-		827	674	-	1051	820	-
3-												
Approach	EB			WB			NB			SB		
HCM Control Dela	y, s 0			0.1			9.7			10.4		
HCM LOS	•						Α			В		

Minor Lane/Major Mvml	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR5	BLn1
Capacity (veh/h)	791	967	-	-	1122	-	-	673
HCM Lane V/C Ratio	0.038	-	-	-	0.004	-	-	0.015
HCM Control Delay (s)	9.7	0	-	-	8.2	0	-	10.4
HCM Lane LOS	Α	Α	-	-	Α	Α	-	В
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

11: New Street & Pleasant Grove Rd

	•	•	T		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	¥		î,			र्स
Traffic Volume (vph)	174	30	183	41	19	134
Future Volume (vph)	174	30	183	41	19	134
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.980		0.975			
Flt Protected	0.959					0.994
Satd. Flow (prot)	1630	0	1727	0	0	1757
Flt Permitted	0.959					0.994
Satd. Flow (perm)	1630	0	1727	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	496		2543			619
Travel Time (s)	9.7		49.5			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	2%	14%	2%	0%	8%	1%
Adj. Flow (vph)	196	34	206	46	21	151
Shared Lane Traffic (%))					
Lane Group Flow (vph)	230	0	252	0	0	172
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 29\@@withBDep\80enario 2A\W

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Intersection						
Int Delay, s/veh	4.9					
Movement W	BL.	WBR	NBT	NBR	SBL	SBT
Lane Configurations			î,			4
	174	30	183	41	19	134
	174	30	183	41	19	134
Conflicting Peds, #/hi		0	0	0	0	0
		Stop	Free	Free		Free
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Storag	_		0	-		0
Grade. %	0	-	0	_	_	0
	89	89	89	89	89	89
Heavy Vehicles, %	2	14	2	09	8	1
	196	34	206	46	21	151
WWIT Flow	196	34	206	46	21	151
Major/Minor Mino	or1	M	lajor1	M	lajor2	
Conflicting Flow All 4	122	229	0	0	252	0
Stage 1 2	229	-	-	-	-	-
Stage 2 1	193	-	-	-	-	-
Critical Hdwy 6.	.42	6.34	-	-	4.4	-
Critical Hdwy Stg 15.	.42	-	-	-	-	-
Critical Hdwy Stg 25.			-	-	-	-
Follow-up Hdwy	3	3.2	-	-	3.1	-
Pot Cap-1 Maneuve6	571	831	-	-	949	-
	934	-	-	-	-	_
	972		-	-	-	-
Platoon blocked. %	,,,			_		_
Mov Cap-1 Maneuv€	355	831	_		949	
Mov Cap-1 Maneuv€		-			949	-
	934	-	-		-	
			-	-	-	-
Stage 2 9	949	-	-	-	-	-
Approach V	WB		NB		SB	
HCM Control Delay,	s13		0		1.1	
HCM LOS	В					
					001	
Minor Lane/Major Mv	/mt					SBT
Capacity (veh/h)		-		676	949	-
HCM Lane V/C Ratio)	-	-	0.339	0.022	-
HCM Control Delay (s)	-	-	13	8.9	0
HCM Lane LOS		-	-	В	Α	Α
HCM 95th %tile Q(ve	eh)	-	-	1.5	0.1	-
,						

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Lane Group		۶	→	•	•	+	•	•	†	~	/		- ✓
Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations		43-			4	7		43-			43-	
Future Volume (vph)	Traffic Volume (vph)	66		14	23		32	10		43	52		104
Lane Width (ft)	Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Grade (%)		1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft)	Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Storage Lanes	Grade (%)		-2%			1%			-2%			1%	
Taper Length (ff)	Storage Length (ft)	0		0	0		150	0		0	0		0
Lane Util. Factor	Storage Lanes	0		0	0		1	0		0	0		0
Fit	Taper Length (ft)	25			25			25			25		
Fit Protected	Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Satd. Flow (prot)	Frt		0.998				0.850		0.960			0.958	
Fit Permitted	Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (perm)	Satd. Flow (prot)	0	1626	0	0	1563	1379	0	1579	0	0	1547	0
Right Turn on Red Yes Yes 33 34 35 35 35 35 36 36 36 36	Flt Permitted		0.929			0.940			0.970			0.928	
Satd. Flow (RTOR)	Satd. Flow (perm)	0	1516	0	0	1474	1379	0	1536	0	0	1448	0
Link Speed (mph)	Right Turn on Red			Yes			Yes			No			No
Link Distance (ft)	Satd. Flow (RTOR)		2				33						
Travel Time (s)	Link Speed (mph)		45			45			25			35	
Peak Hour Factor 0.97 0.	Link Distance (ft)		819			2436			714			826	
Heavy Vehicles (%)	Travel Time (s)		12.4			36.9			19.5			16.1	
Adj. Flow (vph)	Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Shared Lane Traffic (%) Lane Group Flow (yph)	Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Lane Group Flow (vph)	Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Number of Detectors	Shared Lane Traffic (%)											
Detector Template	Lane Group Flow (vph)	0	789	0	0	419	33	0	149	0	0	345	0
Leading Detector (ft) 30 6 30 6 6 30 35 30 35 Trailing Detector (tt) -10 0 -10 0 0 -10 -5 Detector 1 Position(ft) -10 0 -10 0 0 -10 -5 Detector 1 Size(ft) 40 6 40 6 6 40 40 40	Number of Detectors	1	1		1	1	1	1	1		1	1	
Trailing Detector (ft) -10 0 -10 0 0 -10 -5 -10 -5 Detector 1 Position(ft) -10 0 -10 0 0 -10 -5 -10 -5 Detector 1 Size(ft) 40 6 40 6 6 40 40 40 40 Detector 1 Type CI+Ex	Detector Template	Left			Left			Left	Thru		Left	Thru	
Detector 1 Position(ft) -10 0 -10 0 0 -10 -5 -10 -5	Leading Detector (ft)	30	6		30	6	6	30	35		30	35	
Detector 1 Size(ft)	Trailing Detector (ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Type	Detector 1 Position(ft)	-10	0		-10	0	0	-10	-5		-10	-5	
Detector 1 Channel	Detector 1 Size(ft)	40	6		40	6	6	40	40		40	40	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Queue (s) 0.0	Detector 1 Channel												
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type Perm NA Perm NA Perm Perm NA Perm Perm NA Perm <t< td=""><td>Detector 1 Queue (s)</td><td>0.0</td><td>0.0</td><td></td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td>0.0</td><td></td><td>0.0</td><td>0.0</td><td></td></t<>	Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Protected Phases 2 6 8 8 4 Permitted Phases 2 6 6 8 8 4 Detector Phase 2 6 8 8 8 4 4 Switch Phase Minimum Initial (s) 22.0 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 9.0 Total Split (s) 69.0 69.0 69.0 69.0 69.0 80.0 31.0 31.0 31.0 31.0 Total Split (%) 69.0% 69.0% 69.0% 69.0% 69.0% 31.0% 31.0% 31.0% 31.0% Maximum Green (s) 63.0 63.0 63.0 63.0 63.0 63.0 63.0 63.0	Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Permitted Phases 2 6 8 8 4 Detector Phase 2 6 8 8 8 4 4 Switch Phase Minimum Initial (s) 22.0 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 Total Split (s) 69.0 69.0 69.0 69.0 69.0 89.0 31.0 31.0 31.0 31.0 Total Split (%) 69.0% 69.0% 69.0% 69.0% 69.0% 31.0% 31.0% 31.0% 31.0% Maximum Green (s) 63.0 63.0 63.0 63.0 63.0 25.0 25.0 25.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 All-Red Time (s) 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Detector Phase 2 6 8 8 4 4 4 Switch Phase Minimum Initial (s) 22.0 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 Total Split (s) 69.0 69.0 69.0 69.0 69.0 69.0 31.0 31.0 31.0 31.0 Total Split (%) 69.0% 69.0% 69.0% 69.0% 69.0% 31.0% 31.0% 31.0% 31.0% Maximum Green (s) 63.0 63.0 63.0 63.0 63.0 25.0 25.0 25.0 25.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 All-Red Time (s) 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Protected Phases		2			6			8			4	
Switch Phase 22.0 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 28.0 9.0 <	Permitted Phases	2			6		6	8			4		
Minimum Initial (s) 22.0 22.0 22.0 22.0 22.0 3.0 3.0 3.0 3.0 Minimum Split (s) 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 Total Split (s) 69.0 69.0 69.0 69.0 31.0 31.0 31.0 31.0 Total Split (%) 69.0% 69.0% 69.0% 69.0% 31.0% <t< td=""><td>Detector Phase</td><td>2</td><td></td><td></td><td>6</td><td></td><td></td><td>8</td><td>8</td><td></td><td>4</td><td>4</td><td></td></t<>	Detector Phase	2			6			8	8		4	4	
Minimum Split (s) 28.0 28.0 28.0 28.0 28.0 9.0 9.0 9.0 9.0 Total Split (s) 69.0 69.0 69.0 69.0 69.0 31.0 31.0 31.0 31.0 31.0 31.0% 31.0	Switch Phase												
Total Split (s) 69.0 69.0 69.0 69.0 69.0 31.0 31.0 31.0 31.0 Total Split (%) 69.0% 69.0% 69.0% 69.0% 69.0% 31.0% 3	Minimum Initial (s)	22.0	22.0		22.0	22.0	22.0	3.0	3.0		3.0	3.0	
Total Split (%) 69.0% 69.0% 69.0% 69.0% 69.0% 31.0% 31.0% 31.0% Maximum Green (s) 63.0 63.0 63.0 63.0 63.0 25.0 25.0 25.0 25.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	9.0	9.0		9.0	9.0	
Maximum Green (s) 63.0 63.0 63.0 63.0 63.0 63.0 25.0 25.0 25.0 25.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 All-Red Time (s) 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Total Split (s)	69.0	69.0		69.0	69.0	69.0	31.0	31.0		31.0	31.0	
Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 All-Red Time (s) 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Total Split (%)	69.0%	69.0%		69.0%	69.0%	69.0%	31.0%	31.0%		31.0%	31.0%	
All-Red Time (s) 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0	Maximum Green (s)	63.0	63.0		63.0	63.0	63.0	25.0	25.0		25.0	25.0	
		4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
	All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
			-1.0			-1.0	0.0		-1.0			-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yDet\66**enario 2A\W

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Lane Group NBT Total Lost Time (s) 5.0 6.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 Recall Mode C-Max C-Max C-Max C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 100

Actuated Cycle Length: 100 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow

Natural Cycle: 75

Control Type: Actuated-Coordinated

Splits and Phases: 1: New St & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8y Det \Gamma & enarro 2A\W

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Movement EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT SBR Lane Configurations 4		۶	-	\rightarrow	•	←	•	4	†	<i>></i>	>	ļ	1
Traffic Volume (veh/h)	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Future Volume (veh'n)	Lane Configurations		- €			4	7		€\$			- ↔	
Initial Q (Qb), veh	Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Ped-Bike Adj(A_pbT)	Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Parking Bus, Adj	Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Work Zone On Ápproach	Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Adj Sat Flow, veh/h/ln 1818 181	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
Adj Flow Rate, veh/h 68 707 14 24 395 33 10 95 44 54 184 107 Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97	Work Zone On Approach	ı	No			No			No			No	
Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97	Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1752	1860	1860	1860	1794	1794	1794
Percent Heavy Veh, % 4 4 4 7 7 7 3 1 1 1 1 0 0 0 0 0 Cap, veh/h 113 1049 20 73 1044 972 51 278 122 88 219 119 Arrive On Green 0.67 0.66 0.65 1.00 1.00 1.00 0.25 0.24 0.23 0.25 0.24 0.23 Sat Flow, veh/h 111 1577 30 52 1570 1485 53 1184 518 197 930 507 Grp Volume(v), veh/h 789 0 0 419 0 33 149 0 0 345 0 0 Grp Sat Flow(s), veh/h/ln 1718 0 0 1622 0 1485 1755 0 0 1634 0 0 Q Serve(g_s), s 10.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Cap, veh/h Arrive On Green O.67 O.66 O.65 O.66 O.66	Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Arrive On Green 0.67 0.66 0.65 1.00 1.00 1.00 0.25 0.24 0.23 0.25 0.24 0.23 Sat Flow, veh/h 111 1577 30 52 1570 1485 53 1184 518 197 930 507 Grp Volume(v), veh/h 789 0 0 419 0 33 149 0 0 345 0 0 Gp Sat Flow(s), veh/h/ln 1718 0 0 1622 0 1485 1755 0 0 1634 0 0 0 Q Serve(g_s), s 10.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Percent Heavy Veh, %	4	4	4	7	7	3	1	1	1	0	0	0
Sat Flow, veh/h	Cap, veh/h	113	1049	20	73	1044	972	51	278	122	88	219	119
Grp Volume(v), veh/h 789 0 0 419 0 33 149 0 0 345 0 0 0 Grp Sat Flow(s), veh/h/ln 1718 0 0 1622 0 1485 1755 0 0 1634 0 0 Q Serve(g_s), s 10.6 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Grp Sat Flow(s), veh/h/ln 1718 0 0 1622 0 1485 1755 0 0 1634 0 0 Q Serve(g, s), s 10.6 0.0 <td< td=""><td>Sat Flow, veh/h</td><td>111</td><td>1577</td><td>30</td><td>52</td><td>1570</td><td>1485</td><td>53</td><td>1184</td><td>518</td><td>197</td><td>930</td><td>507</td></td<>	Sat Flow, veh/h	111	1577	30	52	1570	1485	53	1184	518	197	930	507
Q Serve(g_s), s 10.6 0.0	Grp Volume(v), veh/h	789	0	0	419	0	33	149	0	0	345	0	0
Cycle Q Clear(g_c), s 26.8 0.0 0.0 0.0 0.0 7.0 0.0 0.0 20.1 0.0 0.0 Prop In Lane 0.09 0.02 0.06 1.00 0.07 0.30 0.16 0.31 Lane Grp Cap(c), veh/h 1199 0 0 1133 0 972 469 0 0 442 0 0 V/C Ratio(X) 0.66 0.00 0.00 0.37 0.00 0.03 0.32 0.00 0.00 0.00 0.00 V/C Ratio(X) 0.66 0.00 0.00 0.03 0.32 0.00 0.0 0.0 0.0	Grp Sat Flow(s), veh/h/ln	1718	0	0	1622	0	1485	1755	0	0	1634	0	0
Prop In Lane 0.09 0.02 0.06 1.00 0.07 0.30 0.16 0.31 Lane Grp Cap(c), veh/h 1199 0 0 1133 0 972 469 0 0 442 0 0 V/C Ratio(X) 0.66 0.00	Q Serve(g_s), s	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Lane Grp Cap(c), veh/h 1199 0 0 1133 0 972 469 0 0 442 0 0 0 V/C Ratio(X) 0.66 0.00 0.00 0.37 0.00 0.33 0.32 0.00 0.00 0.78 0.00 0.00 Avail Cap(c_a), veh/h 1199 0 0 1133 0 972 511 0 0 482 0 0 HCM Platoon Ratio 1.00 1.00 1.00 2.00 2.00 2.00 1.00 1.00	Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
V/C Ratio(X) 0.66 0.00 0.00 0.37 0.00 0.03 0.32 0.00 0.00 0.78 0.00 0.00 Avail Cap(c_a), veh/h 1199 0 0 1133 0 972 511 0 0 482 0 0 HCM Platoon Ratio 1.00 1.00 1.00 1.00 2.00 2.00 2.00 1.00	Prop In Lane	0.09		0.02	0.06		1.00	0.07		0.30	0.16		0.31
Avail Cap(c_a), veh/h 1199 0 0 1133 0 972 511 0 0 482 0 0 HCM Platoon Ratio 1.00 1.00 1.00 2.00 2.00 2.00 1.00 1.00	Lane Grp Cap(c), veh/h	1199	0	0	1133	0	972	469	0	0	442	0	0
HCM Platoon Ratio 1.00 1.00 1.00 2.00 2.00 2.00 1.00 1.00	V/C Ratio(X)	0.66	0.00	0.00	0.37	0.00	0.03	0.32	0.00	0.00	0.78	0.00	0.00
Upstream Filter(I) 1.00 0.00 0.00 0.97 0.00 0.97 1.00 0.00 0.00 1.00 0.00 0.00 Uniform Delay (d), s/veh 10.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	Avail Cap(c_a), veh/h	1199	0	0	1133	0	972	511	0	0	482	0	0
Uniform Delay (d), s/veh 10.0 0.0 0.0 0.0 0.0 0.0 32.0 0.0 0.0 36.9 0.0 0.0 lncr Delay (d2), s/veh 2.8 0.0 0.0 0.9 0.0 0.1 0.4 0.0 0.0 7.4 0.0 0.0 lnitial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Incr Delay (d2), s/veh	Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.97	1.00	0.00	0.00	1.00	0.00	0.00
Initial Q Delay(d3),s/veh	Uniform Delay (d), s/veh	10.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
%ile BackOfQ(95%),veh/lr13.3 0.0 0.0 0.5 0.0 0.0 5.5 0.0 0.0 13.5 0.0 0.0 0.0 Unsig: Movement Delay, s/veh 12.8 0.0 0.0 0.9 0.0 0.1 32.4 0.0 0.0 44.3 0.0 0.0 LnGrp Delay(d),s/veh 12.8 A A A A A C A A D A A Approach Vol, veh/h 789 452 149 345 Approach LOS B A C D D D Timer - Assigned Phs 2 4 6 8 B B A C D D D Timer - Assigned Phs 2 4 6 8 B B A C D <t< td=""><td>Incr Delay (d2), s/veh</td><td>2.8</td><td>0.0</td><td>0.0</td><td>0.9</td><td>0.0</td><td>0.1</td><td>0.4</td><td>0.0</td><td>0.0</td><td>7.4</td><td>0.0</td><td>0.0</td></t<>	Incr Delay (d2), s/veh	2.8	0.0	0.0	0.9	0.0	0.1	0.4	0.0	0.0	7.4	0.0	0.0
Unsig. Movement Delay, s/veh LnGrp Delay(d),s/veh 12.8 0.0 0.0 0.9 0.0 0.1 32.4 0.0 0.0 44.3 0.0 0.0 LnGrp LOS B A A A A A C A A D A A Approach Vol, veh/h 789 452 149 345 Approach Delay, s/veh 12.8 0.8 32.4 44.3 Approach LOS B A C D Timer - Assigned Phs 2 4 6 8 Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_C+11), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6			0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0
LnGrp Delay(d),s/veh 12.8 0.0 0.0 0.9 0.0 0.1 32.4 0.0 0.0 44.3 0.0 0.0 LnGrp LOS B A A A A A C A A D A A Approach Vol, veh/h 789 452 149 345 A A A C D D A C D D A C D D A C D D D D D A C D D A A C D D D A A C D D A A C D D D A A C D D A <td></td> <td></td> <td>0.0</td> <td>0.0</td> <td>0.5</td> <td>0.0</td> <td>0.0</td> <td>5.5</td> <td>0.0</td> <td>0.0</td> <td>13.5</td> <td>0.0</td> <td>0.0</td>			0.0	0.0	0.5	0.0	0.0	5.5	0.0	0.0	13.5	0.0	0.0
LnGrp LOS		s/veh											
Approach Vol, veh/h 789 452 149 345 Approach Delay, s/veh 12.8 0.8 32.4 44.3 Approach LOS B A C D Timer - Assigned Phs 2 4 6 8 Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+I1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	LnGrp Delay(d),s/veh	12.8	0.0	0.0	0.9	0.0	0.1	32.4	0.0	0.0	44.3	0.0	0.0
Approach Delay, s/veh 12.8 0.8 32.4 44.3 Approach LOS B A C D Timer - Assigned Phs 2 4 6 8 Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+I1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	LnGrp LOS	В	Α	Α	Α	Α	Α	С	Α	Α	D	Α	Α
Approach LOS B A C D Timer - Assigned Phs 2 4 6 8 Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_C+I1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Approach Vol, veh/h		789			452			149			345	
Timer - Assigned Phs 2 4 6 8 Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+I1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Approach Delay, s/veh		12.8			0.8			32.4			44.3	
Phs Duration (G+Y+Rc), s 71.5 28.5 71.5 28.5 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+l1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Approach LOS		В			Α			С			D	
Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+l1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Timer - Assigned Phs		2		4		6		8				
Max Green Setting (Gmax), s 63.0 25.0 63.0 25.0 Max Q Clear Time (g_c+l1), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Phs Duration (G+Y+Rc),	S	71.5		28.5		71.5		28.5				
Max Q Clear Time (g_c+11), s 28.8 22.1 2.5 9.0 Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Change Period (Y+Rc), s	3	6.0		6.0		6.0		6.0				
Green Ext Time (p_c), s 7.7 0.4 3.6 0.4 Intersection Summary HCM 6th Ctrl Delay 17.6	Max Green Setting (Gma	ax), s	63.0		25.0		63.0		25.0				
Intersection Summary HCM 6th Ctrl Delay 17.6	Max Q Clear Time (g_c+	I1), s	28.8		22.1		2.5		9.0				
HCM 6th Ctrl Delay 17.6	Green Ext Time (p_c), s		7.7		0.4		3.6		0.4				
	Intersection Summary												
	HCM 6th Ctrl Delay			17.6									
	,			В									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßy ው**ድሎል **6**enario 2A\W

McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Ĭ	†	7	٦	<u></u>	7	Ĭ	- ↑		ሻ	ĵ»	
Traffic Volume (vph)	127	598	39	21	311	49	17	41	12	29	260	130
Future Volume (vph)	127	598	39	21	311	49	17	41	12	29	260	130
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	14	11	12	12	12	12	14	12	12	12
Grade (%)		8%			-8%			-1%			0%	
Storage Length (ft)	150		350	120		150	0		0	150		0
Storage Lanes	1		1	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.965			0.950	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1609	1678	1567	1637	1817	1560	1719	1685	0	1676	1676	0
Flt Permitted	0.537		.007	0.330		.000	0.207	. 555	Ů	0.720		Ĵ
Satd. Flow (perm)	910	1678	1567	569	1817	1560	374	1685	0	1271	1676	0
Right Turn on Red	0.0		Yes	000		Yes	0		Yes			Yes
Satd. Flow (RTOR)			41			51		13	100		25	100
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		2436			2349			414			1108	
Travel Time (s)		36.9			35.6			11.3			21.6	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	2%	3%	0.90	5%	3%	2%	0.90	2%	9%	2%	2%	2%
Adj. Flow (vph)	132	623	41	22	324	51	18	43	13	30	271	135
Shared Lane Traffic (%)		023		22	324	01	10	73	13	30	211	133
Lane Group Flow (vph)	132	623	41	22	324	51	18	56	0	30	406	0
Number of Detectors	1	1	1	1	1	1	10	2	U	1	2	U
Detector Template		Thru	Right	Left	Thru	•	Left					
Leading Detector (ft)	30	30	30	30	30	30	20	100		30	100	
Trailing Detector (ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Position(ft)	-10	-10	-10	-10	-10	-10	0	-10		-10	-10	
Detector 1 Size(ft)	40	40	40	40	40	40	20	40		40	40	
					CI+Ex						Cl+Ex	
Detector 1 Type	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX		CI+EX	CI+EX	
Detector 1 Channel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	_		_	_		_	_	0.0		_	0.0	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2		2	6		6	8			4		
Detector Phase	2	2	2	6	6	6	8	8		4	4	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	66.0	66.0	66.0	66.0	66.0	66.0	34.0	34.0		34.0	34.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yDeh\Se**enario 2A\W

Robinson Tract

2: Bridlewood Blvd/Collector Road & Rt 926

2030 with Dev Weekday Afternoon Peak Hour

	•	-	•	•	—	•	1	†	1	-	↓	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	66.0%	66.0%	66.0%	66.0%	66.0%	66.0%	34.0%	34.0%		34.0%	34.0%	
Maximum Green (s)	60.0	60.0	60.0	60.0	60.0	60.0	28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	None	None		None	None	

Intersection Summary

Area Type: Other Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow, Master Intersection

Natural Cycle: 55

Control Type: Actuated-Coordinated

Splits and Phases: 2: Bridlewood Blvd/Collector Road & Rt 926



McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

2: Bridlewood Blvd/Collector Road & Rt 926

SBT Movement Lane Configurations Traffic Volume (veh/h) 127 598 39 21 29 260 130 Future Volume (veh/h) 127 598 39 21 311 49 17 41 12 29 260 130 Initial Q (Qb), veh 0 0 0 0 0 0 0 0 0 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 1415 1401 1501 2055 2070 1809 1881 1772 1772 Adj Sat Flow, veh/h/ln 2027 Adj Flow Rate, veh/h 132 623 41 22 324 51 18 43 12 30 271 135 Peak Hour Factor 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 0.96 Percent Heavy Veh, % 3 0 2 0 2 870 790 620 1277 125 379 106 423 311 Cap, veh/h 515 1089 155 Arrive On Green 1.00 0.62 0.62 0.28 0.28 0.27 0.28 0.28 0.27 1.00 1.00 0.62 2055 Sat Flow, veh/h 805 1401 1272 883 1754 1015 1361 380 1349 1116 556 Grp Volume(v), veh/h 132 623 41 22 324 51 18 0 55 30 0 406 805 1401 2055 1754 1740 1349 1672 Grp Sat Flow(s), veh/h/ln 1272 883 1015 0 0 Q Serve(g_s), s 2.5 0.0 0.0 1.0 7.1 1.1 1.7 0.0 2.4 1.7 0.0 23.1 Cycle Q Clear(g_c), s 0.0 23.1 9.6 0.0 1.0 7.1 1.1 24.4 0.0 2.4 3.5 0.0 Prop In Lane 1.00 1.00 1.00 1.00 1.00 0.22 1.00 0.33 Lane Grp Cap(c), veh/h 515 870 790 620 1089 125 485 423 466 V/C Ratio(X) 0.26 0.72 0.05 0.04 0.25 0.05 0.14 0.00 0.11 0.07 0.00 0.87 Avail Cap(c_a), veh/h 515 870 790 620 1277 1089 136 505 438 0 485 **HCM Platoon Ratio** 2.00 2.00 2.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 Upstream Filter(I) 0.49 0.49 0.49 0.18 0.18 0.18 1.00 0.00 1.00 1.00 0.00 1.00 Uniform Delay (d), s/veh 0.5 0.0 0.0 7.4 8.5 7.4 45.7 0.0 26.9 28.0 0.0 34.5 Incr Delay (d2), s/veh 0.6 2.5 0.1 0.0 0.1 0.0 0.5 0.0 0.1 0.1 0.0 15.4 Initial Q Delay(d3),s/veh 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 %ile BackOfQ(95%),veh/ln 0.2 1.1 0.0 0.3 3.8 0.7 0.8 0.0 1.8 1.0 0.0 Unsig. Movement Delay, s/veh LnGrp Delay(d),s/veh 8.6 7.4 46.2 0.0 27.0 28.1 0.0 1.1 25 0.1 74 LnGrp LOS Α Α Α Α D Α Α Α Approach Vol, veh/h 796 397 73 436 Approach Delay, s/veh 2.2 8.4 31.8 48.4 Approach LOS Α С D Timer - Assigned Phs Phs Duration (G+Y+Rc), s 67.1 32.9 67.1 32.9 Change Period (Y+Rc), s 6.0 6.0 6.0 6.0 Max Green Setting (Gmax), s 60.0 28.0 60.0 28.0 Max Q Clear Time (g_c+l1), s 26.9 12 1 25 1 96 Green Ext Time (p_c), s 0.7 1.3 0.0 3.4

HCM 6th Signalized Intersection Summary

Intersection Summary
HCM 6th Ctrl Delay

HCM 6th LOS

2030 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDetn\Senario 2A\W

16.7

В

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	4		7	*	7	7	^ ^	7	ሻ	† }	
Traffic Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	450		0	200		215	305		170	375		0
Storage Lanes	1		0	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt		0.981				0.850			0.850		0.993	
Flt Protected	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (prot)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Flt Permitted	0.950	0.988		0.950			0.950			0.950		
Satd. Flow (perm)	1466	1728	0	1628	1818	1601	1744	3387	1683	1710	3264	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									155		6	
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0%	1%	4%	0%	3%	2%	0%	4%	5%
Adj. Flow (vph)	338	227	45	218	259	69	65	1720	132	101	1366	71
Shared Lane Traffic (%)	25%											
Lane Group Flow (vph)	253	357	0	218	259	69	65	1720	132	101	1437	0
Number of Detectors	1	1		1	1	1	1	1	1	1	1	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Turn Type	Split	NA		Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases						4			2			
Detector Phase	8	8		4	4	4	5			1		
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	
Minimum Split (s)	45.0	45.0		10.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	
Total Split (s)	25.0	25.0		22.0	22.0	22.0	14.0	58.0	58.0	15.0	59.0	
Total Split (%)	20.8%					18.3%		48.3%				
Maximum Green (s)	18.0	18.0		15.0	15.0	15.0	8.0	52.0	52.0	9.0	53.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßу ው**ድ Nacional Column (1970) የመጀመር የመጀመር

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)	7.0	7.0						7.0	7.0		7.0	
Flash Dont Walk (s)	31.0	31.0						21.0	21.0		21.0	
Pedestrian Calls (#/hr)	0	0						0	0		0	

Intersection Summary

Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 8 (7%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



2030 with Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8y Det \& enario 2A\W

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	4		٦	†	7	۲	^	7	ሻ	↑ ↑	
Traffic Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1744
Adj Flow Rate, veh/h	305	273	45	218	259	69	65	1720	132	101	1366	71
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	4
Cap, veh/h	278	301	8	247	258	222	106	1600	748	143	1555	31
Arrive On Green	0.16	0.16	0.15	0.13	0.13	0.13	0.06	0.44	0.44	0.08	0.47	0.46
Sat Flow, veh/h	1753	1640	270	1856	1935	1668	1856	3622	1693	1714	3204	166
Grp Volume(v), veh/h	305	0	318	218	259	69	65	1720	132	101	705	732
Grp Sat Flow(s), veh/h/ln	1753	0	1910	1856	1935	1668	1856	1811	1693	1714	1657	1714
Q Serve(g_s), s	19.0	0.0	19.0	13.8	16.0	4.5	4.1	53.0	5.7	6.9	47.3	47.6
Cycle Q Clear(g_c), s	19.0	0.0	19.0	13.8	16.0	4.5	4.1	53.0	5.7	6.9	47.3	47.6
Prop In Lane	1.00		0.14	1.00		1.00	1.00		1.00	1.00		0.10
Lane Grp Cap(c), veh/h	278	0	309	247	258	222	106	1600	748	143	775	810
V/C Ratio(X)	1.10	0.00	1.03	0.88	1.00	0.31	0.61	1.08	0.18	0.71	0.91	0.90
Avail Cap(c_a), veh/h	278	0	302	247	258	222	139	1600	748	143	775	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.5	0.0	50.5	51.1	52.0	47.0	55.3	33.5	20.3	53.6	31.9	31.9
Incr Delay (d2), s/veh	77.6	0.0	53.7	28.5	57.0	0.8	5.6	45.7	0.5	14.8	16.6	15.4
Initial Q Delay(d3),s/veh	38.9	0.0	58.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	330.9	312.0
%ile BackOfQ(95%),veh	/ln23.5	0.0	24.3	12.9	17.2	3.4	3.7	43.2	4.1	6.3	103.5	103.5
Unsig. Movement Delay,												
. , , , ,	167.0	0.0	162.5	79.6	109.0	47.8	60.9	79.2	20.8	68.4	379.4	359.3
LnGrp LOS	F	A	F	E	F	D	E	F	<u>C</u>	E	F	F
Approach Vol, veh/h		623			546			1917			1538	
Approach Delay, s/veh		164.7			89.5			74.6			349.4	
Approach LOS		F			F			Е			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc),	s15.0	58.0		22.0	11.9	61.1		25.0				
Change Period (Y+Rc),	s 6.0	6.0		7.0	6.0	6.0		7.0				
Max Green Setting (Gma	ax),9s0	52.0		15.0	8.0	53.0		18.0				
Max Q Clear Time (g_c+	l1)9s4	55.5		18.5	6.6	49.8		21.5				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	2.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			179.9									
HCM 6th LOS			F									
Notes												
User approved pedestria												
User approved volume b	arancır	ig amor	ig the la	nes tor	turning	movem	ent.					

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßy ው**ድሎል **6**enario 2A\W

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	f)		ሻ	<u></u>	7		^	7		^	7
Traffic Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		150	0		220	0		200
Storage Lanes	2		0	1		1	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.955				0.850			0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	3223	1810	0	1693	1901	1616	0	3256	1616	0	3370	1709
Flt Permitted	0.950			0.623								
Satd. Flow (perm)	3223	1810	0	1110	1901	1616	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	367	151	65	62	47	68	0	2029	79	0	1961	394
Shared Lane Traffic (%)												
Lane Group Flow (vph)	367	216	0	62	47	68	0	2029	79	0	1961	394
Number of Detectors	1	1		1	1	1		5	1		5	1
Detector Template						Right			Right			Right
Leading Detector (ft)	35	68		35	68	30		490	30		490	30
Trailing Detector (ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1		-5	-1	-10		-10	-10		-10	-10
Detector 1 Size(ft)	40	69		40	69	40		40	40		40	40
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												-
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0		0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			CI+Ex	
Detector 3 Channel												
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yው።ነ**ል **6**enario 2A\W

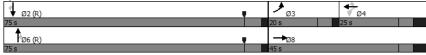
Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)								0.0			0.0	
Detector 5 Position(ft)								484			484	
Detector 5 Size(ft)								6			6	
Detector 5 Type								CI+Ex			CI+Ex	
Detector 5 Channel												
Detector 5 Extend (s)								0.0			0.0	
Turn Type	Prot	NA		Perm	NA	Perm		NA	Perm		NA	Perm
Protected Phases	3	8			4			6			2	
Permitted Phases				4		4			6			2
Detector Phase	3	8		4	4	4		6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0		15.0	15.0		15.0	15.0
Minimum Split (s)	9.0	15.0		15.0	15.0	15.0		22.0	22.0		22.0	22.0
Total Split (s)	20.0	45.0		25.0	25.0	25.0		75.0	75.0		75.0	75.0
Total Split (%)	16.7%	37.5%		20.8%	20.8%	20.8%		62.5%	62.5%		62.5%	62.5%
Maximum Green (s)	14.0	37.0		17.0	17.0	17.0		68.0	68.0		68.0	68.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0		5.0	5.0		5.0	5.0
All-Red Time (s)	2.0	4.0		4.0	4.0	4.0		2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-3.0	-3.0		-3.0	-3.0	0.0		-2.0	-2.0		-2.0	-2.0
Total Lost Time (s)	3.0	5.0		5.0	5.0	8.0		5.0	5.0		5.0	5.0
Lead/Lag	Lead			Lag	Lag	Lag						
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0		6.0			6.0	6.0
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0		3.0	3.0
Time Before Reduce (s)		0.0		0.0	0.0	0.0		48.0	48.0		48.0	48.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0		24.0	24.0		24.0	24.0
Recall Mode	None	None		None	None	None		C-Max	C-Max		C-Max	C-Max
Intersection Summary												
Area Type: C	ther											
Cycle Length: 120												
Actuated Cycle Length:												
Offset: 0 (0%), Reference	ced to p	hase 2:	SBT an	d 6:NB	T, Start	of Yellov	w					
Natural Cycle: 90												
Control Type: Actuated-	Coordi	nated										
Description: Signal												

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



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßу ው**ድ Nacional Column (1970) የመጀመር የመጀመር

McMahon Associates, Inc.

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	î,		ሻ	↑	7		^	7		^	7
Traffic Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2066	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	367	151	65	62	47	68	0	2029	79	0	1961	394
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	0	0	0	0	0	4	0	0	3	3
Cap, veh/h	512	365	157	176	184	117	0	2127	1019	0	2310	1071
Arrive On Green	0.14	0.27	0.27	0.10	0.10	0.07	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	3617	1370	590	1169	1849	1567	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	367	0	216	62	47	68	0	2029	79	0	1961	394
Grp Sat Flow(s),veh/h/ln		0	1960	1169	1849	1567	0	1635	1567	0	1776	1647
Q Serve(g_s), s	11.6	0.0	10.9	6.1	2.8	5.0	0.0	68.5	2.2	0.0	51.7	13.2
Cycle Q Clear(g_c), s	11.6	0.0	10.9	6.1	2.8	5.0	0.0	68.5	2.2	0.0	51.7	13.2
Prop In Lane	1.00		0.30	1.00		1.00	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	512	0	522	176	184	117	0	2127	1019	0	2310	1071
V/C Ratio(X)	0.72	0.00	0.41	0.35	0.26	0.58	0.00	0.95	0.08	0.00	0.85	0.37
Avail Cap(c_a), veh/h	512	0	653	255	308	222	0	2127	1019	0	2310	1071
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	36.2	51.4	49.9	53.7	0.0	19.3	7.7	0.0	16.4	9.6
Incr Delay (d2), s/veh	4.7	0.0	0.5	1.2	0.7	4.5	0.0	11.3	0.1	0.0	4.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/		0.0	9.1	3.3	2.4	3.9	0.0	33.2	1.3	0.0	26.2	8.6
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	53.9	0.0	36.7	52.6	50.6	58.2	0.0	30.6	7.9	0.0	20.5	10.6
LnGrp LOS	D	Α	D	D	D	E	A	С	A	A	С	В
Approach Vol, veh/h		583			177			2108			2355	
Approach Delay, s/veh		47.6			54.2			29.8			18.8	
Approach LOS		D			D			С			В	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc),	S	83.1	20.0	16.9		83.1		36.9				
Change Period (Y+Rc), s	3	7.0	6.0	8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	68.0	14.0	17.0		68.0		37.0				
Max Q Clear Time (g_c+	l1), s	54.2	14.1	8.6		71.0		12.9				
Green Ext Time (p_c), s		13.8	0.0	0.4		0.0		1.0				
Intersection Summary												
HCM 6th Ctrl Delay			27.7									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yው።ነ**ል **6**enario 2A\W

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

4: Rt 202 & Pleasant Grove Rd

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	Ĭ	↑ ↑		ሻ	^	7
Traffic Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Future Volume (vph)	0	0	56	0	0	43	51	1976	62	110	1506	373
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt			0.865			0.865		0.995				0.850
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1573	1636	3243	0	1678	3370	1538
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		553			858			3154			1356	
Travel Time (s)		10.8			16.7			47.8			20.5	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	1%
Adj. Flow (vph)	0	0	57	0	0	44	52	2016	63	112	1537	381
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	57	0	0	44	52	2079	0	112	1537	381
Sign Control		Stop			Stop			Free			Free	
Intersection Summary												

Area Type: Other Control Type: Unsignalized Other

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßу ው**ድ Nacional Column (1970) የመጀመር የመጀመር

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configuratio	ns		7			7	ኘ	† î>		ኘ	^	7	
Traffic Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373	
Future Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373	
Conflicting Peds,	#/hr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325	
Veh in Median Sto	orage,	# 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, 9	6 0	0	0	0	0	0	0	4	0	0	3	1	
Mvmt Flow	0	0	57	0	0	44	52	2016	63	112	1537	381	
Major/Minor N	/linor2		N	1inor1		N/	lajor1		M	lajor2			
Conflicting Flow A		-	769	-	-	1040		0		2079	0	0	
Stage 1			703		_	1040	1010	-	-	2013	-	-	
Stage 2	-		-	-			-		_			_	
Critical Hdwy			7.1	_	_	7.2	3.9		_	3.9	_		
Critical Hdwy Stq	1 -	-	7.1			1.2	3.9			3.9	-		
Critical Hdwy Stg		-	-	-	-		-	-	-			-	
Follow-up Hdwy		-	2.9	_	_	3	2.4	-	_	2.4	_	_	
Pot Cap-1 Maneu			*532	0	0		447	-		*361			
Stage 1	0	0	-	0	0	209	441		_	301			
Stage 2	0	0	_	0	0	-	-	-	_	-	_	-	
Platoon blocked.	-	U	1	U	U	1	1	_	_	1	_	_	
Mov Cap-1 Mane			*532			*289	447			*361			
Mov Cap-1 Manet Mov Cap-2 Manet		-	332	-	-	209	447	-	_	301	-	-	
Stage 1	uvei -												
Stage 2	-	-	-	-	-	-	-	-	_	-	-	-	
Stage 2													
Approach	EB			WB			NB			SB			
HCM Control Dela				19.7			0.3			1.1			
HCM LOS	В			С									
Minor Lane/Major	Mvmt	NBL	NBT	NBRE	BLn\n\	BLn1	SBL	SBT	SBR				
Capacity (veh/h)		447	-	-	532	289	* 361	-	-				
HCM Lane V/C Ra	atio (0.116	-	-	0.107	0.152		-	-				
HCM Control Dela	ay (s)	14.1	-	-	12.6	19.7	19.4	-	-				
HCM Lane LOS	,	В	-	-	В	С	С	-	-				
HCM 95th %tile Q	(veh)	0.4	-	-	0.4	0.5	1.3	-	-				
Notes													

HCM 6th TWSC
2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yው።ነ**ል **6**enario 2A\W

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

5: Church Access & Pleasant Grove Rd

	→	•	6	←	4	-
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
		רטוע	VVDL	- ₹	i vide	*
Lane Configurations	4	0	_	440	יי	Ľ
Traffic Volume (vph)	52	0	5	418	1	4
Future Volume (vph)	52	0	5	418	1	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	11	10
Grade (%)	4%			-4%	2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.999	0.950	
Satd. Flow (prot)	1705	0	0	1756	1636	1414
Flt Permitted				0.999	0.950	
Satd. Flow (perm)	1705	0	0	1756	1636	1414
Link Speed (mph)	35			35	35	
Link Distance (ft)	85			553	359	
Travel Time (s)	1.7			10.8	7.0	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0.73	0.75	0.73	1%	0.73	0.75
Adj. Flow (vph)	69	0 /8	7		1	5
	69	U	- /	557	- 1	5
Shared Lane Traffic (%)	60	0	0	EC.	1	-

564

Free

Stop

Intersection Summary Area Type:

Lane Group Flow (vph)

Sign Control

Other Control Type: Unsignalized

Free

5: Church Access & Pleasant Grove Rd

McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection							
Intersection	0.0						
Int Delay, s/veh	0.2						
Movement	EBT	EBR	WBL	WBT			
Lane Configuratio	ns 🕽	,		ની	ሻ	7	
Traffic Vol, veh/h	52	_	_		1		
Future Vol, veh/h	52	-	5	418	1		
Conflicting Peds,				0	0		
Sign Control	Free	Free	Free	Free			
RT Channelized	-	None	-	None	-	None	
Storage Length	-		-	-	0	-	
Veh in Median Sto			-	•	0		
Grade, %	4	-	-		2	-	
Peak Hour Factor	75	75	75	75	75	75	
Heavy Vehicles, %	6 0	-	-		0	-	
Mvmt Flow	69	0	7	557	1	5	
Major/Minor N	Anior4		/oior2	Α.	linor1		
	Major1		Major2		linor1	60	
Conflicting Flow A					640		
Stage 1	-						
Stage 2	-				٠	-	
Critical Hdwy			1.0	-	0.0		
Critical Hdwy Stg					0.0		
Critical Hdwy Stg: Follow-up Hdwy					0.0		
Follow-up Hawy Pot Cap-1 Maneu	ver -		1137	-	-	3.1	
Stage 1	ver -				462 1105		
Stage 1			-			-	
Stage 2 Platoon blocked, 9					001	-	
						1050	
Mov Cap-1 Maneu Mov Cap-2 Maneu			1137	-	458 458	1058	
Mov Cap-2 Manet Stage 1	uver - -		-		458		
Stage 1 Stage 2	-						
Stage 2	_	-	-	-	596	-	
Approach	EB		WB		NB		
HCM Control Dela	ay, s 0)	0.1		9.3		
HCM LOS	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Α		
N 45: 1 (N 5	N 4 N	IDI *	IDI 0	EDT	EDE	MD	MIDT
Minor Lane/Major	IVIVM						
Capacity (veh/h)			1058			1137	-
HCM Lane V/C Ra			0.005			0.006	-
HCM Control Dela	ay (s)	12.9			-		0
HCM Lane LOS		В				Α	Α
HCM 95th %tile Q	(veh)	0	0	-	-	0	-

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour $I: leng \$16451 - Crebilly Farm \ Traffic \ Analysis \ 2020-02\ Robinson\ Tract\ Revised\ TIS \ Synchro \ 5 - 2030\ wi$ **8y Def w \ 6** $en ario\ 2A \ W$ HCM 6th TWSC 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDet\66enario 2A\W

6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

	_	-	•	_	-	*
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		ર્ન	1		Y	
Traffic Volume (vph)	195	36	399	21	20	235
Future Volume (vph)	195	36	399	21	20	235
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)		4%	-3%		0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993		0.875	
Flt Protected		0.959			0.996	
Satd. Flow (prot)	0	1664	1795	0	1538	0
Flt Permitted		0.959			0.996	
Satd. Flow (perm)	0	1664	1795	0	1538	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		300	85		315	
Travel Time (s)		5.8	1.7		8.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	0%	1%	2%	2%	2%
Adj. Flow (vph)	217	40	443	23	22	261
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	257	466	0	283	0
Sign Control		Free	Free		Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc. 6: Pleasant Grove Rd & Orvis Way

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	7.3					
		FDT	MDT	MDD	CDI	CDD
Movement				WBR		SBK
Lane Configuration		4	\$	04	Y	005
Traffic Vol, veh/h	195	36	399	21	20	
Future Vol, veh/h	195	36	399	21	20	
Conflicting Peds, #		0	0	0	0	0
				Free		
RT Channelized		None		None		None
Storage Length	-	-	-	-	0	-
Veh in Median Stor	0 ,		0	-	0	-
Grade, %	-	4	-3		•	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %		0	1	2		
Mvmt Flow	217	40	443	23	22	261
Major/Minor Major/Minor	ajor1		lajor2		linor2	
		0	iaj012 -			AFF
Conflicting Flow All		-		•		
Stage 1	-	-	-			-
Stage 2	-	-	-	-		
Critical Hdwy	4.3	-	-	-		6.22
Critical Hdwy Stg 1		-	-	-	· · · -	
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	3	-	-	-	3	3.1
Pot Cap-1 Maneuv	e 6 30	-	-	-	329	639
Stage 1	-	-	-	-	727	-
Stage 2	-	-	-	-	712	-
Platoon blocked. %						
Mov Cap-1 Maneuv			_		241	639
Mov Cap-2 Maneu		_				
Stage 1	vei -	-		-		
	-		_	-		_
Stage 2	-	-	-	-	712	-
Approach	EB		WB		SB	
HCM Control Delay	/. 9 .2		0		17.6	
HCM LOS	, 0		•		C	
					J	
Minor Lane/Major N	Vivmt	EBL	EBT	WBT	WBRS	BLn1
IVIII Lane/IVIajor II			-	-	-	566
Capacity (veh/h)		830				
	tio (0.261	-		-	0.501
Capacity (veh/h) HCM Lane V/C Rat				-		
Capacity (veh/h) HCM Lane V/C Rat HCM Control Delay		0.261	-			17.6
Capacity (veh/h) HCM Lane V/C Rat	/ (s)	0.261	0	-		

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8y**ን፱ተለፍ eenario 2A\W

HCM 6th TWSC 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8y**ን፱ተለፍ enario 2A\W

Robinson Tract

7: Church Egress Access & Pleasant Grove Rd

2030 with Dev Weekday Afternoon Peak Hour

	-	*	€	•	1	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	^			†	¥	
Traffic Volume (vph)	227	0	0	634	0	0
Future Volume (vph)	227	0	0	634	0	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Grade (%)	3%			-3%	-2%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected						
Satd. Flow (prot)	1773	0	0	1809	1818	0
Flt Permitted						
Satd. Flow (perm)	1773	0	0	1809	1818	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	228			300	323	
Travel Time (s)	4.4			5.8	6.3	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	0%	1%	0%	0%
Adj. Flow (vph)	303	0	0	845	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	303	0	0	845	0	0
Sign Control	Free			Free	Stop	

Intersection Summary
Area Type: Other
Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

7: Church Egress Access & Pleasant Grove Rd

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configuration				A	¥	
Traffic Vol, veh/h	227	0	0		0	
Future Vol. veh/h	227	0	0		0	
Conflicting Peds,		-	0		0	
Sign Control				Free		
RT Channelized		None		None		None
Storage Length				-		
Veh in Median Sto	orageO	# -	-	0	0	
Grade. %	3			-3		
Peak Hour Factor			75		75	
Heavy Vehicles, %			0		0	
Mymt Flow	303	-	0		0	-
IVIVIIICI IOW	303	U	U	043	U	0
	/lajor1		lajor2		linor1	
Conflicting Flow A					1148	
Stage 1	-	-	-	-		
Stage 2	-	-	-	-	0.0	
Critical Hdwy	-	-	-	-	6	
Critical Hdwy Stg	1 -	-	-	-	_	
Critical Hdwy Stg:	2 -	-	-	-	5	-
Follow-up Hdwy	-	-	-	-	3.5	3.3
Pot Cap-1 Maneu	ver -	0	0	-	252	754
Stage 1	-	0	0	-	780	-
Stage 2	-	0	0	-	466	-
Platoon blocked, 9	% -			-		
Mov Cap-1 Maneu		-	-	_	252	754
Mov Cap-2 Maneu					-	
Stage 1	-		_	_	780	
Stage 2	-	-	_		466	
Stage 2			_	_	400	
Approach	EB		WB		NB	
HCM Control Dela	y, s 0		0		0	
HCM LOS					Α	
Min I /M-i	N 4	IDI 4	EDT	WOT		
Minor Lane/Major	IVIVITIN			WBT		
Capacity (veh/h)		-	-			
HCM Lane V/C Ra		-				
HCM Control Dela	y (s)	0	-			
HCM Lane LOS		Α	-	-		
HCM 95th %tile Q	(veh)	-	-	-		

8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

	→	•	•	•	7	
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	4î			ર્ન	¥	
Traffic Volume (vph)	65	4	414	220	3	162
Future Volume (vph)	65	4	414	220	3	162
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	11	11	11	12	12
Grade (%)	3%			-3%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.867	
Flt Protected				0.968	0.999	
Satd. Flow (prot)	1700	0	0	1682	1528	0
Flt Permitted				0.968	0.999	
Satd. Flow (perm)	1700	0	0	1682	1528	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1811			228	439	
Travel Time (s)	35.3			4.4	8.6	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%
Adj. Flow (vph)	87	5	552	293	4	216
Shared Lane Traffic (%))					
Lane Group Flow (vph)	92	0	0	845	220	0
Sign Control	Free			Free	Stop	

Intersection Summary

Area Type:

Control Type: Unsignalized

McMahon Associates, Inc. 8: Collector Road & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection						
Int Delay, s/veh	7.5					
Movement	FRT	FRR	WRI	WBT	NRI	NRR
Lane Configuration		LDI\	VVDL	€1 1	NDL N/	וטוי
Traffic Vol, veh/h	15 µ	4	414		T	162
Future Vol. veh/h	65	4			3	
Conflicting Peds, #		0	0	0	0	0
Sign Control				Free		-
RT Channelized		None		None		None
Storage Length					0	
Veh in Median Sto			-	0	0	-
Grade, %	3			-	0	_
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %		2			2	
Mymt Flow	87	5			4	
WWIII FIOW	01	5	332	293	4	210
	lajor1		lajor2		linor1	
Conflicting Flow Al		0	92		1487	
Stage 1	-	-	-		90	-
Stage 2	-	-	-		1397	-
Critical Hdwy	-	-	4.3			6.22
Critical Hdwy Stg 1	1 -	-	-	-	5.42	-
Critical Hdwy Stg 2	2 -	-	-	-	5.42	-
Follow-up Hdwy	-	-	3	-	3	3.1
Pot Cap-1 Maneuv	er -	-	1117	-	148	1033
Stage 1	-	-	-	-	1088	-
Stage 2	-	-	-	-	248	-
Platoon blocked, %	6 -	-		-		
Mov Cap-1 Maneu	iver -	-	1117	-	61	1033
Mov Cap-2 Maneu		-	-	-	61	-
Stage 1	-	-	-	-	1088	-
Stage 2	-	-		-		-
Olago 2						
Approach	EB		WB		NB	
HCM Control Delay	y, s 0		7.4		11.2	
HCM LOS					В	
Minor Lane/Major I	MvmN	IBLn1	EBT	EBR	WBI	WBT
Capacity (veh/h)		801	-		1117	
HCM Lane V/C Ra	tio	0.275	-		0.494	
LIGHT LAHE V/O NA		11.2	-		11.3	0
HCM Control Dolor						U
HCM Control Dela	y (3)					Δ
HCM Control Delay HCM Lane LOS HCM 95th %tile Q(, , ,	B 1.1	-	-	B 2.8	A

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8y**ን፱ተለፍ eenario 2A\W

HCM 6th TWSC
2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yው።ነ**ል **6**enario 2A\W

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

	-	•	1	•	1		
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	î,			ર્ન	¥		
Traffic Volume (vph)	74	2	14	234	1	9	
Future Volume (vph)	74	2	14	234	1	9	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	11	11	11	11	12	12	
Grade (%)	6%			-3%	0%		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.996				0.875		
Flt Protected				0.997	0.996		
Satd. Flow (prot)	1680	0	0	1742	1538	0	
Flt Permitted				0.997	0.996		
Satd. Flow (perm)	1680	0	0	1742	1538	0	
Link Speed (mph)	35			35	25		
Link Distance (ft)	787			1811	415		
Travel Time (s)	15.3			35.3	11.3		
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	
Heavy Vehicles (%)	0%	2%	2%	1%	2%	2%	
Adj. Flow (vph)	99	3	19	312	1	12	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	102	0	0	331	13	0	
Sign Control	Free			Free	Stop		

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8y\delta\66enario 2A\W

McMahon Associates, Inc. 9: Road M & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection						
	.6					
		EDD	WDI	WDT	ND	NIDD
		FRK	WBL			NRK
Lane Configurations		_		4	Y	•
	74	2		234	1	9
	74	2			1	9
Conflicting Peds, #/hr		_ 0	_ 0	_ 0	0	0
•			Free			
RT Channelized		None		None		None
Storage Length	-				0	
Veh in Median Storage			-	0	0	-
Grade, %	6	-		-	0	-
	75	75	75	75	75	75
Heavy Vehicles, %	0			1		2
Mvmt Flow 9	99	3	19	312	1	12
Major/Minor Majo	r1	N.	lajor2	N.	1inor1	
						101
Conflicting Flow All	0	0	102	0		101
Stage 1				-	101	
Stage 2	-	-		-	000	-
Critical Hdwy	-	-			6.42	
Critical Hdwy Stg 1	-	-	-		5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	•	-	_	
Pot Cap-1 Maneuver	-	-	1108	-	644	1018
Stage 1	-	-	-	-	1075	-
Stage 2	-	-	-	-	817	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1108	-	630	1018
Mov Cap-2 Maneuver			-			-
Stage 1	_				1075	
Stage 2	-	-				-
Stage 2	-				800	
Approach E	В		WB		NB	
HCM Control Delay, s	0		0.5		8.8	
HCM LOS					Α	
Minor Lane/Major Mvr	ηN		EBT	EBR	WBL	WBT
Capacity (veh/h)		959	-	-	1108	-
HCM Lane V/C Ratio	-	0.014	-	-	0.017	-
HCM Control Delay (s)	8.8	-	-	8.3	0
HCM Lane LOS	,	Α	-	-	Α	A
HCM 95th %tile Q(veh	1)	0	-	-		-

HCM 6th TWSC
2030 with Dev Weekday Afternoon Peak Hour
l:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ßy**ጋ፱ተለይ **6**enario 2A\W

Robinson Tract

10: Road K/Dunvegan Road & Pleasant Grove Rd

2030 with Dev Weekday Afternoon Peak Hour

	ၨ	→	\rightarrow	•	←	•	4	†	<i>></i>	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (vph)	3	69	13	10	213	12	7	0	6	1	0	2
Future Volume (vph)	3	69	13	10	213	12	7	0	6	1	0	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	12	12	12	10	10	10
Grade (%)		3%			-3%			0%			1%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.980			0.993			0.936			0.899	
Flt Protected		0.998			0.998			0.974			0.988	
Satd. Flow (prot)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Flt Permitted		0.998			0.998			0.974			0.988	
Satd. Flow (perm)	0	1614	0	0	1673	0	0	1609	0	0	1485	0
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		591			787			452			385	
Travel Time (s)		11.5			15.3			12.3			10.5	
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles (%)	0%	0%	2%	2%	1%	0%	2%	2%	2%	0%	2%	0%
Adj. Flow (vph)	4	92	17	13	284	16	9	0	8	1	0	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	113	0	0	313	0	0	17	0	0	4	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

10: Road K/Dunvegan Road & Pleasant Grove Rd

Intersection		
Int Delay, s/veh	0.8	

,,												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configuration	ns	4			4			4			4	
Traffic Vol, veh/h	3	69	13	10	213	12	7	0	6	1	0	2
Future Vol, veh/h	3	69	13	10	213	12	7	0	6	1	0	2
Conflicting Peds, #	#/hr 0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Sto	orage, #	# 0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	3	-	-	-3	-	-	0	-	-	1	-
Peak Hour Factor	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	6 0	0	2	2	1	0	2	2	2	0	2	0
Mvmt Flow	4	92	17	13	284	16	9	0	8	1	0	3

Major/Minor	Major1		Major2		Minor1		Minor2		
Conflicting Flow	All 300	0	0 109	0	0 429	435 10	1 431 435	292	
Stage 1	-	-		-	- 109	109	- 318 318	-	
Stage 2	-	-		-	- 320	326	- 113 117	-	
Critical Hdwy	4.3	-	- 4.3	-	- 7.12	6.52 6.23	2 7.3 6.72	6.3	
Critical Hdwy Sto	1 -	-		-	- 6.12	5.52	- 6.3 5.72	-	
Critical Hdwy Sto	g 2 -	-		-	- 6.12	5.52	- 6.3 5.72	-	
Follow-up Hdwy	3	-	- 3	-	- 34	1.018 3.	1 34.018	3.1	
Pot Cap-1 Mane	uve948	-	- 1102	-	- 611	514 1018	8 596 502	788	
Stage 1	-	-		-	- 1043	805	- 783 642	-	
Stage 2	-	-		-	- 793	648	- 1032 794	-	
Platoon blocked,	%	-	-	-	-				
Mov Cap-1 Mane	euv e r48	-	- 1102	-	- 600	504 1018	8 583 492	788	
Mov Cap-2 Mane	euver -	-		-	- 600	504	- 583 492	-	
Stage 1	-	-		-	- 1038	801	- 779 633	-	
Stage 2	-	-		-	- 779	639	- 1019 790	-	

Approach	EB	WB	NB	SB	
HCM Control D	Delay, 9 .3	0.4	10	10.1	
HCM LOS			В	В	

Minor Lane/Major Mvml	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	BLn1
Capacity (veh/h)	740	948	-	-	1102	-	-	705
HCM Lane V/C Ratio	0.0230	0.004	-	- (0.012	-	-	0.006
HCM Control Delay (s)	10	8.8	0	-	8.3	0	-	10.1
HCM Lane LOS	В	Α	Α	-	Α	Α	-	В
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-	-	0

11: New Street & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

	•	•	Ť		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	¥		4î			4
Traffic Volume (vph)	167	56	151	56	29	178
Future Volume (vph)	167	56	151	56	29	178
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.966		0.963			
Flt Protected	0.964					0.993
Satd. Flow (prot)	1655	0	1721	0	0	1757
Flt Permitted	0.964					0.993
Satd. Flow (perm)	1655	0	1721	0	0	1757
Link Speed (mph)	35		35			35
Link Distance (ft)	591		636			619
Travel Time (s)	11.5		12.4			12.1
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles (%)	1%	2%	1%	0%	0%	2%
Adj. Flow (vph)	188	63	170	63	33	200
Shared Lane Traffic (%)					
Lane Group Flow (vph)	251	0	233	0	0	233
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings
2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDeth\Section enario 2A\W

McMahon Associates, Inc. 11: New Street & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Intersection					
Intersection Int Delay, s/veh 5.	2				
	L WBR		NBR	SBL	
Lane Configurations *		ĵ»			4
Traffic Vol, veh/h 16		151	56	29	178
Future Vol, veh/h 16		151	56	29	178
Conflicting Peds, #/hr		0	0	0	0
	o Stop				
RT Channelized	- None	-	None	-	None
	0 -	-	-	-	-
Veh in Median Storage	Ç# -	0	-	-	0
Grade, %	0 -	0	-	-	0
Peak Hour Factor 8	9 89	89	89	89	89
Heavy Vehicles, %	1 2	1	0	0	2
Mvmt Flow 18	8 63	170	63	33	200
Major/Minor Minor		1ajor1		lajor2	
Conflicting Flow All 46		0	0	233	0
Stage 1 20		-		-	-
Stage 2 26	-	-	-	-	-
Critical Hdwy 6.4		-	-	4.3	-
Critical Hdwy Stg 1 5.4		-	-	-	-
Critical Hdwy Stg 25.4		-	-	-	-
	3 3.1	-		3	-
Pot Cap-1 Maneuve63		-	-	1000	-
Stage 1 96		-	-	-	-
Stage 2 89	7 -	-	-	-	-
Platoon blocked, %		-	-		-
Mov Cap-1 Maneuve00	7 892	-	-	1000	-
Mov Cap-2 Maneuve00	7 -	-	-	-	-
Stage 1 96		-	-	-	-
Stage 2 86	4 -	-	-	-	-
g	-				
A	_	ND		00	_
Approach W		NB		SB	
HCM Control Delay,18.		0		1.2	
HCM LOS	3				
Minor Lane/Major Mvm	t NBT	NBR	/BLn1	SBL	SBT
Capacity (veh/h)	-	-		1000	-
HCM Lane V/C Ratio	-		0.38		
HCM Control Delay (s)			13.8	8.7	0
HCM Lane LOS	-		13.6 B	ο. /	A
HOW LANE LUS	-	-	_	А	А
HCM 95th %tile Q(veh	-		1.8	0.1	_

HCM 6th TWSC
2030 with Dev Weekday Afternoon Peak Hour
l:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**ß**yଢ**ib\% 6**enario 2A\W



1: New St & Rt 926

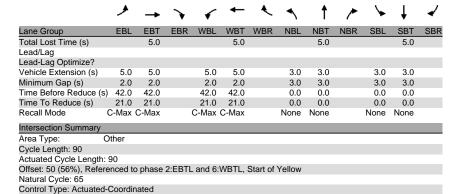
Robinson Tract 2030 with Dev Weekday Morning Peak Hour

	۶	→	•	•	+	4	1	†	/	/	↓	- ✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			43-	
Traffic Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (vph)	84	663	5	12	393	38	10	106	44	8	133	156
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.988			0.963			0.929	
Flt Protected		0.994			0.999			0.997			0.999	
Satd. Flow (prot)	0	1624	0	0	1550	0	0	1586	0	0	1530	0
Flt Permitted		0.901			0.979			0.910			0.991	
Satd. Flow (perm)	0	1472	0	0	1519	0	0	1448	0	0	1518	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		1			13							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	87	684	5	12	405	39	10	109	45	8	137	161
Shared Lane Traffic (%	,											
Lane Group Flow (vph)		776	0	0	456	0	0	164	0	0	306	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+EX	CI+Ex		CI+EX	CI+Ex	
Detector 1 Channel	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases	_	2			6		_	8			4	
Permitted Phases	2			6			8	8		4	4	_
Detector Phase Switch Phase	2			ь			8	8		4	4	
	22.0	22.0		22.0	22.0		2.0	3.0		3.0	2.0	
Minimum Initial (s)	28.0	28.0		28.0	28.0		3.0 9.0	9.0		9.0	3.0 9.0	
Minimum Split (s)												
Total Split (s)	69.0	69.0		69.0	69.0		21.0	21.0		21.0	21.0	
Total Split (%)	76.7% 63.0	63.0		76.7% 63.0	63.0		23.3%	15.0		23.3% 15.0	15.0	
Maximum Green (s) Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	2.0	-1.0		2.0	-1.0		2.0	-1.0		2.0	-1.0	
Lost Time Adjust (S)		-1.0			-1.0			-1.0			-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 29\000cmore Robinson Tract Revised TIS\Synchro\5 - 2

McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour



Splits and Phases: 1: New St & Rt 926



McMahon Associates, Inc.

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			ቆ			4	
Traffic Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Future Volume (veh/h)	84	663	5	12	393	38	10	106	44	8	133	156
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	87	684	5	12	405	39	10	109	45	8	137	161
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	148	1089	8	52	1062	100	51	220	87	44	134	153
Arrive On Green	0.70	0.71	0.70	0.93	0.95	0.93	0.17	0.18	0.17	0.17	0.18	0.17
Sat Flow, veh/h	146	1532	11	15	1493	141	47	1240	487	17	756	859
Grp Volume(v), veh/h	776	0	0	456	0	0	164	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	1688	0	0	1650	0	0	1773	0	0	1632	0	0
Q Serve(g_s), s	7.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
Cycle Q Clear(g_c), s	20.9	0.0	0.0	2.2	0.0	0.0	7.6	0.0	0.0	15.0	0.0	0.0
Prop In Lane	0.11		0.01	0.03		0.09	0.06		0.27	0.03		0.53
Lane Grp Cap(c), veh/h	1226	0	0	1196	0	0	338	0	0	313	0	0
V/C Ratio(X)	0.63	0.00	0.00	0.38	0.00	0.00	0.49	0.00	0.00	0.98	0.00	0.00
Avail Cap(c_a), veh/h	1226	0	0	1196	0	0	338	0	0	313	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.99	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		0.0	0.0	0.8	0.0	0.0	33.7	0.0	0.0	37.7	0.0	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.9	0.0	0.0	1.1	0.0	0.0	44.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	0.0	1.2	0.0	0.0	6.1	0.0	0.0	15.9	0.0	0.0
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	9.2	0.0	0.0	1.7	0.0	0.0	34.8	0.0	0.0	82.2	0.0	0.0
LnGrp LOS	<u>A</u>	A	A	A	A	A	<u> </u>	A	A	F	A	A
Approach Vol, veh/h		776			456			164			306	
Approach Delay, s/veh		9.2			1.7			34.8			82.2	
Approach LOS		Α			Α			С			F	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	S	69.0		21.0		69.0		21.0				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		15.0		63.0		15.0				
Max Q Clear Time (g_c+	l1), s	22.9		17.0		4.2		9.6				
Green Ext Time (p_c), s		7.8		0.0		3.7		0.2				
Intersection Summary												
HCM 6th Ctrl Delay			22.8									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2000@withBDech8denario 2A\W



McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			7			7	J.	↑ ↑		۲	↑ î>	
Traffic Volume (vph)	0	0	44	0	0	34	33	2141	71	54	1778	265
Future Volume (vph)	0	0	44	0	0	34	33	2141	71	54	1778	265
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	16	16	16	12	12	12	11	12	12	11	12	12
Grade (%)		-1%			-2%			2%			-3%	
Storage Length (ft)	0		0	0		0	350		0	380		325
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.865			0.865		0.995			0.981	
Flt Protected							0.950			0.950		
Satd. Flow (prot)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	0	1773	0	0	1379	1488	3200	0	1629	3147	0
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		499			858			3154			1356	
Travel Time (s)		9.7			16.7			47.8			20.5	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	14%	10%	5%	14%	3%	9%	3%
Adj. Flow (vph)	0	0	46	0	0	35	34	2230	74	56	1852	276
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	46	0	0	35	34	2304	0	56	2128	0
Sign Control		Stop			Stop			Free			Free	

Area Type: Other Control Type: Unsignalized

Intersection Summary

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5 - 28\%@\width@Dex\85denario 2A\W

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	<u> </u>		7			7	ሻ	ħβ		ሻ	† 1>		
Traffic Vol, veh/h	0	0	44	0	0	34	33	2141	71	54	1778	265	
Future Vol., veh/h	0	0	44	0	0	34	33	2141	71	54	1778	265	
Conflicting Peds, #/	hr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	-	
Veh in Median Stora	age,#	ŧ 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	96	96	96	96	96	96	96	96	96	96	96	96	
Heavy Vehicles, %	0	0	0	0	0	14	10	5	14	3	9	3	
Mvmt Flow	0	0	46	0	0	35	34	2230	74	56	1852	276	
Major/Minor Mi	nor2		N	1inor1		N	lajor1		M	lajor2			
Conflicting Flow All	-	-	1064	-	-	1152		0		2304	0	0	
Stage 1	-	-	-	-	-	-			-			-	
Stage 2	_		-	-		-			-			-	
Critical Hdwy	-	_	7.2	-	-	7.3	4.1		_	4		-	
Critical Hdwy Stg 1	-	-		-		-			-	-		-	
Critical Hdwy Stg 2	-	_	_	-	-	-	_		_			-	
Follow-up Hdwy	-	-	2.9	-		3.1	2.5		-	2.4		-	
Pot Cap-1 Maneuve	er O	0	*386	0	0	*197	382		-	*255		-	
Stage 1	0	0	-	0	0	-	-		-			-	
Stage 2	0	0	-	0	0	-	-		-	-		-	
Platoon blocked. %	•		1	-	•	1	1		-	1		-	
Mov Cap-1 Maneuv		_	*386	-	-	*197	382		_	*255		-	
Mov Cap-2 Maneuv		-	-	-		-	-		-			-	
Stage 1	-	_	-	-		-	-		-	-		-	
Stage 2	_		-	-		-			-			-	
Olugo 2													
A l-	EB	_	_	WB	_	_	NB	_	_	SB	_	_	
Approach HCM Control Delay		_	_	27.2	_	_	0.2	_	_	0.6	_	_	
HCM LOS	,1 3 .0			27.2 D			0.2			0.0			
HCW LOS	C			U									
Minor Long/Mai N	1. mat	NIDI	NDT	NIDE	DI ~M	/DI n.4	CDI	CDT	CDD				
Minor Lane/Major M	ıvmt		NBT	NBRE			SBL * 255	SBT	SBR				
Capacity (veh/h)		382			000		* 255	-					
HCM Cantral Dalay		0.09	-	-		0.18		-	-				
HCM Control Delay	(S)	15.4	-	-		27.2		-	-				
HCM Lane LOS	(ab)	0.3	-	-	C	D	C	-	-				
HCM 95th %tile Q(v	ren)	0.3	-	-	0.4	0.6	0.8	-	-				
Notes													

HCM 6th TWSC 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5 - இடும் with முகல் denario 2A\W

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	†	7	*	- 1>			^	7		^	7
Traffic Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (vph)	243	153	35	87	142	62	0	2096	57	0	2008	314
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%		- '-	2%			-3%	
Storage Length (ft)	200	070	200	350	270	0	0	270	220	0	070	200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	75		•	100		U	75		•	75		•
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.850	1.00	0.954	1.00	1.00	0.55	0.850	1.00	0.55	0.850
Flt Protected	0.950		0.000	0.950	0.554				0.000			0.000
Satd. Flow (prot)	1598	1765	1434	1628	1687	0	0	3225	1616	0	3214	1676
Flt Permitted	0.511	1703	1434	0.611	1007	U	U	3223	1010	U	3214	1070
Satd. Flow (perm)	860	1765	1434	1047	1687	0	0	3225	1616	0	3214	1676
	000	1765	1434 No	1047	1007	No	U	3225	No	U	3214	No
Right Turn on Red			INO			INO			NO			NO
Satd. Flow (RTOR)		0.5			0.5			45			45	
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	6%	8%	13%	4%	9%	4%	0%	5%	0%	0%	8%	5%
Adj. Flow (vph)	256	161	37	92	149	65	0	2206	60	0	2114	331
Shared Lane Traffic (%)												
Lane Group Flow (vph)	256	161	37	92	214	0	0	2206	60	0	2114	331
Number of Detectors	1	4	1	1	4			2	1		2	1
Detector Template			Right						Right			Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	6	40	40	6			40	40		40	40
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex			CI+Ex	CI+Ex		CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)		15			15			450			450	
Detector 2 Size(ft)		6			6			40			40	
Detector 2 Type		CI+Ex			CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Detector 3 Position(ft)		36			36							
Detector 3 Size(ft)		6			6							
Detector 3 Type		CI+Ex			CI+Ex							
Detector 3 Channel		0			0 <u></u> X							
Detector 3 Extend (s)		0.0			0.0							
Detector 4 Position(ft)		62			62							
Detector 4 Size(ft)		6			6							
Detector 4 Type		CI+Ex			CI+Ex							
		JIILX			JIILX							

2030 with Dev Weekday Morning Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 28\600e0\frac{1}{2000}\frac{1}{200 McMahon Associates, Inc.

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd

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	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SE
		0.0			0.0							

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 4 Channel												
Detector 4 Extend (s)		0.0			0.0							
Turn Type	Perm	NA	Perm	Perm	NA			NA	Perm		NA	Perm
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4					6			2
Detector Phase	8	8	8	4	4			6	6		2	2
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0			15.0	15.0		15.0	15.0
Minimum Split (s)	15.0	15.0	15.0	15.0	15.0			22.0	22.0		22.0	22.0
Total Split (s)	36.0	36.0	36.0	36.0	36.0			84.0	84.0		84.0	84.0
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%			70.0%	70.0%	7	0.0%	70.0%
Maximum Green (s)	28.0	28.0	28.0	28.0	28.0			77.0	77.0		77.0	77.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			5.0	5.0		5.0	5.0
All-Red Time (s)	4.0	4.0	4.0	4.0	4.0			2.0	2.0		2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0				-1.0			-1.0	-
Total Lost Time (s)	7.0	7.0	8.0	7.0	7.0			6.0	6.0		6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0			6.0	6.0		6.0	6.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0			3.0	3.0		3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0			48.0	48.0		48.0	
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0			24.0	24.0		24.0	
Recall Mode	None	None	None	None	None			C-Max	C-Max	C	C-Max	C-Max

Intersection Summary Area Type: Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Splits and Phases: 12: Rt 202 & Stetson School Dr/Skiles Blvd 1 Ø6 (R)

Lanes, Volumes, Timings

2030 with Dev Weekday Morning Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 28\600e0\frac{1}{2000}\frac{1}{200

12: Rt 202 & Stetson School Dr/Skiles Blvd

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑	7	Ť	₽			^	7		^	7
Traffic Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Future Volume (veh/h)	243	153	35	87	142	62	0	2096	57	0	2008	314
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		_	No		_	No	
Adj Sat Flow, veh/h/ln	1901	1947	1874	1722	1717	1717	0	1707	1849	0	1798	1914
Adj Flow Rate, veh/h	256	161	37	92	149	65	0	2206	60	0	2114	331
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	8	13	4	9	9	0	5	0	0	8	5
Cap, veh/h	224	471	370	259	274	120	0	2109	1018	0	2221	1054
Arrive On Green	0.24	0.24	0.23	0.24	0.24	0.23	0.00	0.65	0.65	0.00	0.65	0.65
Sat Flow, veh/h	1252	1947	1588	1151	1134	495	0	3330	1567	0	3506	1622
Grp Volume(v), veh/h	256	161	37	92	0	214	0	2206	60	0	2114	331
Grp Sat Flow(s),veh/h/ln		1947	1588	1151	0	1628	0	1622	1567	0	1708	1622
Q Serve(g_s), s	15.7	8.2	2.2	8.6	0.0	13.8	0.0	78.0	1.7	0.0	68.2	10.8
Cycle Q Clear(g_c), s	29.0	8.2	2.2	16.8	0.0	13.8	0.0	78.0	1.7	0.0	68.2	10.8
Prop In Lane	1.00	474	1.00	1.00	•	0.30	0.00	0400	1.00	0.00	0004	1.00
Lane Grp Cap(c), veh/h	224	471	370	259	0	394	0	2109	1018	0	2221	1054
V/C Ratio(X)	1.14	0.34	0.10	0.35	0.00	0.54	0.00	1.05	0.06	0.00	0.95	0.31
Avail Cap(c_a), veh/h HCM Platoon Ratio	1.00	471 1.00	370 1.00	259 1.00	1.00	394 1.00	1.00	2109 1.00	1018	1.00	1.00	1054
	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Upstream Filter(I) Uniform Delay (d), s/veh		37.6	36.1	44.6	0.00	39.9	0.00	21.0	7.6	0.00	19.3	9.2
Incr Delay (d2), s/veh	104.1	0.4	0.1	0.8	0.0	1.5	0.0	33.0	0.1	0.0	10.7	0.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		7.2	1.6	4.6	0.0	9.7	0.0	45.4	1.0	0.0	34.1	6.5
Unsig. Movement Delay.		1.2	1.0	4.0	0.0	5.1	0.0	75.7	1.0	0.0	J 1 .1	0.5
LnGrp Delay(d),s/veh	158.4	38.0	36.2	45.4	0.0	41.4	0.0	54.0	7.8	0.0	30.0	10.0
LnGrp LOS	F	D	D	D	A	D	A	F	A	A	C	В
Approach Vol, veh/h	· ·	454			306			2266		- , ,	2445	
Approach Delay, s/veh		105.8			42.6			52.7			27.3	
Approach LOS		F			D			D D			C	
Timer - Assigned Phs		2		4	_	6		8				
Phs Duration (G+Y+Rc),	9	84.0		36.0		84.0		36.0				
Change Period (Y+Rc),		7.0		8.0		7.0		8.0				
Max Green Setting (Gma		77.0		28.0		77.0		28.0				
Max Q Clear Time (g_c+		70.7		19.3		80.5		31.5				
Green Ext Time (p c), s	,, -	6.3		0.9		0.0		0.0				
Intersection Summary	-	-	-	_	-	_	_	-	-	_	-	
HCM 6th Ctrl Delay			45.2									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2000@withBDeep8denario 2A\W

1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		44			4			4			4	
Traffic Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (vph)	66	686	14	23	383	32	10	92	43	52	178	104
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	10	10	10	10	10	10	10	10	10	10	10
Grade (%)		-2%			1%			-2%			1%	
Storage Length (ft)	0		0	0		150	0		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.990			0.960			0.958	
Flt Protected		0.996			0.997			0.997			0.992	
Satd. Flow (prot)	0	1626	0	0	1552	0	0	1579	0	0	1547	0
Flt Permitted		0.925			0.944			0.970			0.928	
Satd. Flow (perm)	0	1510	0	0	1469	0	0	1536	0	0	1448	0
Right Turn on Red			Yes			Yes			No			No
Satd. Flow (RTOR)		2			8							
Link Speed (mph)		45			45			25			35	
Link Distance (ft)		819			2436			714			826	
Travel Time (s)		12.4			36.9			19.5			16.1	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	4%	0%	0%	7%	3%	11%	1%	5%	13%	0%	2%
Adj. Flow (vph)	68	707	14	24	395	33	10	95	44	54	184	107
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	789	0	0	452	0	0	149	0	0	345	0
Number of Detectors	1	1		1	1		1	1		1	1	
Detector Template	Left			Left			Left	Thru		Left	Thru	
Leading Detector (ft)	30	6		30	6		30	35		30	35	
Trailing Detector (ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Position(ft)	-10	0		-10	0		-10	-5		-10	-5	
Detector 1 Size(ft)	40	6		40	6		40	40		40	40	
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Detector Phase	2			6			8	8		4	4	
Switch Phase												
Minimum Initial (s)	22.0	22.0		22.0	22.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	28.0	28.0		28.0	28.0		9.0	9.0		9.0	9.0	
Total Split (s)	69.0	69.0		69.0	69.0		31.0	31.0		31.0	31.0	
Total Split (%)	69.0%	69.0%		69.0%	69.0%		31.0%	31.0%		31.0%	31.0%	
Maximum Green (s)	63.0	63.0		63.0	63.0		25.0	25.0		25.0	25.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	

Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yDer\66**enario 2A\W

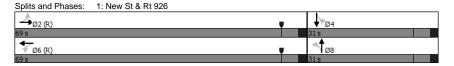
McMahon Associates, Inc. 1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Lane Group WBT WBR NBT Total Lost Time (s) 5.0 5.0 Lead/Lag Lead-Lag Optimize? Vehicle Extension (s) 5.0 5.0 5.0 5.0 3.0 3.0 3.0 3.0 Minimum Gap (s) 2.0 2.0 2.0 2.0 3.0 3.0 3.0 3.0 Time Before Reduce (s) 42.0 42.0 42.0 42.0 0.0 0.0 0.0 0.0 Time To Reduce (s) 21.0 21.0 21.0 21.0 0.0 0.0 0.0 0.0 C-Max C-Max Recall Mode C-Max C-Max None None None None Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Yellow Natural Cycle: 80

Control Type: Actuated-Coordinated



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8yDeth\Se**enario 2A\W

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1: New St & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Future Volume (veh/h)	66	686	14	23	383	32	10	92	43	52	178	104
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1818	1818	1818	1696	1696	1696	1860	1860	1860	1794	1794	1794
Adj Flow Rate, veh/h	68	707	14	24	395	33	10	95	44	54	184	107
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	4	7	7	7	1	1	1	0	0	0
Cap, veh/h	113	1049	20	68	962	78	51	278	122	88	219	119
Arrive On Green	0.67	0.66	0.65	1.00	1.00	1.00	0.25	0.24	0.23	0.25	0.24	0.23
Sat Flow, veh/h	111	1577	30	46	1446	118	53	1184	518	197	930	507
Grp Volume(v), veh/h	789	0	0	452	0	0	149	0	0	345	0	0
Grp Sat Flow(s), veh/h/ln	1718	0	0	1610	0	0	1755	0	0	1634	0	0
Q Serve(g_s), s	10.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.1	0.0	0.0
Cycle Q Clear(g_c), s	26.8	0.0	0.0	0.0	0.0	0.0	7.0	0.0	0.0	20.1	0.0	0.0
Prop In Lane	0.09		0.02	0.05		0.07	0.07		0.30	0.16		0.31
Lane Grp Cap(c), veh/h	1199	0	0	1124	0	0	469	0	0	442	0	0
V/C Ratio(X)	0.66	0.00	0.00	0.40	0.00	0.00	0.32	0.00	0.00	0.78	0.00	0.00
Avail Cap(c_a), veh/h	1199	0	0	1124	0	0	511	0	0	482	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.97	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	0.0	0.0	0.0	32.0	0.0	0.0	36.9	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0	1.0	0.0	0.0	0.4	0.0	0.0	7.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.		0.0	0.0	0.6	0.0	0.0	5.5	0.0	0.0	13.5	0.0	0.0
Unsig. Movement Delay,	s/veh											
LnGrp Delay(d),s/veh	12.8	0.0	0.0	1.0	0.0	0.0	32.4	0.0	0.0	44.3	0.0	0.0
LnGrp LOS	В	Α	Α	Α	Α	Α	С	Α	Α	D	Α	Α
Approach Vol, veh/h		789			452			149			345	
Approach Delay, s/veh		12.8			1.0			32.4			44.3	
Approach LOS		В			Α			С			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),		71.5		28.5		71.5		28.5				
Change Period (Y+Rc), s		6.0		6.0		6.0		6.0				
Max Green Setting (Gma		63.0		25.0		63.0		25.0				
Max Q Clear Time (g_c+	l1), s	28.8		22.1		2.5		9.0				
Green Ext Time (p_c), s		7.7		0.4		3.7		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			17.7									
HCM 6th LOS			В									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-05 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8y**ን፱ተለፍ enario 2A\W



McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Lane Group EBR Lane Configurations Traffic Volume (vph) 56 51 1976 110 1506 373 Future Volume (vph) 0 56 0 0 43 51 1976 62 110 1506 373 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 1800 Lane Width (ft) 16 16 16 12 12 12 11 12 12 11 12 12 Grade (%) -3% Storage Length (ft) 0 0 350 0 380 325 Storage Lanes 0 0 Taper Length (ft) 25 25 25 25 Lane Util. Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.95 0.95 1.00 0.95 1.00 Frt 0.865 0.865 0.995 0.850 Flt Protected 0.950 0.950 Satd. Flow (prot) 0 0 1773 0 1573 1636 3243 0 1678 3370 1538 0 Flt Permitted 0.950 0.950 Satd. Flow (perm) 1773 3243 0 1678 3370 1538 0 0 0 0 1573 1636 Link Speed (mph) 45 45 35 35 553 858 3154 1356 Link Distance (ft) Travel Time (s) 10.8 16.7 47.8 20.5 Peak Hour Factor 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 0.98 Heavy Vehicles (%) 0% 0% 0% 0% 0% 4% 0% 3% 1% 112 Adj. Flow (vph) 2016 381 0 0 57 0 0 44 52 63 1537 Shared Lane Traffic (%)

0

Stop

52 2079

112 1537

Free

381

Intersection Summary
Area Type: Other

Lane Group Flow (vph)

Sign Control

0 57

Stop

Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday Afternoon Peak Hour

!\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8\p\Det\66enario 2A\W

McMahon Associates, Inc. 4: Rt 202 & Pleasant Grove Rd

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

Movement I	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	;		7			7	ሻ	† }		ሻ	^	7	
Traffic Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373	
Future Vol, veh/h	0	0	56	0	0	43	51	1976	62	110	1506	373	
Conflicting Peds, #/h	nr 0	0	0	0	0	0	0	0	0	0	0	0	
Sign Control S	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free	
RT Channelized	-	-	Yield	-	-	None	-	-	None	-	-	None	
Storage Length	-	-	0	-	-	0	350	-	-	380	-	325	
Veh in Median Stora	age,#	ŧ 0	-	-	0	-	-	0	-	-	0	-	
Grade, %	-	-1	-	-	-2	-	-	2	-	-	-3	-	
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98	
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	1	
Mvmt Flow	0	0	57	0	0	44	52	2016	63	112	1537	381	
Major/Minor Mir	nor2		Λ.	1inor1			lajor1		N/	lajor2			
Conflicting Flow All	-	-	769	-		1040		0		2079	0	0	
Stage 1	-	-	709	-	-	1040	1910	-	-	2019	-	-	
Stage 2	-	•		-	-	_	-		-	-	•	-	
Critical Hdwy	-		7.1	-	-	7.2	3.9	-	-	3.9			
Critical Hdwy Stg 1	-	-	7.1	-		1.2	3.9	-		3.9	-		
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-		
Follow-up Hdwy	-	-	2.9	-	-	3	2.4	-		2.4	-	-	
Pot Cap-1 Maneuve		0		0		*289	447	-	-		-		
Stage 1	0	0	332	0	0		441		-	301		-	
Stage 2	0	0	_	0	0				-				
Platoon blocked. %	U	U	1	U	U	1	1			1	-		
Mov Cap-1 Maneuv			*532	_		*289	447	-		*361	-		
Mov Cap-1 Maneuv		-	532	-	-	209	447	-	-	301	-	-	
Stage 1	eı -	-	-		-		-				-		
Stage 2	-	•	-	-	-	-	-	-	-	•	•	-	
Stage 2	-	-	-	-	-	-	-	-	-	-	-		
Approach	EB			WB			NB			SB			
HCM Control Delay;	12.6			19.7			0.3			1.1			
HCM LOS	В			С									
Minor Lane/Major M	vmt	NBL	NRT	NBRE	BI nM	/RI n1	SBL	SBT	SBR				
Capacity (veh/h)	-1111	447	-	-		289		-	-				
HCM Lane V/C Rati	0 ().116				0.152		_					
HCM Control Delay		14.1	_			19.7							
HCM Lane LOS	(3)	14.1	_	-	12.0 B	19.7 C	13.4 C						
HCM 95th %tile Q(v	eh)	0.4	-	-	0.4	0.5	1.3	-	-				
`	011)	0.4			0.4	0.5	1.3						
Notes													

HCM 6th TWSC

2030 with Dev Weekday Afternoon Peak Hour
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDet\66enario 2A\W

McMahon Associates, Inc.

Robinson Tract

12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 with Dev Weekday Afternoon Peak Hour

12.111 202 & 010100												
	•	-	•	•	-	•	1	Ť	~	-	ţ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	*	7	ř	f)			^	7		^	7
Traffic Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (vph)	356	146	63	60	46	66	0	1968	77	0	1902	382
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	11	13	13	12	14	14	12	12	14	12	12	16
Grade (%)		-5%			2%			2%			-3%	
Storage Length (ft)	200		200	350		0	0		220	0		200
Storage Lanes	1		1	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt			0.850		0.911				0.850			0.850
Flt Protected	0.950			0.950								
Satd. Flow (prot)	1661	1906	1589	1693	1732	0	0	3256	1616	0	3370	1709
Flt Permitted	0.664			0.602								
Satd. Flow (perm)	1161	1906	1589	1073	1732	0	0	3256	1616	0	3370	1709
Right Turn on Red			No			No			No			No
Satd. Flow (RTOR)												
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		637			560			1356			940	
Travel Time (s)		17.4			15.3			20.5			14.2	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	2%	0%	0%	0%	0%	4%	0%	0%	3%	3%
Adj. Flow (vph)	367	151	65	62	47	68	0	2029	79	0	1961	394
Shared Lane Traffic (%)								2020		Ŭ		
Lane Group Flow (vph)	367	151	65	62	115	0	0	2029	79	0	1961	394
Number of Detectors	1	1	1	1	1			5	1		5	1
Detector Template	-		Right		•			-	Right		-	Right
Leading Detector (ft)	35	68	30	35	68			490	30		490	30
Trailing Detector (ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Position(ft)	-5	-1	-10	-5	-1			-10	-10		-10	-10
Detector 1 Size(ft)	40	69	40	40	69			40	40		40	40
Detector 1 Type			CI+Ex		CI+Ex			CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0			0.0	0.0		0.0	0.0
Detector 2 Position(ft)								113			113	
Detector 2 Size(ft)								40			40	
Detector 2 Type								CI+Ex			Cl+Ex	
Detector 2 Channel								0 Ex			0Ex	
Detector 2 Extend (s)								0.0			0.0	
Detector 3 Position(ft)								237			237	
Detector 3 Size(ft)								6			6	
Detector 3 Type								CI+Ex			CI+Ex	
Detector 3 Channel								0 <u>L</u> X			0 <u></u>	
Detector 3 Extend (s)								0.0			0.0	
Detector 4 Position(ft)								360			360	
Detector 4 Size(ft)								6			6	
Detector 4 Type								CI+Ex			CI+Ex	
								J			J/\	

Lanes, Volumes, Timings

2030 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yneth\6enario 2A\W

McMahon Associates, Inc.

Lane Group

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

12: Rt 202 & Stetson School Dr/Skiles Blvd EBL EBT EBR WBL WBT WBR NBL NBT NBR Detector 4 Channel 0.0 0.0 484 484

Detector 4 Extend (s) Detector 5 Position(ft) Detector 5 Size(ft) 6 6 Detector 5 Type CI+Ex CI+Ex Detector 5 Channel Detector 5 Extend (s) 0.0 0.0 Turn Type Perm NA Perm Perm NA NA Perm NA Perm Protected Phases Permitted Phases 4 Detector Phase Switch Phase Minimum Initial (s) 3.0 3.0 3.0 3.0 3.0 15.0 15.0 15.0 15.0 22.0 22.0 Minimum Split (s) 15.0 15.0 15.0 15.0 15.0 22.0 22.0 82.0 82.0 82.0 82.0 Total Split (s) 38.0 38.0 38.0 38.0 38.0 Total Split (%) 68.3% 68.3% 68.3% 68.3% 31.7% 31.7% 31.7% 31.7% 31.7% Maximum Green (s) 30.0 30.0 30.0 30.0 30.0 75.0 75.0 75.0 75.0 Yellow Time (s) 5.0 5.0 5.0 4.0 4.0 4.0 4.0 4.0 5.0 All-Red Time (s) 4.0 4.0 4.0 4.0 4.0 2.0 2.0 2.0 2.0 Lost Time Adjust (s) -3.0 -3.0 -4.0 -3.0 -3.0 -2.0 -2.0 -2.0 -2.0 Total Lost Time (s) 5.0 5.0 4.0 5.0 5.0 5.0 5.0 5.0 5.0 Lead/Lag Lead-Lag Optimize? 3.0 3.0 6.0 6.0 6.0 6.0 Vehicle Extension (s) 3.0 3.0 3.0 Minimum Gap (s) 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0 3.0

Recall Mode None None None None Intersection Summary

Time Before Reduce (s)

Time To Reduce (s)

Cycle Length: 120

Area Type:

Actuated Cycle Length: 120 Offset: 84 (70%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

0.0

0.0

Other

0.0

0.0

0.0

0.0

0.0

0.0

0.0

0.0

48.0 48.0

24.0 24.0

C-Max C-Max

48.0 48.0

24.0 24.0

C-Max C-Max

Natural Cycle: 110

Control Type: Actuated-Coordinated

Description: Signal

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



Lanes, Volumes, Timings

2030 with Dev Weekday Afternoon Peak Hour

I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi8yDctn\6enario 2A\W

Robinson Tract

McMahon Associates, Inc. 12: Rt 202 & Stetson School Dr/Skiles Blvd

2030 with Dev Weekday Afternoon Peak Hour

	۶	→	•	•	←	•	4	†	~	/	Ţ	1
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	†	7	ሻ	1→			^	7		^	7
Traffic Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Future Volume (veh/h)	356	146	63	60	46	66	0	1968	77	0	1902	382
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1958	2066	2036	1778	1849	1849	0	1722	1849	0	1869	1944
Adj Flow Rate, veh/h	367	151	65	62	47	68	0	2029	79	0	1961	394
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	0	0	4	0	0	3	3
Cap, veh/h	377	568	489	315	188	272	0	2099	1005	0	2279	1057
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.25	0.00	0.64	0.64	0.00	0.64	0.64
Sat Flow, veh/h	1411	2066	1726	1169	683	988	0	3357	1567	0	3645	1647
Grp Volume(v), veh/h	367	151	65	62	0	115	0	2029	79	0	1961	394
Grp Sat Flow(s),veh/h/ln	1411	2066	1726	1169	0	1671	0	1635	1567	0	1776	1647
Q Serve(g_s), s	27.0	6.9	3.4	5.3	0.0	6.5	0.0	70.3	2.3	0.0	53.0	13.5
Cycle Q Clear(g_c), s	33.0	6.9	3.4	12.1	0.0	6.5	0.0	70.3	2.3	0.0	53.0	13.5
Prop In Lane	1.00		1.00	1.00		0.59	0.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	377	568	489	315	0	460	0	2099	1005	0	2279	1057
V/C Ratio(X)	0.97	0.27	0.13	0.20	0.00	0.25	0.00	0.97	0.08	0.00	0.86	0.37
Avail Cap(c_a), veh/h	377	568	489	315	0	460	0	2099	1005	0	2279	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh		34.0	32.0	38.8	0.0	34.6	0.0	20.3	8.1	0.0	17.2	10.1
Incr Delay (d2), s/veh	39.1	0.2	0.1	0.3	0.0	0.3	0.0	13.2	0.2	0.0	4.5	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh.		6.4	2.6	2.8	0.0	4.9	0.0	34.7	1.3	0.0	27.1	8.1
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	87.4	34.3	32.1	39.1	0.0	34.9	0.0	33.5	8.3	0.0	21.7	11.1
LnGrp LOS	F	С	С	D	A	С	A	С	A	A	С	B
Approach Vol, veh/h		583			177			2108			2355	
Approach Delay, s/veh		67.5			36.3			32.6			20.0	
Approach LOS		Е			D			С			В	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc),	s	82.0		38.0		82.0		38.0				
Change Period (Y+Rc), s	3	7.0		8.0		7.0		8.0				
Max Green Setting (Gma	ax), s	75.0		30.0		75.0		30.0				
Max Q Clear Time (g_c+	l1), s	55.5		14.6		72.8		35.5				
Green Ext Time (p_c), s		19.5		0.6		2.2		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			30.9									
HCM 6th LOS			С									

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-02 Robinson Tract Revised TIS\Synchro\5 - 2030 wi**8y**ን፱ተለፍ enario 2A\W





Appendix T

Future (2030) Collector Road Internal Intersection Analysis

INTERSECTION VOLUME SUMMARY Connector Road/Road N

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

	EASTBOUND Road N				RTHBO		W	ESTBOI Road N			OUTHBO nnector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	o	0	0	o	0	0	o	0	0	0	0	0
ALDUC STED BIXIS III VG TIKKI I VC			-		-	·		-	-		-	-
Background Growth 0.00 % EXISTING W/ BACKGROUND	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	8	0	8	2	89	0	0	0	0	0	163	3
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	8 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	8 0 0 0 0 0 0	2 0 0 0 0 0 0 0 0	35 0 0 27 0 27 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	11 0 0 0 55 0 0 97	3 0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	8	0	8	2	89	0	0	0	0	0	163	3
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road N

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	EASTBOUND Road N			RTHBO		W	ESTBOU Road N	JND		UTHBO		
Traffic Component	L	S S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND	0	0 0	0 0	0	0 0	0	0	0 0	0	0 0	0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments FUTURE TRAFFIC W/O PROJECT	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0
TOTAL "NEW" SITE TRAFFIC	5	0	5	8	160	0	0	0	0	0	410	8
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	5 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	5 0 0 0 0 0 0	8 0 0 0 0 0 0	22 0 0 114 0 24 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		37 0 0 0 54 0 250 69	8 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	5	0	5	8	1 60	0	0	0	0	0	410	8
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road D

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBO Road D			RTHBO		W	ESTBO Road D			OUTHBO nnector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	o	0	0	0	0	0	0	0	0	0	0	0
ABSCRIBE EXISTING TRATTIC												Ť
Background Growth 0.00 % EXISTING W/ BACKGROUND	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	21	0	52	16	70	0	0	0	0	0	164	7
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic	21 0 0 0 0 0 0 0	0 0 0 0 0 0 0	52 0 0 0 0 0 0 0	16 0 0 0 0 0 0	16 0 0 27 0 27 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	12 0 0 0 55 0 0 97	7 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	21	0	52	16	70	0	0	0	0	0	164	7
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road D

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	E	ASTBOU Road D			RTHBO		W	ESTBOU Road D	JND		UTHBO	-
Traffic Component	L	S S	R	L	S S	oad R	L	S Road D	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND	0	0 0	0 0	0	0 0	0	0	0 0	0 0	0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments FUTURE TRAFFIC W/O PROJECT	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
TOTAL "NEW" SITE TRAFFIC	13	0	34	57	155	0	0	0	0	0	392	23
Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926	13 0 0 0 0 0 0	0 0 0 0 0 0	34 0 0 0 0 0 0	57 0 0 0 0 0 0	17 0 0 114 0 24 0	0 0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0	19 0 0 0 54 0 250	23 0 0 0 0 0 0
Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	13	0	34	57	155	0	0	0	0	0	392	23
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road B (North)

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

	EASTBOUND Road B (North)				RTHBO			ESTBO			OUTHBO nnector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments 1.000	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
ADSCRIED LAISTING TRAFFIC							Ť			Ť		_ Ŭ
Background Growth 0.00 % EXISTING W/ BACKGROUND	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	4	0	2	1	82	0	0	0	0	0	215	1
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	4 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	28 0 0 27 0 27 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	63 0 0 0 55 0 0 97	1 0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	4	0	2	1	82	0	0	0	0	0	215	1
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road B (North)

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	EASTBOUND Road B (North)				RTHBO			ESTBO			OUTHBO	
Traffic Component	L	S	Ŕ	L	S	R	L	S	Ŕ	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	_						_					
Background Growth 0.00 % EXISTING W/ BACKGROUND	0 0	0 0	0 0	0	0 0	0 0	0	0 0	0 0	0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adingtments	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0			0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	3	0	2	3	209	0	0	0	0	0	421	5
Robinson Tract Diversion A - EBL 926 to NB 202	3 0 0	0 0 0	2 0 0 0	3 0 0	71 0 0 114	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	48 0 0 0	5 0 0
Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202	0 0 0	0 0 0	0 0 0	0 0 0	0 24 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	54 0 250	0 0 0
Diversion E - SBR 202 @ 926 Pass-By Traffic	0	0	0	0	0	0	0	0	0	0	69 0	0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	3	0	2	3	209	0	0	0	0	0	421	5
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road C

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

	E	ASTBOU Road C	ND		ORTHBC		W	ESTBO Road C			OUTHBO nnector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND TOTAL "OTHER" DEVELOPMENTS	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL OTHER BEVELOTIALIS	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	78	1	3	0	5	0	217	0
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	24 0 0 27 0 27 0 0 0	1 0 0 0 0 0 0 0	3 0 0 0 0 0 0 0	0 0 0 0 0 0 0	5 0 0 0 0 0 0 0	0 0 0 0 0 0 0	65 0 0 0 55 0 0 97	0 0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	78	1	3	0	5	0	217	0
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	0.0	100.0	0.0

INTERSECTION VOLUME SUMMARY Connector Road/Road C

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	Е	ASTBOU Road C	ND		ORTHBC			ESTBO Road C			UTHBO	-
Traffic Component	L	S S	R	L	S	Road R	L	Koad C S	R	L	S	oad R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND	0	0 0	0	0	0 0	0	0	0	0 0	0 0	0 0	0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments FUTURE TRAFFIC W/O PROJECT	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0
TOTAL "NEW" SITE TRAFFIC	0	0	0	0	209	4	2	0	3	5	418	0
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	71 0 0 114 0 24 0 0	4 0 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 0 0 0 0 0 0 0	5 0 0 0 0 0 0	45 0 0 0 54 0 250 69 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	0	0	0	0	209	4	2	0	3	5	418	0
"New" Site Traffic % of Total ####	0.0	0.0	0.0	0.0	100.0	100.0	100.0	0.0	100.0	100.0	100.0	0.0

INTERSECTION VOLUME SUMMARY Connector Road/Road B (South)

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

		ASTBO			RTHBO			ESTBO			OUTHBO nnector R	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
ADJUSTED EXISTING TRAFFIC	Ť			_ Ŭ			Ť			Ť		_ Ŭ
Background Growth 0.00 % EXISTING W/ BACKGROUND	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	3	0	4	1	76	0	0	0	0	0	219	1
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	3 0 0 0 0 0 0 0	0 0 0 0 0 0 0	4 0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	22 0 0 27 0 27 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	67 0 0 0 55 0 0 97 0	1 0 0 0 0 0 0 0
		-						-	-			
FUTURE TRAFFIC W/ PROJECT	3	0	4	1	76	0	0	0	0	0	219	1
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road B (South)

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

		ASTBO			RTHBO nector R			ESTBO			UTHBO	-
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND	0	0 0	0 0	0 0	0 0	0 0	0	0 0	0 0	0	0 0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments FUTURE TRAFFIC W/O PROJECT	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
TOTAL "NEW" SITE TRAFFIC	2	0	3	5	211	0	0	0	0	0	417	3
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic	2 0 0 0 0 0 0 0	0 0 0 0 0 0 0	3 0 0 0 0 0 0	5 0 0 0 0 0 0	73 0 0 114 0 24 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	44 0 0 0 54 0 250 69	3 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	2	0	3	5	211	0	0	0	0	0	417	3
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

INTERSECTION VOLUME SUMMARY Connector Road/Road A

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS **Weekday 7-9 AM** Design Year (2030)

	E	ASTBOU Road A			ORTHBO		W	ESTBOU Road A	IND		UTHBOU	
Traffic Component	L	S	R	L	S	R	L	S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND TOTAL "OTHER" DEVELOPMENTS	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0
TOTAL OTHER DEVELOPMENTS	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/O PROJECT	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL "NEW" SITE TRAFFIC	1	0	2	0	76	0	0	0	0	0	223	0
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic Other Adjustments	1 0 0 0 0 0 0 0	0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	0 0 0 0 0 0 0	22 0 0 27 0 27 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	71 0 0 0 55 0 0 97 0	0 0 0 0 0 0 0
FUTURE TRAFFIC W/ PROJECT	1	0	2	0	76	0	0	0	0	0	223	0
"New" Site Traffic % of Total ####	100.0	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0

INTERSECTION VOLUME SUMMARY Connector Road/Road A

Robinson Tract I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\ Weekday 4-6 PM Design Year (2030)

	E	ASTBOU Road A			RTHBO nector R		W	ESTBOU Road A	ND		UTHBOU	
Traffic Component	L	S S	R	L	S	R	L	S S	R	L	S	R
EXISTING TRAFFIC Seasonal Adjustment Factor 1.000 Balancing Adjustments	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
ADJUSTED EXISTING TRAFFIC	0	0	0	0	0	0	0	0	0	0	0	0
Background Growth 0.00 % EXISTING W/ BACKGROUND	0	0 0	0 0	0 0	0	0	0	0	0	0 0	0	0 0
TOTAL "OTHER" DEVELOPMENTS	0	0	0	0	0	0	0	0	0	0	0	0
Other Adjustments FUTURE TRAFFIC W/O PROJECT	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0
TOTAL "NEW" SITE TRAFFIC	1	0	1	2	215	0	0	0	0	0	418	2
Robinson Tract Diversion A - EBL 926 to NB 202 Diversion B - SBR 202 to WPG/New Diversion D - NBR Bridlewood to 202 Diversion F - EBR Stetson to SB 202 Diversion E - SBR 202 @ 926 Pass-By Traffic	1 0 0 0 0 0 0 0	0 0 0 0 0 0 0	1 0 0 0 0 0 0 0	2 0 0 0 0 0 0 0	77 0 0 114 0 24 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0	45 0 0 0 54 0 250 69	2 0 0 0 0 0 0 0
Other Adjustments	0	0	0	0	0	0	0	0	0	0	0	0
FUTURE TRAFFIC W/ PROJECT	1	0	1	2	215	0	0	0	0	0	418	2
"New" Site Traffic % of Total ####	100.0	0.0	100.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0

McMahon Associates, Inc. 1: Collector Road & Road N Robinson Tract 2030 with Dev Weekday AM

	•	*	1	Ī	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	1>	
Traffic Volume (vph)	8	8	2	89	163	3
Future Volume (vph)	8	8	2	89	163	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.997	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1605	0	0	1763	1759	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1605	0	0	1763	1759	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	174			133	261	
Travel Time (s)	4.7			3.0	5.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	10	10	3	111	204	4
Shared Lane Traffic (%	5)					
Lane Group Flow (vph)	20	0	0	114	208	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday AM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\sqrt{3}}{\sqrt{1}}\) Collector Roa

McMahon Associates, Inc. 1: Collector Road & Road N Robinson Tract 2030 with Dev Weekday AM

Intersection					
Int Delay, s/veh 0.6					
		NIDI	NOT	ODT	000
		NBL	NBT		SBR
Lane Configurations 💜			4	ĥ	
Traffic Vol, veh/h 8	_	2		163	3
Future Vol, veh/h 8	8	2		163	3
Conflicting Peds, #/hr 0	0	0		0	0
Sign Control Stop	Stop	Free	Free	Free	Free
RT Channelized -	None	-	None	-	None
Storage Length 0	-	-	-	-	-
Veh in Median StorageQ	# -	-	0	0	-
Grade. % 0		-	0	0	-
Peak Hour Factor 80	80	80		80	80
Heavy Vehicles, % 2		2		2	2
Mymt Flow 10	10	3		204	4
WWIII FIOW 10	10	3	111	204	4
Major/Minor Minor2	N	lajor1	M	lajor2	
Conflicting Flow All 323				-	0
Stage 1 206	-	-		-	-
Stage 2 117		-			-
	6.22	4.3			
	0.22	4.3		_	
Critical Hdwy Stg 1 5.42		-		-	
Critical Hdwy Stg 2 5.42	-	-	-	-	-
Follow-up Hdwy 3	3.1	3		-	-
Pot Cap-1 Maneuve 769	888	1019	-	-	-
Stage 1 958	-	-	-	-	-
Stage 2 1056	-	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuven67	888	1019	-	-	-
Mov Cap-2 Maneuve 67	-	-		-	-
Stage 1 955	-	_	_	_	_
Stage 2 1056	-				
3tage 2 1030					_
Approach EB		NB		SB	
HCM Control Delay, 9.5		0.2		0	
HCM LOS A		0.2		U	
TICINI ECS A					
Minor Lane/Major Mvmt	NBL	NB T	BLn1	SBT	SBR
Capacity (veh/h)	1019		823		
	0.002		0.024		
HCM Control Delay (s)	8.5	0			
					-
HCM Lane LOS	A	Α		-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

McMahon Associates, Inc. 2: Collector Road & Road D Robinson Tract 2030 with Dev Weekday AM

	~	•	1	T	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	1>	
Traffic Volume (vph)	21	52	16	70	164	7
Future Volume (vph)	21	52	16	70	164	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904				0.994	
Flt Protected	0.986			0.991		
Satd. Flow (prot)	1573	0	0	1749	1754	0
Flt Permitted	0.986			0.991		
Satd. Flow (perm)	1573	0	0	1749	1754	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	209			58	104	
Travel Time (s)	5.7			1.3	2.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	26	65	20	88	205	9
Shared Lane Traffic (%))					
Lane Group Flow (vph)	91	0	0	108	214	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday AM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030SyittoDevICollector Roa

McMahon Associates, Inc. 2: Collector Road & Road D Robinson Tract 2030 with Dev Weekday AM

Intersection					
Int Delay, s/veh 2.	6				
	I EDD	NID	NDT	CDT	CDD
	L EBR	NBL			SBR
Lane Configurations			ર્ન	ĵ»	
	1 52			164	7
	1 52			164	7
Conflicting Peds, #/hr				0	0
	p Stop				
RT Channelized	- None	-	None	-	None
Storage Length	0 -	-	-	-	-
Veh in Median Storage	Q# -	-	0	0	-
	0 -	-	0	0	-
Peak Hour Factor 8	0 80	80	80	80	80
	2 2			2	2
	6 65			205	9
IVIVIIICI IOW 2	.0 03	20	00	200	3
Major/Minor Minor	2 N	/lajor1	M	lajor2	
Conflicting Flow All 33	8 210	214	0	-	0
Stage 1 21	0 -	-	-	-	-
Stage 2 12	:8 -	-	-	-	-
	2 6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.4				-	_
Critical Hdwy Stg 25.4			_	_	_
	3 3.1	3	_	-	_
Pot Cap-1 Maneuve 75		1015		_	_
Stage 1 95					
Stage 2 104			-		
	ა -	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver3		1015		-	-
Mov Cap-2 Maneuver3		-	-	-	-
Stage 1 93	3 -	-	-	-	-
Stage 2 104	3 -	-	-	-	-
Annrasah F	В	NB		SB	
HCM Control Delay, 9		1.6		0	
HCM LOS	A				
Minor Lane/Major Mvn	t NIRI	NIRT	Bln1	SRT	SBD
					- CDIN
Capacity (veh/h)	1015			-	
HCM Lane V/C Ratio	0.02		0.109	-	-
HCM Control Delay (s)		_		-	-
HCM Lane LOS	A			-	-
HCM 95th %tile Q(veh) 0.1	-	0.4	-	-

McMahon Associates, Inc.

3: Collector Road & Road B (North)

Robinson Tract 2030 with Dev Weekday AM

	•	•	1	1	ţ	4	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥			ર્ન	î»		
Traffic Volume (vph)	4	2	1	82	215	1	
Future Volume (vph)	4	2	1	82	215	1	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.949				0.999		
Flt Protected	0.970						
Satd. Flow (prot)	1624	0	0	1765	1763	0	
Flt Permitted	0.970						
Satd. Flow (perm)	1624	0	0	1765	1763	0	
Link Speed (mph)	25			30	30		
Link Distance (ft)	207			123	121		
Travel Time (s)	5.6			2.8	2.8		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	5	3	1	103	269	1	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	8	0	0	104	270	0	
Sign Control	Stop			Free	Free		
Intersection Summary							

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday AM I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\text{Synthro}}{\text{Exp}}\)ev10ollector Roa

McMahon Associates, Inc.
3: Collector Road & Road B (North)

Robinson Tract 2030 with Dev Weekday AM

Intersection					
Int Delay, s/veh 0.2	2				
	EDO	ND:	NIDT	00-	000
	EBR	NRL			SBR
Lane Configurations 3			4	٦	
	1 2		82	215	1
. ataro ron, ronnin	1 2			215	1
Conflicting Peds, #/hr (0	0
	Stop				
	- None	-	None	-	None
Storage Length) -	-	-	-	-
Veh in Median Storage)# -	-	0	0	-
) -	-	0	0	-
Peak Hour Factor 80	80	80	80	80	80
	2 2			2	2
	5 3		103	269	1
IVIVIIIL I IOW	, ,		103	203	
Major/Minor Minor:	2 N	1ajor1	M	lajor2	
Conflicting Flow All 37	270	270	0	-	0
Stage 1 270) -	-	-	-	-
Stage 2 10			-		-
	6.22	4.3	-		-
Critical Hdwy Stg 1 5.42				-	-
Critical Hdwy Stg 25.42		_	-	_	_
	3.1	3	-	-	
Pot Cap-1 Maneuver 1			-	-	_
			-	-	-
Stage 1 893		-	-	-	-
Stage 2 1070) -	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuvent		971	-	-	-
Mov Cap-2 Maneuvent:	5 -	-	-	-	-
Stage 1 89	-	-	-	-	-
Stage 2 1070) -	-	-	-	-
Approach El		NB		SB	
HCM Control Delay, 9.9		0.1		0	
HCM LOS	١.				
Minor Lane/Major Mvm	NIDI	NIDT	DI n4	CDT	CDD
Capacity (veh/h)	971		746	-	-
HCM Lane V/C Ratio	0.001		0.01	-	-
HCM Control Delay (s)		_		-	-
HCM Lane LOS	Α			-	-
HCM 95th %tile Q(veh)	0	-	0	-	-
30th 70th Q(VCH)	0		- 3		

McMahon Associates, Inc. 4: Collector Road & Road C

Robinson Tract 2030 with Dev Weekday AM

	•	•	Ţ		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		4î			ર્ન
Traffic Volume (vph)	3	5	78	1	0	217
Future Volume (vph)	3	5	78	1	0	217
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.919		0.999			
Flt Protected	0.980					
Satd. Flow (prot)	1589	0	1763	0	0	1765
Flt Permitted	0.980					
Satd. Flow (perm)	1589	0	1763	0	0	1765
Link Speed (mph)	25		30			30
Link Distance (ft)	251		324			216
Travel Time (s)	6.8		7.4			4.9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	6	98	1	0	271
Shared Lane Traffic (%)					
Lane Group Flow (vph)	10	0	99	0	0	271
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday AM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\sqrt{3030}\sqrt{\sqrt{100}}\)ev\(\frac{\sqrt{100}}{\sqrt{100}}\)ev\(

McMahon Associates, Inc. 4: Collector Road & Road C Robinson Tract 2030 with Dev Weekday AM

Intersection	0.0					
Int Delay, s/veh	0.2					
		WBR	NBT	NBR	SBL	SBT
Lane Configurations	¥		î			4
Traffic Vol, veh/h	3		78	1	0	217
Future Vol, veh/h	3	5	78	1	0	217
Conflicting Peds, #/h		0	0	0	0	0
				Free		
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Storag			0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2		2	2	2	2
Mvmt Flow	4	6	98	1	0	271
Major/Minor Min	or1	M	lajor1	M	lajor2	
Conflicting Flow All 3	370	99	0	0	99	0
Stage 1	99	-	-	-	-	-
	271	-	-	-	-	-
Critical Hdwy 6	.42	6.22	-	-	4.3	-
Critical Hdwy Stg 15	.42	-	-	-	-	-
Critical Hdwy Stg 25		-	-	-	-	-
Follow-up Hdwy	3	3.1	-	-	3	-
Pot Cap-1 Maneuvei	721	1021	-	-	1111	-
Stage 1 10)77	-	-	-	-	-
Stage 2	391	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuve	721	1021	-	-	1111	-
Mov Cap-2 Maneuve		-	-	-	-	-
)77	-	-	-	-	-
Stage 2	391	-	-	-	-	-
A	WB		NB		SB	
			IND 0		0	
HCM Control Delay,			0		0	
HCM LOS	Α					
Minor Lane/Major My	/mt	NBT	NBR	BLn1	SBL	SBT
Capacity (veh/h)		-	-	883	1111	-
HCM Lane V/C Ratio)	-	-	0.011	-	-
HCM Control Delay (s)	-	-	9.1	0	-
HCM Lane LOS	,	-	-	Α	A	-
HCM 95th %tile Q(ve	h)	-	-	0	0	-
,						

McMahon Associates, Inc. 5: Collector Road & Road B (South) Robinson Tract 2030 with Dev Weekday AM

	•	•	1	Ť	¥	4	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥			ર્ન	4î		
Traffic Volume (vph)	3	4	1	76	219	1	
Future Volume (vph)	3	4	1	76	219	1	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.925						
Flt Protected	0.978			0.999			
Satd. Flow (prot)	1596	0	0	1763	1765	0	
Flt Permitted	0.978			0.999			
Satd. Flow (perm)	1596	0	0	1763	1765	0	
Link Speed (mph)	25			30	30		
Link Distance (ft)	289			253	222		
Travel Time (s)	7.9			5.8	5.0		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	. 4	5	1	95	274	1	
Shared Lane Traffic (%	,	_					
Lane Group Flow (vph)	9	0	0	96	275	0	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type: 0	Other						

Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday AM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\\$3}{\\$3}\) ritin \(\frac{\\$3}{\\$4}\) DevICollector Roa

McMahon Associates, Inc. 5: Collector Road & Road B (South) Robinson Tract 2030 with Dev Weekday AM

Intersection					
Int Delay, s/veh 0.2					
	EBR	NBL			SBR
Lane Configurations 🦞			ર્ન	٦	
Traffic Vol, veh/h		1	76	219	1
Future Vol, veh/h		1	76	219	1
Conflicting Peds, #/hr (0	0	0	0
	Stop	Free	Free		
	None		None		None
Storage Length (-		-	-
Veh in Median Storage(# -	-	0	0	-
Grade, %	-	-	0	0	-
Peak Hour Factor 80	80	80	80	80	80
Heavy Vehicles, % 2	2	2	2	2	2
Mymt Flow 4	- 5	1	95	274	1
Major/Minor Minor2		1ajor1		lajor2	
Conflicting Flow All 372		275	0	-	0
Stage 1 275		-	-	-	-
Stage 2 97	-	-	-	-	-
	6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.42	-	-	-	-	-
Critical Hdwy Stg 25.42		-	-	-	-
Follow-up Hdwy 3		3	-	-	-
Pot Cap-1 Maneuver 19		967	-	-	-
Stage 1 888		-			
Stage 2 1079		_	_	_	_
Platoon blocked. %					
Mov Cap-1 Maneuve/18	811	967	-		-
Mov Cap-1 Maneuver18		907	-	-	-
Stage 1 887		-	-	-	-
Stage 2 1079	-	-	-	-	-
Approach EE		NB		SB	
HCM Control Delay, 9.7		0.1		0	
HCM LOS		0.1		U	
TIONI LOG					
Minor Lane/Major Mvm	NBL	NBT	BLn1	SBT	SBR
Capacity (veh/h)	967	-	768	-	-
HCM Lane V/C Ratio	0.001		0.011	-	-
HCM Control Delay (s)	8.7	0		-	_
HCM Lane LOS	Α.	A			
HCM 95th %tile Q(veh)	0	-	0	_	_
Tion John John Q(Veri)	U		0		

McMahon Associates, Inc. 6: Collector Road & Road A Robinson Tract 2030 with Dev Weekday AM

	•	•	1	1	ţ	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			ર્ન	₽	
Traffic Volume (vph)	1	2	0	76	223	0
Future Volume (vph)	1	2	0	76	223	0
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.899					
Flt Protected	0.988					
Satd. Flow (prot)	1567	0	0	1765	1765	0
Flt Permitted	0.988					
Satd. Flow (perm)	1567	0	0	1765	1765	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	170			97	98	
Travel Time (s)	4.6			2.2	2.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	1	3	0	95	279	0
Shared Lane Traffic (%)					
Lane Group Flow (vph)	4	0	0	95	279	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday AM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\sqrt{3}}{\sqrt{1}}\) Collector Roa

McMahon Associates, Inc. 6: Collector Road & Road A Robinson Tract 2030 with Dev Weekday AM

Intersection					
Int Delay, s/veh 0.1					
Movement EBL	FBR	NBI	NBT	SBT	SBR
Lane Configurations Y		, IDL	4	<u>\$</u>	JUIN
Traffic Vol, veh/h 1	2	0		223	0
Future Vol. veh/h	2	0		223	0
Conflicting Peds, #/hr 0	0	0		0	0
			Free		-
	None		None		None
Storage Length 0		-		-	-
Veh in Median Storage0		-	0	0	-
Grade, % 0		-	•	0	-
Peak Hour Factor 80	80	80		80	80
Heavy Vehicles, % 2		2		2	2
Mvmt Flow 1	3	0	95	279	0
Major/Minor Minor2	N.	lajor1	N/	loior?	
				lajor2 -	
Conflicting Flow All 374		279			0
Stage 1 279	-	-		-	-
Stage 2 95	-	-		-	-
	6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.42	-	-	-	-	-
Critical Hdwy Stg 25.42	-	-	-	-	-
Follow-up Hdwy 3	3.1	3	-	-	-
Pot Cap-1 Maneuve 717	807	964	-	-	-
Stage 1 884	-	-	-	-	-
Stage 2 1082	-	-	-	-	-
Platoon blocked. %				-	-
Mov Cap-1 Maneuver17	807	964		_	
Mov Cap-1 Maneuve/17	- 007	304		-	
		-			
Stage 1 884	-	-	-	-	-
Stage 2 1082	-	-	-	-	-
Approach EB		NB		SB	
HCM Control Delay, 9.7		0		0	
HCM LOS A		U		U	
HCW LOS A					
Minor Lane/Major Mvmt	NBL	NBT	BLn1	SBT	SBR
Capacity (veh/h)	964	-	775	-	-
HCM Lane V/C Ratio	-		0.005	-	
HCM Control Delay (s)	0	_			
HCM Lane LOS	A	_	-	-	
HCM 95th %tile Q(veh)	0	_	0		_
HOW SOUL WILLE CA(VEN)	U	-	0	-	-

McMahon Associates, Inc. 1: Collector Road & Road N Robinson Tract 2030 with Dev Weekday PM

	•	*	1	Ī	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			4	1>	
Traffic Volume (vph)	5	5	8	160	410	8
Future Volume (vph)	5	5	8	160	410	8
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.997	
Flt Protected	0.976			0.998		
Satd. Flow (prot)	1605	0	0	1761	1759	0
Flt Permitted	0.976			0.998		
Satd. Flow (perm)	1605	0	0	1761	1759	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	174			133	261	
Travel Time (s)	4.7			3.0	5.9	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	6	6	10	200	513	10
Shared Lane Traffic (%)					
Lane Group Flow (vph)	12	0	0	210	523	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday PM I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\text{Synthro}}{\text{Exp}}\)ev10-ollector Roa

McMahon Associates, Inc. 1: Collector Road & Road N Robinson Tract 2030 with Dev Weekday PM

Intersection					
Int Delay, s/veh 0.4					
		NBL	NBT		SBR
Lane Configurations 🏋			ર્ન	٦	
Traffic Vol, veh/h 5		8	160	410	8
Future Vol, veh/h 5	5	8	160	410	8
Conflicting Peds, #/hr 0	0	0	0	0	0
		Free	Free		
	None	-	None	-	None
Storage Length 0		-		-	-
Veh in Median StorageQ	# -	-	0	0	-
Grade, % 0	-	-	0	0	-
Peak Hour Factor 80	80	80	80	80	80
Heavy Vehicles, % 2	2	2	2	2	2
Mvmt Flow 6	6	10	200	513	10
		. •			
	-				
Major/Minor Minor2		lajor1		lajor2	
Conflicting Flow All 738	518	523	0	-	0
Stage 1 518	-	-	-	-	-
Stage 2 220	-	-	-	-	-
	6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.42	-	-	-	-	-
Critical Hdwy Stg 25.42	-	-	-	-	-
Follow-up Hdwy 3	3.1	3	-	-	-
Pot Cap-1 Maneuve#31	588	793	-	-	-
Stage 1 677	-	-	-	-	-
Stage 2 943	-	-	-	-	-
Platoon blocked. %			-	-	-
Mov Cap-1 Maneuve#25	588	793	-	-	-
Mov Cap-2 Maneuvel25	-	-	-	-	-
Stage 1 668	-	-	-	-	-
Stage 2 943	-				-
Olago Z 340					
Approach EB		NB		SB	
HCM Control Delay,12.5		0.5		0	
HCM LOS B					
Minor Lane/Major Mvmt	NRI	NRT	RI n1	SBT	SBR
	793		493	301	JDK -
Capacity (veh/h)			0.025		-
HCM Long V/C Deti-			ロロノラ	-	-
	0.013				
HCM Control Delay (s)	9.6	0	12.5	-	-
			12.5 B	-	-

McMahon Associates, Inc. 2: Collector Road & Road D Robinson Tract 2030 with Dev Weekday PM

	•	•	1	T	¥	*
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	₽	
Traffic Volume (vph)	13	34	57	155	392	23
Future Volume (vph)	13	34	57	155	392	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.902				0.992	
Flt Protected	0.987			0.987		
Satd. Flow (prot)	1571	0	0	1742	1751	0
Flt Permitted	0.987			0.987		
Satd. Flow (perm)	1571	0	0	1742	1751	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	209			58	104	
Travel Time (s)	5.7			1.3	2.4	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	16	43	71	194	490	29
Shared Lane Traffic (%))					
Lane Group Flow (vph)	59	0	0	265	519	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday PM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030SyittoDevICollector Roa

McMahon Associates, Inc. 2: Collector Road & Road D Robinson Tract 2030 with Dev Weekday PM

Interception					
Intersection Int Delay, s/veh 1.8					
	EBR	NBL	NBT		SBR
Lane Configurations 🏋			4	Դ	
Traffic Vol, veh/h 13	34	57	155	392	23
Future Vol, veh/h 13	34	57	155	392	23
Conflicting Peds, #/hr 0	0	0	0	0	0
			Free		
	None	-	None		None
Storage Length 0		-		-	-
Veh in Median StorageQ	# -	-	0	0	-
Grade, % 0	-	-	0	0	-
Peak Hour Factor 80	80	80	80	80	80
Heavy Vehicles, % 2	2	2	2	2	2
Mvmt Flow 16	43	71	194	490	29
Main and Main and		1-:4		1-:0	_
Major/Minor Minor2		lajor1		lajor2	
Conflicting Flow All 841	505	519	0	-	0
Stage 1 505		-		-	-
Stage 2 336	-	-	-	-	-
	6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.42	-	-	-	-	-
Critical Hdwy Stg 25.42	-	-	-	-	-
Follow-up Hdwy 3		3	-	-	-
Pot Cap-1 Maneuveß73	598	795	-	-	-
Stage 1 687	-	-	-	-	-
Stage 2 830	-	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuv 236	598	795	-	-	-
Mov Cap-2 Maneuv@36	-	-	-	-	-
Stage 1 618	-	-	-	-	-
Stage 2 830	-	-	-	-	-
Approach EB		NB		SB	
HCM Control Delay,1\$.3		2.7		0	
HCM LOS B		2.7		U	
HCM LOS B					
Minor Lane/Major Mvmt	NBL	NBE	BLn1	SBT	SBR
Capacity (veh/h)	795	-	492	-	-
HCM Lane V/C Ratio	0.09	-	0.119	-	-
HCM Control Delay (s)	10		13.3	-	-
HCM Lane LOS	A	Ā		-	-
HCM 95th %tile Q(veh)	0.3	-	_	-	_
John /June Q(VOII)	0.0		J. 1		

McMahon Associates, Inc.

3: Collector Road & Road B (North)

Robinson Tract 2030 with Dev Weekday PM

	•	•	1	T	¥	4
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			र्स	ĵ»	
Traffic Volume (vph)	3	2	3	209	421	5
Future Volume (vph)	3	2	3	209	421	5
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.942				0.998	
Flt Protected	0.972			0.999		
Satd. Flow (prot)	1616	0	0	1763	1761	0
Flt Permitted	0.972			0.999		
Satd. Flow (perm)	1616	0	0	1763	1761	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	207			123	121	
Travel Time (s)	5.6			2.8	2.8	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	4	3	4	261	526	6
Shared Lane Traffic (%	5)					
Lane Group Flow (vph)	7	0	0	265	532	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

McMahon Associates, Inc. 3: Collector Road & Road B (North)

Robinson Tract 2030 with Dev Weekday PM

Intersection						
Int Delay, s/veh	0.1					
Movement	FRI	FRP	NRI	NBT	SRT	SRP
Lane Configuration		בטול	NUL	4	3B1	SDI
	_	2	2			5
Traffic Vol, veh/h	3	2	3	209	421 421	
Future Vol, veh/h	_	_	3			5
Conflicting Peds, #/		0	_ 0	_ 0	_ 0	_ 0
				Free		
RT Channelized		None		None		None
Storage Length	0	-	-	-	-	-
Veh in Median Stor			-	0	0	-
Grade, %	0		-	0	0	-
Peak Hour Factor	80		80	80	80	80
Heavy Vehicles, %			2	2	2	2
Mvmt Flow	4	3	4	261	526	6
Major/Minor Mi	inor2	N/	laiar1	N /	laiara	
			lajor1		lajor2	
Conflicting Flow All			532	0		0
Stage 1	529	-	-		-	-
Stage 2	269	-	-	-	-	-
		6.22	4.3	-	-	-
Critical Hdwy Stg 1		-	-	-	-	-
Critical Hdwy Stg 2		-	-	-	-	-
Follow-up Hdwy	3	3.1	3	-	-	-
Pot Cap-1 Maneuve	ев96	580	787	-	-	-
Stage 1	669	-	-	-	-	-
Stage 2	893	-	-	-	-	-
Platoon blocked. %	,			-	-	-
Mov Cap-1 Maneuv		580	787	-	-	-
Mov Cap-2 Maneuv		-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	893	-				
Stage 2	093					
Approach	EB		NB		SB	
HCM Control Delay	/,1§.1		0.1		0	
HCM LOS	В					
Minor Lane/Major N	/Ivmt				SBT	SBR
Capacity (veh/h)		787		452	-	-
HCM Lane V/C Rat		0.005		0.014	-	-
HCM Control Delay	/ (s)	9.6	0	13.1	-	-
HCM Lane LOS		Α	Α	В	-	-
HCM 95th %tile Q(v	veh)	0	-	0	-	-

Lanes, Volumes, Timings 2030 with Dev Weekday PM I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\text{Synthro}}{\text{Exp}}\)ev10-ollector Roa

McMahon Associates, Inc. 4: Collector Road & Road C

Robinson Tract 2030 with Dev Weekday PM

	•	•	T		-	¥
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		ĵ.			4
Traffic Volume (vph)	2	3	209	4	5	418
Future Volume (vph)	2	3	209	4	5	418
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.923		0.997			
Flt Protected	0.979					0.999
Satd. Flow (prot)	1595	0	1759	0	0	1763
Flt Permitted	0.979					0.999
Satd. Flow (perm)	1595	0	1759	0	0	1763
Link Speed (mph)	25		30			30
Link Distance (ft)	251		324			216
Travel Time (s)	6.8		7.4			4.9
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	3	4	261	5	6	523
Shared Lane Traffic (%))					
Lane Group Flow (vph)	7	0	266	0	0	529
Sign Control	Stop		Free			Free
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday PM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030SyittoDevICollector Roa

McMahon Associates, Inc. 4: Collector Road & Road C

Robinson Tract 2030 with Dev Weekday PM

Intersection						
Int Delay, s/veh	0.2					
	V/DI	MDD	NIDT	NDD	CDI	CDT
		MRK		NBR	SBL	
Lane Configurations			ĵ.		_	4
Traffic Vol, veh/h	2	3	209	4	5	418
Future Vol, veh/h	2	3	209	4	5	418
Conflicting Peds, #/h		0	0	0	0	0
				Free		
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Stora	ageQ#	# -	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	2	2	2	2	2	2
Mymt Flow	3	4	261	5	6	523
IVIVIIICI IOW	J	7	201	3	U	323
Major/Minor Mir	nor1	N	lajor1	M	ajor2	
Conflicting Flow All	799	264	0	0	266	0
Stage 1	264	-	-	-	-	-
Stage 2	535	-	-	-	-	-
		6.22	-	-	4.3	-
Critical Hdwy Stg 1		-		-	-	
Critical Hdwy Stg 2		-	_	_	_	_
Follow-up Hdwy	3	3.1	-	_	3	
Pot Cap-1 Maneuve		823	_	_	974	
	898	023			314	
		-				
	665	-		-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuv		823	-	-	974	-
Mov Cap-2 Maneuv	ຜ 91	-	-	-	-	-
Stage 1	898	-	-	-	-	-
Stage 2	659	-	-	-	-	-
Annroach	WB		NB		Q.D.	
Approach					SB	
HCM Control Delay;			0		0.1	
HCM LOS	В					
Minor Lane/Major M	lymt	NIRT	NIRIDA	/RIn1	SBI	SBT

Capacity (veh/h)		-		571	974	-
HCM Lane V/C Rati		-		0.011		-
HCM Control Delay	(S)	-	-	11.4	8.7	0
HCM Lane LOS		-	-	В	Α	Α
HCM 95th %tile Q(v	eh)	-	-	0	0	-

McMahon Associates, Inc. 5: Collector Road & Road B (South) Robinson Tract 2030 with Dev Weekday PM

	•	•	1	Ť	¥	4	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥			ર્ન	f _r		
Traffic Volume (vph)	2	3	5	211	417	3	
Future Volume (vph)	2	3	5	211	417	3	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	0.923				0.999		
Flt Protected	0.979			0.999			
Satd. Flow (prot)	1595	0	0	1763	1763	0	
Flt Permitted	0.979			0.999			
Satd. Flow (perm)	1595	0	0	1763	1763	0	
Link Speed (mph)	25			30	30		
Link Distance (ft)	289			253	222		
Travel Time (s)	7.9			5.8	5.0		
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	3	4	6	264	521	4	
Shared Lane Traffic (%							
Lane Group Flow (vph)	7	0	0	270	525	0	
Sign Control	Stop			Free	Free		
Intersection Summary							
Area Type:	Other						

Control Type: Unsignalized

Lanes, Volumes, Timings

2030 with Dev Weekday PM
I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\sqrt{3}}{\sqrt{1}}\) Collector Roa

McMahon Associates, Inc. 5: Collector Road & Road B (South) Robinson Tract 2030 with Dev Weekday PM

Intersection					
Int Delay, s/veh 0.	2				
		NID	NDT	CDT	CDD
	L EBR	NRL			SBR
Lane Configurations		_	4	(_
	2 3			417	3
	2 3	-		417	3
Conflicting Peds, #/hr				0	0
Sign Control Sto	p Stop	Free	Free	Free	Free
RT Channelized	- None	-	None	-	None
Storage Length	0 -	-	-	-	-
Veh in Median Storage	Q# -	-	0	0	-
	, 0 -	-	0	0	-
	0 80	80	80	80	80
	2 2			2	2
	3 4			521	4
WWITE FIOW	J 4	U	204	J2 I	4
Major/Minor Minor	2 N	/lajor1	M	lajor2	
Conflicting Flow All 79	9 523	525	0	-	0
Stage 1 52	3 -	-	-	-	-
Stage 2 27	6 -	-	-	-	-
	2 6.22	4.3	-	-	-
Critical Hdwy Stg 1 5.4				-	-
Critical Hdwy Stg 25.4			_		_
	3 3.1		-	-	
Pot Cap-1 Maneuveß9					_
			-	-	-
Stage 1 67			-	-	-
Stage 2 88	7 -	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuvæ9		791	-	-	-
Mov Cap-2 Maneuve99	1 -	-	-	-	-
Stage 1 66	8 -	-	-	-	-
Stage 2 88	7 -	-	-	-	-
Approach E		NID	_	OD.	
		NB		SB	
HCM Control Delay,18.		0.2		0	
HCM LOS	В				
Minor Lane/Major Mvm	+ NRI	NIRT	Bl n1	CRT	SBD
Capacity (veh/h)	791		488	-	-
HCM Lane V/C Ratio	0.008		0.013	-	-
HCM Control Delay (s)			12.5	-	-
HCM Lane LOS	Α		_	-	-
HCM 95th %tile Q(veh) 0	-	0	-	-

McMahon Associates, Inc. 6: Collector Road & Road A

Robinson Tract 2030 with Dev Weekday PM

	~	•	1	T	¥	∢
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			4	1>	
Traffic Volume (vph)	1	1	2	215	418	2
Future Volume (vph)	1	1	2	215	418	2
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.932				0.999	
Flt Protected	0.976			0.999		
Satd. Flow (prot)	1605	0	0	1763	1763	0
Flt Permitted	0.976			0.999		
Satd. Flow (perm)	1605	0	0	1763	1763	0
Link Speed (mph)	25			30	30	
Link Distance (ft)	170			97	98	
Travel Time (s)	4.6			2.2	2.2	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Adj. Flow (vph)	1	1	3	269	523	3
Shared Lane Traffic (%)					
Lane Group Flow (vph)	2	0	0	272	526	0
Sign Control	Stop			Free	Free	
Intersection Summary						

Area Type: Other Control Type: Unsignalized

Lanes, Volumes, Timings 2030 with Dev Weekday PM I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5A - 2030\(\frac{\text{Synthro}}{\text{Exp}}\)ev10-ollector Roa

McMahon Associates, Inc. 6: Collector Road & Road A

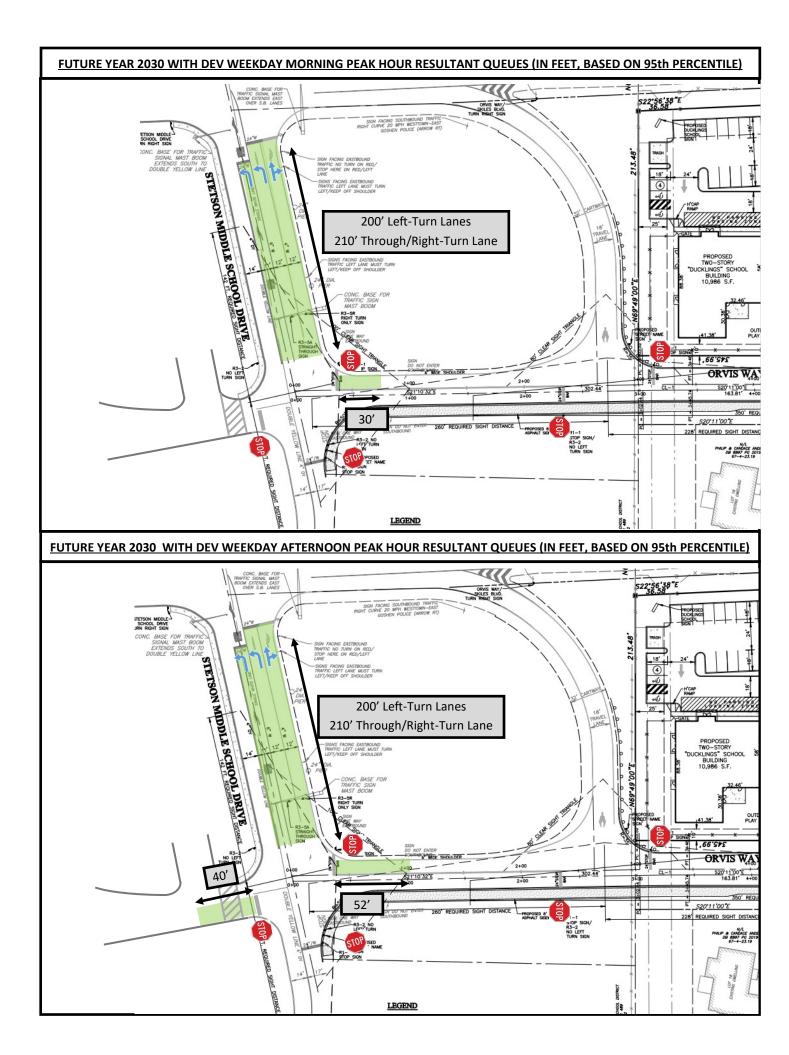
Robinson Tract 2030 with Dev Weekday PM

Intersection						
Int Delay, s/veh	0.1					
Movement		EBR	NBL			SBR
Lane Configuration				ની	₽	
Traffic Vol, veh/h	1	1	2		418	2
Future Vol, veh/h	1	1	2	215	418	2
Conflicting Peds, #	t/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 Sto	-	# -	-	0	0	-
Grade. %	0	_		0	0	
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %		2	2	2	2	2
	1	1			523	3
Mvmt Flow	1	1	3	269	523	3
Major/Minor M	linor2	M	ajor1	M	lajor2	
Conflicting Flow Al			526	0	-	0
Stage 1	525	J2J -	J20 -	-	-	-
Stage 2	275	-	-		-	-
Critical Hdwy		6.22	4.3	-	-	-
Critical Hdwy Stg 1		-	-	-	-	-
Critical Hdwy Stg 2		-	-	-	-	-
Follow-up Hdwy	3		3	-	-	-
Pot Cap-1 Maneuv		583	791	-	-	-
Stage 1	672	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %	6			-	-	-
Mov Cap-1 Maneu		583	791	-	-	-
Mov Cap-2 Maneu		-	-			
Stage 1	669	_	-		-	
Stage 2	888	-	-	-		
Staye 2	000		-		-	
Approach	EB		NB		SB	
HCM Control Dela	v.1g.7		0.1		0	
HCM LOS	,,. . В					
Minor Lane/Major I	Mvmt	NBL	NBE	BLn1	SBT	SBR
Capacity (veh/h)		791	-	470	-	-
HCM Lane V/C Ra	tio (0.003		0.005		
HCM Control Dela		9.6		12.7	-	
HCM Lane LOS	, (0)	Α.	A	12.7 B	_	
HCM 95th %tile Q((voh)	0	-	0	-	
TICIVI 95tiT 76tile Q((veri)	U		U		



Appendix U

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





Appendix V

U.S. Route 202 and Street Road (S.R. 0926) PennDOT Improvement Project Analysis Worksheets



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

	۶	→	•	•	←	•	4	†	~	>	ļ	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	- 1→		ሻ	<u></u>	7	ሻ	^ ^	7	ሻ	^	7
Traffic Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (vph)	484	236	31	146	167	56	22	1630	156	64	1545	95
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305		170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	75			75			75			75		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt		0.983				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3051	1808	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3051	1808	0	1565	1765	1556	1491	3291	1635	1487	3138	1404
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									218			218
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	3%	5%	13%	4%	4%	7%	17%	6%	5%	15%	9%	9%
Adj. Flow (vph)	499	243	32	151	172	58	23	1680	161	66	1593	98
Shared Lane Traffic (%)											
Lane Group Flow (vph)		275	0	151	172	58	23	1680	161	66	1593	98
Number of Detectors	1	1		1	1	1	1	1	1	1	1	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Leading Detector (ft)	40	40		35	35	35	40	30	30	35	30	30
Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	40	40		40	40	40	40	40	40	40	40	40
Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2	_	1	6	
Permitted Phases				_		4	_		2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	28.0	28.0		18.0	18.0	18.0	14.0	60.0	60.0	14.0	60.0	60.0
Total Split (%)	23.3%			15.0%	15.0%	15.0%			50.0%		50.0%	
Maximum Green (s)	21.0	21.0		11.0	11.0	11.0	8.0	54.0	54.0	8.0	54.0	54.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

Lanes, Volumes, Timings 2025 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B **Sy025nwith**Penowith PennDO`

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

		-	•	•			,		,		•	
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



2025 with Dev Weekday Morning Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B S\025\regregation ith Report ith PennDO

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Morning Peak Hour

3: Rt 202 & Rt 926							2025 W	tn Dev	vveekaa	y iviorni	ng Pea	k Hour
	٠	→	•	•	←	•	4	†	~	/	ļ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	1>		ሻ	<u></u>	7	*	^	7	*	^	7
Traffic Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Future Volume (veh/h)	484	236	31	146	167	56	22	1630	156	64	1545	95
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	า	No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	499	243	32	151	172	58	23	1680	161	66	1593	98
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	604	317	26	180	189	163	44	1659	784	98	1626	714
Arrive On Green	0.17	0.17	0.16	0.10	0.10	0.10	0.03	0.48	0.48	0.06	0.52	0.51
Sat Flow, veh/h	3453	1657	218	1802	1892	1630	1626	3541	1655	1514	3180	1418
Grp Volume(v), veh/h	499	0	275	151	172	58	23	1680	161	66	1593	98
Grp Sat Flow(s), veh/h/ln	1727	0	1875	1802	1892	1630	1626	1771	1655	1514	1590	1418
Q Serve(g_s), s	16.8	0.0	17.1	9.9	10.8	4.0	1.7	56.4	6.7	5.1	58.1	4.4
Cycle Q Clear(q c), s	16.8	0.0	17.1	9.9	10.8	4.0	1.7	56.4	6.7	5.1	58.1	4.4
Prop In Lane	1.00		0.12	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	604	0	333	180	189	163	44	1659	784	98	1626	714
V/C Ratio(X)	0.83	0.00	0.83	0.84	0.91	0.36	0.52	1.01	0.21	0.67	0.98	0.14
Avail Cap(c_a), veh/h	633	0	344	180	189	163	122	1698	794	114	1645	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.85	0.00	0.85	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	48.5	53.0	53.5	50.4	57.6	31.9	18.4	54.9	28.7	15.9
Incr Delay (d2), s/veh	7.3	0.0	12.8	27.9	40.8	1.3	9.3	25.2	0.6	12.0	18.0	0.4
Initial Q Delay(d3),s/veh	7.2	0.0	18.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh	/l n 13.1	0.0	16.3	9.7	11.5	3.0	1.4	36.9	4.7	4.0	32.5	2.6
Unsig. Movement Delay	, s/veh											
LnGrp Delay(d),s/veh	62.8	0.0	79.5	80.9	94.3	51.7	67.0	57.1	19.0	66.9	46.7	16.3
LnGrp LOS	Е	Α	E	F	F	D	E	F	В	E	D	В
Approach Vol, veh/h		774			381			1864			1757	
Approach Delay, s/veh		68.8			82.5			54.0			45.7	
Approach LOS		Е			F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc).	s12.8	62.5	26.7	18.0	8.2	67.1	18.0	26.7				
Change Period (Y+Rc),		6.0	7.0	7.0	6.0	6.0	7.0	7.0				
Max Green Setting (Gma		54.0	21.0	11.0	8.0	54.0	11.0	21.0				
Max Q Clear Time (g_c+		58.9	19.3	13.3	4.2	60.6	12.4	19.1				
Green Ext Time (p_c), s	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			55.6									
HCM 6th LOS			Е									
NI-4												

Notes
User approved pedestrian interval to be less than phase max green.



McMahon Associates, Inc.

3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

Lane Group
Traffic Volume (vph) 320 214 43 205 245 66 62 1626 125 95 1286 67 Future Volume (vph) 320 214 43 205 245 66 62 1626 125 95 1286 67 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 180
Future Volume (vph) 320 214 43 205 245 66 62 1626 125 95 1286 67 Ideal Flow (vphpl) 1800 1800 1800 1800 1800 1800 1800 180
Ideal Flow (vphpi)
Lane Width (ft)
Grade (%) -3% -4% -4% -4% -0% -4% -0% -4% -0% -375 -130 -130 -375 -130 -130 -130 -130 -130 -130 -130 -130
Storage Length (ft) 380 0 200 215 305 170 375 130 Storage Lanes 2 0 1 </td
Storage Lanes 2 0 1 2 1 2 2 <
Taper Length (ft)
Lane Util. Factor 0.97 1.00 1.00 1.00 1.00 1.00 1.00 0.95 1.00 1.00 0.95 1.00 0.95 1.00 0.95 1.00 1.00 0.95 1.00 0.850 0.950 0
Fit 0.975 0.850 0.850 0.850 0.850 Fit Protected 0.950 0.950 0.950 0.950 0.950 Satd. Flow (prot) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Fit Permitted 0.950 1.950 1.950 1.950
Fit Protected 0.950 0.950 0.950 0.950 0.950 0.950 Satd. Flow (perm) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Fit Permitted 0.950 0.950 0.950 0.950 Satd. Flow (perm) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Right Turn on Red Satd. Flow (RTOR) 155 155 155 155 155 155 155 155 155 15
Satd. Flow (prot) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Fit Permitted 0.950 <t< td=""></t<>
Fit Permitted 0.950 0.950 0.950 0.950 0.950 Satd. Flow (perm) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Right Turn on Red Satd. Flow (RTOR) Link Speed (mph) 45 45 45 45 45 45 Link Distance (ft) 2349 982 1123 3154 Travel Time (s) 35.6 14.9 17.0 47.8 Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97
Satd. Flow (perm) 2993 1836 0 1628 1818 1601 1744 3387 1683 1710 3288 1457 Right Turn on Red No No Yes Yes Yes Yes Satd. Flow (RTOR) 155 155 155 155 155 Link Speed (mph) 45 45 45 45 45 Link Distance (ft) 2349 982 1123 3154 3154 Travel Time (s) 35.6 14.9 17.0 47.8 47.8 Peak Hour Factor 0.97
Right Turn on Red Satd. Flow (RTOR) No Yes Yes Yes Link Speed (mph) 45 45 45 45 Link Distance (tt) 2349 982 1123 3154 Travel Time (s) 35.6 14.9 17.0 47.8 Peak Hour Factor 0.97
Satd. Flow (RTOR) 45 47 47 47 47 47 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 8 44 9 0.97
Link Speed (mph) 45 47 48 47 8 47 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 8 47 48
Link Distance (ft) 2349 982 1123 3154 Travel Time (s) 35.6 14.9 17.0 47.8 Peak Hour Factor 0.97 0.97 0.97 0.97 0.97 0.97 0.97 0.97
Travel Time (s) 35.6 14.9 17.0 47.8 Peak Hour Factor 0.97 0
Peak Hour Factor 0.97
Heavy Vehicles (%) 5% 2% 11% 0% 1% 4% 0% 3% 2% 0% 4% 5% Adj. Flow (vph) 330 221 44 211 253 68 64 1676 129 98 1326 69
Adj. Flow (vph) 330 221 44 211 253 68 64 1676 129 98 1326 69
Charad Lana Traffia (9/)
Shared Lane Traffic (%)
Lane Group Flow (vph) 330 265 0 211 253 68 64 1676 129 98 1326 69
Number of Detectors 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Detector Template Left Thru Left Thru Right Left Thru Right
Leading Detector (ft) 40 40 35 35 35 40 30 30 35 30 30
Trailing Detector (ft) 0 0 -5 -5 -5 0 -10 -10 -5 -10 -10
Detector 1 Position(ft) 0 0 -5 -5 -5 0 -10 -10 -5 -10 -10
Detector 1 Size(ft) 40 40 40 40 40 40 40 40 40 40 40 40
Detector 1 Type CI+Ex CI
Detector 1 Channel
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.
Turn Type Prot NA Prot NA Perm Prot NA Perm Prot NA Perm
Protected Phases 3 8 7 4 5 2 1 6
Permitted Phases 4 2 6
Detector Phase 3 8 7 4 4 5 1 6
Switch Phase
Minimum Initial (s) 3.0 3.0 3.0 3.0 3.0 20.0 20.0 3.0 20.0 20
Minimum Split (s) 45.0 45.0 45.0 10.0 10.0 9.0 34.0 34.0 9.0 34.0 34.0
Total Split (s) 21.0 22.0 21.0 22.0 14.0 63.0 63.0 14.0 63.0 63.0
Total Split (%) 17.5% 18.3% 17.5% 18.3% 18.3% 11.7% 52.5% 52.5% 11.7% 52.5% 52.5%
Maximum Green (s) 14.0 15.0 14.0 15.0 15.0 8.0 57.0 57.0 8.0 57.0 57.0
Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0
All-Red Time (s) 3.0 3.0 3.0 3.0 2.0 2.0 2.0 2.0 2.0 2.0 2.0
Lost Time Adjust (s) -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -1.0 -0.0

2025 with Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B - 2025 \@\modern \text{with PennDO} McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

	ၨ	-	•	•	←	•	4	†	/	-	ļ	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary Area Type:

Cycle Length: 120 Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



2025 with Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B - 2025 \@m@rev @rith PennDO

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2025 with Dev Weekday Afternoon Peak Hour

					20	JZ3 WILI	I Dev vv	еекцау	Aitemi	JUITEA	k Houi
ၨ	→	*	•	←	•	•	†	<i>></i>	-	ļ	1
EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
ሻሻ	ĵ»		J.	^	7	ľ	^	7	Ĭ	^	7
320	214	43	205	245	66	62	1626	125	95	1286	67
320	214	43	205	245	66	62	1626	125	95	1286	67
3	5	0	0	0	0	0	0	0	0	160	0
1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
	No			No			No			No	
1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1730
330	221	44	211	253	68	64	1676	129	98	1326	69
0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
5	2	2	0	1	4	0	3	2	0	4	5
421	241	6	232	259	223	105	1751	818	129	1663	723
0.12	0.13	0.13	0.13	0.13	0.13	0.06	0.48	0.48	0.08	0.50	0.49
3401	1586	316	1856	1935	1668	1856	3622	1693	1714	3313	1466
330	0	265	211	253	68	64	1676	129	98	1326	69
	0		1856			1856		1693	1714		1466
					4.4						3.0
					4.4						3.0
			1.00					1.00	1.00		1.00
421	0		232	259			1751	818	129	1663	723
0.78	0.00	1.02	0.91	0.98	0.30	0.61	0.96	0.16	0.76	0.80	0.10
425	0	254	232	261	225	139	1751	818	129	1663	723
1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
0.82	0.00	0.82	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
51.2	0.0	52.0	51.8	51.8	46.9	55.3	29.8	17.3	54.5	29.9	16.2
7.7	0.0	55.5	35.6	49.2	0.8	5.6	13.5	0.4	23.1	4.1	0.3
1.7	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	255.3	0.0
ln 8.9	0.0	21.8	13.1	16.3	3.3	3.6	32.7	3.6	6.6	89.5	1.8
60.6	0.0	176.7	87.5	101.0	47.7	60.9	43.3	17.7	77.6	289.3	16.4
Е	Α	F	F	F	D	Е	D	В	Е	F	В
	595			532			1869			1493	
	F			F			D			F	
1	2	3	4	5	6	7	8				
,,											
3.0	1.0	3.0	3.0	3.0	. 5.0	3.0	3.0				
		120.4									
	Tebl. 320 320 320 320 320 320 320 320 320 320	EBL EBT 13	FBL	FBL	FBL	EBL EBT EBR WBL WBT WBR 17	EBL EBT EBR WBL WBT WBR NBL	EBL EBT EBR WBL WBT WBR NBL NBT	Fig. Fig.	FBL FBT FBR WBL WBT WBR NBL NBT NBR SBL	EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT 1

Notes
User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary 2025 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2020-01 Robinson Tract Revised TIS\Synchro\3B - 2025 \@m\Dev &rith PennDO'





McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

Lane Configurations		۶	→	•	•	←	•	•	†	~	/	+	✓
Traffic Volume (vph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	Lane Configurations	ሻሻ	λ		ŗ	^	7	J.	^	7	J.	^	7
Future Volume (volph)				31	150		58			160	65		
Ideal Flow (ryhph)													
Lane Width (ft)		1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (ft) Storage Length (ft) Storage Length (ft) Storage Length (ft) To Storage Length (ft) To Storage Length (ft) To To To To To To To T	(1 1 /		14	14	10	12	14		12	15	12	12	12
Storage Length (ft) 380													
Storage Lanes		380		0	200		215	305		170	375		130
Taper Length (ft) 75	0 0 0	2		0	1		1	1		1	1		1
Lane Util. Factor		75			75			75			75		
Fit Protected			1.00	1.00		1.00	1.00		0.95	1.00		0.95	1.00
Fit Protected 0.950 0 0.950 0 1565 1765 1556 1491 3291 1635 1487 3138 1404 1407 1407 1407 3051 1809 0 1565 1765 1556 1491 3291 1635 1487 3138 1404 1407													
Satid Flow (prot) 3051 1809 0 1565 1765 1556 1491 3291 1635 1487 3138 1404 Flit Permitted	Flt Protected	0.950			0.950			0.950			0.950		
Fit Permitted			1809	0		1765	1556		3291	1635		3138	1404
Satid Flow (perm) 3051 1809 1809 1805 1765 1765 1765 1765 1491 3291 1635 1487 3138 1404													
Right Turn on Red No No Yes 218			1809	0		1765	1556		3291	1635		3138	1404
Said. Flow (RTOR)													
Link Speed (mph)	•												
Link Distance (ft)			45			45			45			45	
Travel Time (s)													
Peak Hour Factor 0.97 0.													
Heavy Vehicles (%) 3% 5% 13% 4% 4% 7% 17% 6% 5% 15% 9% 9% Adj. Flow (vph) 512 249 32 155 176 60 24 1724 165 67 1634 100		0.97		0.97	0.97		0.97	0.97		0.97	0.97		0.97
Adj. Flow (vph) 512 249 32 155 176 60 24 1724 165 67 1634 100													
Shared Lane Traffic (%)													
Lane Group Flow (vph) 512 281 0 155 176 60 24 1724 165 67 1634 100)											
Number of Detectors	•	,	281	0	155	176	60	24	1724	165	67	1634	100
Detector Template						1	1	1	1	1	1		
Leading Detector (ft) 40 40 35 35 35 40 30 30 35 30 30 Trailing Detector (ft) 0 0 -5 -5 -5 0 -10 -10 -5 -10 -10 Detector 1 Position(ft) 0 0 -5 -5 -5 0 -10 -10 -5 -10 -10 Detector 1 Size(ft) 40	Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Detector 1 Position(ft)	Leading Detector (ft)	40	40			35		40	30	30	35	30	
Detector 1 Size(ft)	Trailing Detector (ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Size(ft)	Detector 1 Position(ft)	0	0		-5	-5	-5	0	-10	-10	-5	-10	-10
Detector 1 Channel		40	40		40	40	40	40	40	40	40	40	40
Detector 1 Extend (s) 0.0	Detector 1 Type	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex
Detector 1 Queue (s) 0.0	Detector 1 Channel												
Detector 1 Delay (s) 0.0	Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type Prot NA Prot NA Prot NA Perm Prot NA P	Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Protected Phases 3 8 7 4 5 2 1 6 Permitted Phases 4 4 2 6 Detector Phase 3 8 7 4 4 5 1 6 Switch Phase Minimum Initial (s) 3.0 3.0 3.0 3.0 20.	Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Permitted Phases Detector Phase Switch Phase Switch Phase Minimum Initial (s) Suitch Split (s) Suitch Spli	Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Detector Phase 3 8 7 4 4 5	Protected Phases	3	8		7	4		5	2		1	6	
Switch Phase Switch Phase Minimum Initial (s) 3.0 3.0 3.0 3.0 20.0 <	Permitted Phases						4			2			6
Minimum Initial (s) 3.0 3.0 3.0 3.0 3.0 2.0 20.0 34.0	Detector Phase	3	8		7	4	4	5			1		6
Minimum Split (s) 45.0 45.0 45.0 10.0 10.0 9.0 34.0 34.0 9.0 34.0 34.0 Total Split (s) 28.0 28.0 18.0 18.0 18.0 14.0 60.0 60.0 14.0 60.0 60.0 Total Split (%) 23.3% 23.3% 15.0% 15.0% 15.0% 11.7% 50.0% 50.0% 50.0% Maximum Green (s) 21.0 21.0 11.0 11.0 11.0 8.0 54.0 <t< td=""><td>Switch Phase</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	Switch Phase												
Total Split (s) 28.0 28.0 18.0 18.0 18.0 14.0 60.0 60.0 14.0 60.0	Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Total Split (%) 23.3% 23.3% 15.0% 15.0% 15.0% 11.7% 50.0% 50.0% 11.7% 50.0% 50.0% Maximum Green (s) 21.0 21.0 11.0 11.0 11.0 8.0 54.0 54.0 8.0 54.0 54.0 Yellow Time (s) 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0	Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Maximum Green (s) 21.0 21.0 11.0 11.0 11.0 8.0 54.0 54.0 8.0 54	Total Split (s)	28.0	28.0		18.0	18.0	18.0	14.0	60.0	60.0	14.0	60.0	60.0
Maximum Green (s) 21.0 21.0 11.0 11.0 11.0 8.0 54.0 54.0 8.0 54	,							11.7%	50.0%			50.0%	50.0%
All-Red Time (s) 3.0 3.0 3.0 3.0 2.0 2.0 2.0 2.0 2.0 2.0					11.0	11.0	11.0				8.0	54.0	54.0
		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
	. ,	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
	Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

Lanes, Volumes, Timings 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B **லூப்போ**ல்ரம் PennDO`

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Morning Peak Hour

	•	-	•	•	•	•	1	†	~	-	¥	1
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

Intersection Summary Area Type:

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



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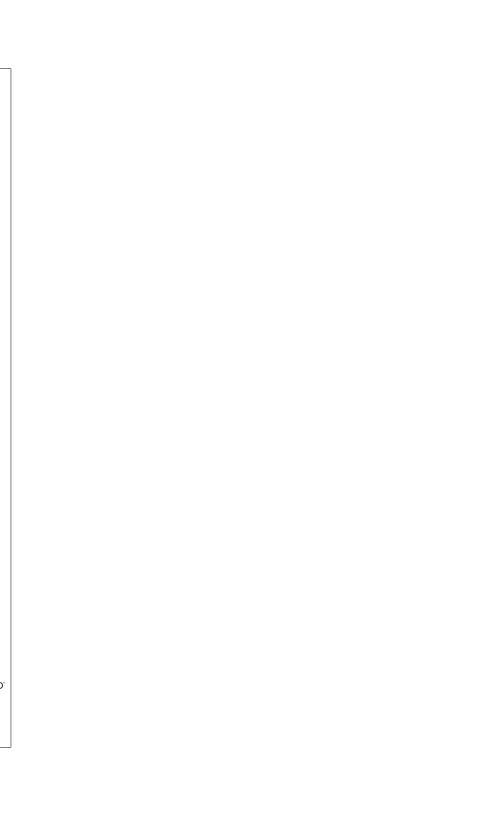
Robinson Tract 2030 with Dev Weekday Morning Peak Hour

3: Rt 202 & Rt 926

3: Rt 202 & Rt 926							2030 WI	th Dev	veekaa	ıy ivlorni	ng Pea	K Hour
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	1 >		ኘ		7	<u>ነ</u>	^	7	ኘ	^	7
Traffic Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Future Volume (veh/h)	497	242	31	150	171	58	23	1672	160	65	1585	97
Initial Q (Qb), veh	8	7	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1869	1914	1914	1892	1892	1923	1707	1864	1953	1589	1674	1674
Adj Flow Rate, veh/h	512	249	32	155	176	60	24	1724	165	67	1634	100
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	5	5	4	4	7	17	6	5	15	9	9
Cap, veh/h	613	326	25	180	189	163	45	1656	779	99	1607	709
Arrive On Green	0.18	0.18	0.17	0.10	0.10	0.10	0.03	0.48	0.48	0.07	0.51	0.51
Sat Flow, veh/h	3453	1662	214	1802	1892	1630	1626	3541	1655	1514	3180	1418
Grp Volume(v), veh/h	512	0	281	155	176	60	24	1724	165	67	1634	100
Grp Sat Flow(s), veh/h/ln		0	1876	1802	1892	1630	1626	1771	1655	1514	1590	1418
Q Serve(g_s), s	17.2	0.0	17.4	10.2	11.1	4.1	1.7	57.1	7.0	5.2	61.6	4.5
Cycle Q Clear(q c), s	17.2	0.0	17.4	10.2	11.1	4.1	1.7	57.1	7.0	5.2	61.6	4.5
Prop In Lane	1.00	0.0	0.11	1.00	11.1	1.00	1.00	37.1	1.00	1.00	01.0	1.00
Lane Grp Cap(c), veh/h	613	0	337	180	189	163	45	1656	779	99	1607	709
V/C Ratio(X)	0.84	0.00	0.83	0.86	0.93	0.37	0.53	1.04	0.21	0.67	1.02	0.14
Avail Cap(c_a), veh/h	633	0.00	344	180	189	163	122	1684	787	114	1633	716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.00	0.84	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.00	48.4	53.2	53.6	50.5	57.6	31.9	18.7	54.8	29.7	16.2
Incr Delay (d2), s/veh	7.9	0.0	13.5	31.8	45.9	1.4	9.3	33.6	0.6	12.4	26.7	0.4
Initial Q Delay(d3),s/veh		0.0	18.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh		0.0	16.6	10.1	12.0	3.1	1.5	40.0	4.9	4.1	36.0	2.7
Unsig. Movement Delay		0.0	10.0	10.1	12.0	J. I	1.5	40.0	4.5	4.1	30.0	2.1
LnGrp Delay(d),s/veh	63.6	0.0	80.4	85.0	99.5	51.8	66.8	65.5	19.3	67.2	56.3	16.6
LnGrp LOS	03.0 E	Α	60.4 F	65.0 F	99.5 F	D D	00.0 E	03.5 F	19.3 B	67.2 E	50.5 F	10.0
Approach Vol, veh/h		793			391			1913			1801	
Approach Delay, s/veh		69.5 E			86.4 F			61.5 E			54.5	
Approach LOS		E			F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc),	s12.9	62.1	27.0	18.0	8.3	66.6	18.0	27.0				
Change Period (Y+Rc),	s 6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0				
Max Green Setting (Gma	ax),8s0	54.0	21.0	11.0	8.0	54.0	11.0	21.0				
Max Q Clear Time (g_c+	-I1)7 <i>s</i> 7	59.6	19.7	13.6	4.2	64.1	12.7	19.4				
Green Ext Time (p_c), s	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.2				
Intersection Summary												
HCM 6th Ctrl Delay			62.2									
HCM 6th LOS			E									
Notes												

Notes
User approved pedestrian interval to be less than phase max green.

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Morning Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B **லூவ்றை**ண்th PennDO`



McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	λ		,	*	7	, j	^	7	J.	^	7
Traffic Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (vph)	328	220	44	211	251	67	63	1668	128	98	1325	69
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	14	14	10	12	14	12	12	15	12	12	12
Grade (%)		-3%			-4%			-4%			0%	
Storage Length (ft)	380		0	200		215	305	.,.	170	375		130
Storage Lanes	2		0	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		-
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	0.0.	0.975				0.850		0.00	0.850		0.00	0.850
Flt Protected	0.950	0.0.0		0.950		0.000	0.950		0.000	0.950		0.000
Satd. Flow (prot)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Flt Permitted	0.950	1000	Ŭ	0.950	1010	1001	0.950	0001	1000	0.950	0200	1407
Satd. Flow (perm)	2993	1836	0	1628	1818	1601	1744	3387	1683	1710	3288	1457
Right Turn on Red	2000	1000	No	1020	1010	No	.,,,,	0001	Yes	17.10	0200	Yes
Satd. Flow (RTOR)			140			140			155			155
Link Speed (mph)		45			45			45	100		45	100
Link Distance (ft)		2349			982			1123			3154	
Travel Time (s)		35.6			14.9			17.0			47.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	5%	2%	11%	0.97	1%	4%	0.97	3%	2%	0.97	4%	5%
Adj. Flow (vph)	338	227	45	218	259	69	65	1720	132	101	1366	71
Shared Lane Traffic (%		221	40	210	259	09	03	1720	132	101	1300	/ 1
	,	272	0	218	259	60	G.F.	1720	132	101	1366	71
Lane Group Flow (vph) Number of Detectors	338	1	U	1	259	69 1	65 1	1/20	132	101	1300	1
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
	40	40		35	35	Right 35	40	30	Right 30	35	30	Right 30
Leading Detector (ft)	40	40		-5	-5	-5	40	-10	-10	-5	-10	-10
Trailing Detector (ft) Detector 1 Position(ft)	0	0		-5 -5	-5 -5	-5 -5	0	-10	-10	-5 -5	-10	-10
	40	40		40	40	40	40	40	40	40	40	-
Detector 1 Size(ft)		CI+Ex										40
Detector 1 Type	CI+EX	CI+EX		CI+EX	CI+Ex	CI+EX	CI+EX	CI+EX	CI+EX	CI+EX	CI+Ex	CI+EX
Detector 1 Channel	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	3	8		7	4		5	2	_	1	6	
Permitted Phases	_			_		4	_		2			6
Detector Phase	3	8		7	4	4	5			1		6
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0	3.0	3.0	20.0	20.0	3.0	20.0	20.0
Minimum Split (s)	45.0	45.0		45.0	10.0	10.0	9.0	34.0	34.0	9.0	34.0	34.0
Total Split (s)	21.0	22.0		21.0	22.0	22.0	14.0	63.0	63.0	14.0	63.0	63.0
Total Split (%)		18.3%									52.5%	
Maximum Green (s)	14.0	15.0		14.0	15.0	15.0	8.0	57.0	57.0	8.0	57.0	57.0
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	3.0	3.0		3.0	3.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0

2030 with Dev Weekday Afternoon Peak Hour Lanes, Volumes, Timings I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B - 2030 \@\modero \vec{v}ith PennDO McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	5.0	5.0	5.0	5.0	5.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	5.5	5.5	3.0	5.5	5.5
Minimum Gap (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.5	3.5	3.0	3.5	3.5
Time Before Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	37.0	37.0	0.0	37.0	37.0
Time To Reduce (s)	0.0	0.0		0.0	0.0	0.0	0.0	15.0	15.0	0.0	15.0	15.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)	7.0	7.0		7.0				7.0	7.0		7.0	7.0
Flash Dont Walk (s)	31.0	31.0		31.0				21.0	21.0		21.0	21.0
Pedestrian Calls (#/hr)	0	0		0				0	0		0	0

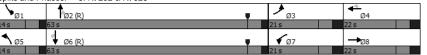
Intersection Summary

Area Type:

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow
Natural Cycle: 135

Control Type: Actuated-Coordinated

Splits and Phases: 3: Rt 202 & Rt 926



Lanes, Volumes, Timings 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B - 2030 \@ymDev &rith PennDO`

McMahon Associates, Inc. 3: Rt 202 & Rt 926

Robinson Tract 2030 with Dev Weekday Afternoon Peak Hour

3: Rt 202 & Rt 926						21	JSU WILI	i Dev vv	еекцау	Aitemic	JUITEA	k Houi
	۶	→	•	•	-	•	1	†	<i>></i>	>	↓	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻሻ	ĵ»		Ĭ		7	ľ	^	7	۲	^	7
Traffic Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Future Volume (veh/h)	328	220	44	211	251	67	63	1668	128	98	1325	69
Initial Q (Qb), veh	3	5	0	0	0	0	0	0	0	0	160	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	1	No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1959	1959	1949	1935	1968	1949	1906	1997	1800	1744	1730
Adj Flow Rate, veh/h	338	227	45	218	259	69	65	1720	132	101	1366	71
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	5	2	2	0	1	4	0	3	2	0	4	5
Cap, veh/h	425	245	6	232	258	222	106	1751	818	129	1660	722
Arrive On Green	0.13	0.13	0.13	0.13	0.13	0.13	0.06	0.48	0.48	0.08	0.50	0.49
Sat Flow, veh/h	3401	1587	315	1856	1935	1668	1856	3622	1693	1714	3313	1466
Grp Volume(v), veh/h	338	0	272	218	259	69	65	1720	132	101	1366	71
Grp Sat Flow(s), veh/h/ln	1700	0	1902	1856	1935	1668	1856	1811	1693	1714	1657	1466
Q Serve(g_s), s	11.6	0.0	16.0	14.0	16.0	4.5	4.1	56.1	5.2	6.9	42.0	3.1
Cycle Q Clear(g_c), s	11.6	0.0	16.0	14.0	16.0	4.5	4.1	56.1	5.2	6.9	42.0	3.1
Prop In Lane	1.00		0.17	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	425	0	260	232	258	222	106	1751	818	129	1660	722
V/C Ratio(X)	0.80	0.00	1.05	0.94	1.00	0.31	0.61	0.98	0.16	0.79	0.82	0.10
Avail Cap(c_a), veh/h	425	0	254	232	258	222	139	1751	818	129	1660	722
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.00	0.80	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		0.0	52.0	52.1	52.0	47.0	55.3	30.5	17.4	54.6	29.9	16.2
Incr Delay (d2), s/veh	8.2	0.0	62.5	42.6	57.0	0.8	5.6	17.7	0.4	26.7	4.7	0.3
Initial Q Delay(d3),s/veh	1.7	0.0	69.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	267.1	0.0
%ile BackOfQ(95%),veh		0.0	22.6	14.0	17.2	3.4	3.7	35.1	3.7	7.0	92.3	1.9
Unsig. Movement Delay,												
LnGrp Delay(d),s/veh	61.2	0.0	183.7	94.6	109.0	47.8	60.9	48.2	17.8	81.2	301.8	16.5
LnGrp LOS	E	A	F	F	F	D	E	D	В	F	F	B
Approach Vol, veh/h		610			546			1917			1538	
Approach Delay, s/veh		115.8			95.5			46.6			274.1	
Approach LOS		F			F			D			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc),	s14.0	63.0	21.0	22.0	11.9	65.1	21.0	22.0				
Change Period (Y+Rc),	s 6.0	6.0	7.0	7.0	6.0	6.0	7.0	7.0				
Max Green Setting (Gma	088(xE	57.0	14.0	15.0	8.0	57.0	14.0	15.0				
Max Q Clear Time (g_c+	l1)9s4	58.6	14.1	18.5	6.6	44.5	16.5	18.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	9.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			137.4									
HCM 6th LOS			F									
Notes												

HCM 6th Signalized Intersection Summary 2030 with Dev Weekday Afternoon Peak Hour I:\eng\816451 - Crebilly Farm\Traffic\Analysis\2019-11 Robinson Tract Revised TIS\Synchro\5B - 2030 இரிமிசம் இர்h PennDO`

User approved pedestrian interval to be less than phase max green.