

July 27, 2016

Mr. Jeffrey Buell
Sequence Development
16 First Street
Troy, New York 12180

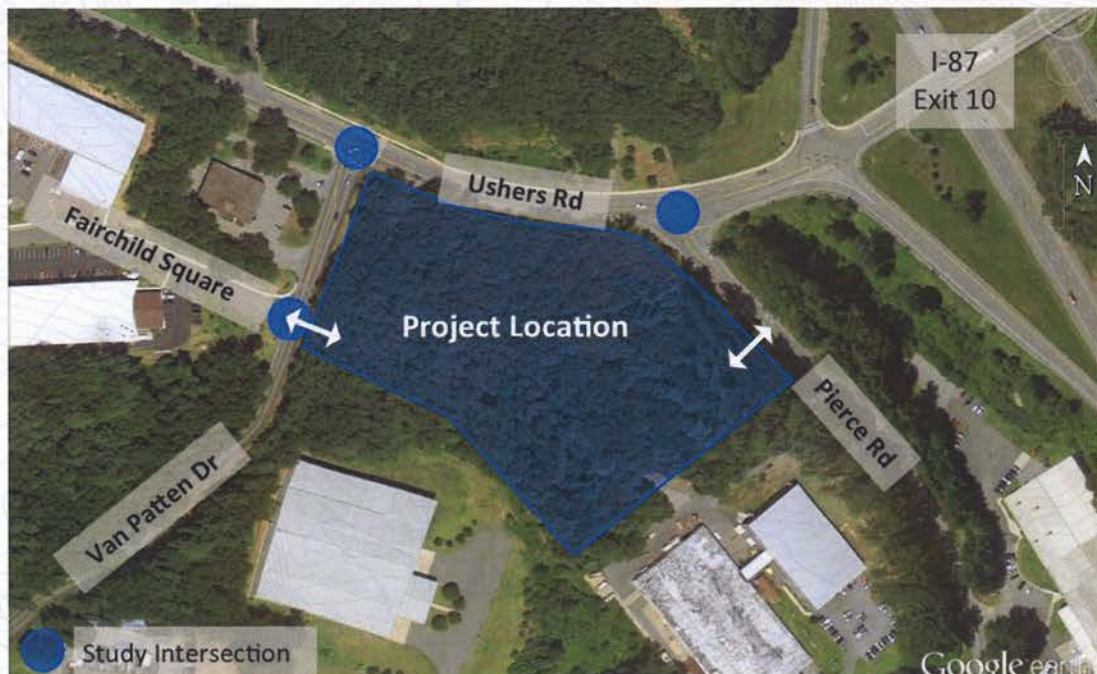
RE: Traffic Evaluation, Northway Church Relocation, Ushers Road, Town of Clifton Park, Saratoga County, New York; CM Project No. 116-064

Dear Mr. Buell:

Creighton Manning Engineering, LLP has conducted a traffic evaluation for the proposed relocation of the *Northway Church* from the North Country Commons Plaza in Clifton Park to a parcel in the southeast quadrant of the Ushers Road/Van Patten Drive intersection near the Interstate 87 (I-87) Exit 10 Interchange in Clifton Park. This evaluation is based on the Site Plan prepared by Lansing Engineering dated June 28, 2016 (included in Attachment A), membership information provided by the *Northway Church*, and a discussion with the Town Planning Department regarding the scope of study.

1.0 Project Description

The project includes the construction of a 42,877-square foot (SF) building to facilitate the relocation of the existing *Northway Church* from 1208 Route 146 in Clifton Park to the subject site on Ushers Road. Access to the site is proposed via two full access driveways; one intersecting Van Patten Drive at the existing intersection with Fairchild Square, and the other intersecting Pierce Road approximately 250 feet south of the intersection with Ushers Road. The study area is shown on the following aerial image. The project is anticipated to be operational in 2017.



At its current location, the *Northway Church* serves approximately 1,800 to 2,000 members through three weekly services; Saturday at 6:00 p.m. and Sundays at 9:30 and 11:00 a.m. The first Wednesday of every month, an additional service is provided from 7:00 to 8:30 p.m. On weekdays, ten full time employees are at the facility during business hours from 9:00 a.m. to 4:00 p.m. Based on a review of the daily and weekly operations of the *Northway Church*, the traffic evaluation for the proposed project focuses on the Sunday morning peak hour when site-related traffic volumes are highest with the departure for the 9:30 a.m. service and the arrival for the 11:00 a.m. service occurring during the same hour.

2.0 Existing Conditions

Roadways in the Study Area

Ushers Road is a local road generally providing east/west travel between Coons Crossing Road and Longkill Road and provides access to I-87 via Exit 10. Along the project frontage, Ushers Road is a three-lane roadway with one 11-foot wide travel lane in the eastbound direction and two 11-foot wide travel lanes in the westbound direction with 5-foot wide paved shoulders. Traffic volume data collected by Creighton Manning near the project site shows that Ushers Road serves approximately 14,400 vehicles per day (vpd) on weekdays and approximately 9,800 vpd on Sundays. A 5-foot wide sidewalk is provided on the north side of Ushers Road along the project frontage and east to US Route 9 and transitions to a 5-foot wide sidewalk on the south side of Ushers Road west of Van Patten Drive. Bicyclists are accommodated via the paved shoulders. The posted speed limit adjacent to the project site is 40-mph. Land use in the study area is a mix of residential, commercial, light industrial, and undeveloped land.

Pierce Road is a two lane local road with 11-foot wide travel lanes in each direction and approximately 3 to 4-foot wide paved shoulders. Pierce Road provides north-south travel from Ushers Road to Kinns Road in the Town of Clifton Park. Traffic volume data collected by Creighton Manning shows that Pierce Road serves approximately 4,750 vpd during weekdays and approximately 2,300 vpd on Sundays near the project site. Pedestrians and bicyclists are accommodated through the paved shoulders. The posted speed limit on Pierce Road is 45-mph. Land use on Pierce Road near the site is primarily light industrial and undeveloped land.

Van Patten Drive is a two lane local road with 10 to 11-foot wide travel lanes in each direction and approximately 1 to 3-foot wide paved shoulders. Van Patten Drive generally provides north-south travel between Ushers Road and Carlton Road in the Town of Clifton Park. Traffic volume data collected by Creighton Manning shows that Van Patten Drive serves approximately 4,700 vpd on weekdays and approximately 3,100 vpd on Sundays near the project site. An 8-foot wide paved multi-use path (Robert Van Patten Memorial Trail) is provided on the east side of Van Patten Drive that connects to a sidewalk on the north side of Fairchild Square via a marked crosswalk on the north side of Fairchild Square. Both pedestrians and bicyclists are accommodated on the Robert Van Patten Memorial Trail. The posted speed limit on Van Patten Drive is 40-mph. Land use on Van Patten Drive near the site is primarily light industrial, commercial, and undeveloped land.

Study Intersections

The Ushers Road/Van Patten Drive intersection is a three-leg intersection operating under stop

sign control on the northbound Van Patten Drive approach. The eastbound Ushers Road approach provides a single lane for shared through and right-turn movements. The westbound Ushers Road approach provides a shared left-turn/through travel lane and a through travel lane. The northbound Van Patten Drive approach provides exclusive left and right-turn lanes, with approximately 50 feet of storage in the left-turn lane. Marked crosswalks are provided on the westbound and northbound approaches. A sidewalk is provided on the north side of Ushers Road from approximately 150-feet west of the intersection to the east and on the south side of Ushers Road. The Robert Van Patten Memorial Trail is located along the east side of Van Patten Drive at the intersection. It is noted that as part of the approval for the Fairchild II project, an after study is required two years after completion of the five proposed warehouse buildings to determine the need to lengthen the left-turn lane storage from 50 feet to 125 feet.

The Van Patten Drive/Fairchild Square intersection is a three-leg intersection. There is no traffic control at the intersection; however, vehicles entering and exiting Fairchild Square must yield to traffic on Van Patten Drive. The eastbound Fairchild Square approach (private drive) provides a single lane for shared left-turn and right-turn movements. The northbound Van Patten Drive approach provides a single lane for shared left-turn and through travel movements. The southbound Van Patten Drive approach provides a single lane for shared through and right-turn movements. A crosswalk is provided on the southbound Van Patten Drive approach connecting the Robert Van Patten Memorial Trail located on the east side of Van Patten Drive and the sidewalk on the north side of Fairchild Square.

The Ushers Road/Pierce Road intersection is a three-leg intersection operating under stop sign control on the northbound Pierce Road approach. The eastbound Ushers Road approach provides a single lane for shared through travel and right-turn movements, and an additional through travel lane begins on the east side of the intersection for eastbound traffic turning right onto the I-87 southbound entrance ramp 550-feet east of Pierce Road. The westbound Ushers Road approach provides a shared left-turn/through travel lane and a through travel lane. The northbound Pierce Road approach provides exclusive left and right-turn lanes. A sidewalk is provided on the north side of Ushers Road but no marked crosswalks are provided at the intersection.

Transit

Transit service in the study area is provided by the Capital District Transportation Authority (CDTA). There is no local transit service provided near the proposed project.

Data Collection

Creighton Manning installed automatic traffic recorders on Ushers Road, Van Patten Drive, and Pierce Drive to continuously record existing traffic volume and travel speed information in the study area for a period of several days from Friday, May 20, 2016 through Friday, May 27, 2016.

This traffic study focuses on the Sunday mid to late-morning period since this time period corresponds to peak operations for the proposed church. Intersection turning movement counts were conducted at the Van Patten Drive/Fairchild Square, Ushers Road/Van Patten Drive, and Ushers Road/Pierce Road intersections on Sunday May 22, 2016 from 10:15 a.m. to

12:15 p.m. to coincide with the peak operating period of the Sunday morning church services. The raw traffic volumes are included in Attachment B. These peak hour traffic counts provide existing traffic conditions at the study area intersections and are shown on Figure 1 and form the basis for all traffic forecasts.

Trip generation counts were conducted at the existing *Northway Church* in the North Country Commons Plaza on Sunday, May 22, 2016 from 10:15 to 11:15 a.m. to document the flow of traffic in and out of the existing church site associated with traffic exiting the facility after the 9:30 a.m. service and traffic entering before the 11:00 a.m. service.

Crash History

Accident data was requested from NYSDOT to determine accident trends along Ushers Road between Van Patten Drive and Pierce Road. Safety Information Management System (SIMS) and Accident Location Information System (ALIS) data was provided by NYSDOT for the latest three years of available data from the period between January 1, 2013 and December 31, 2015. Review of the accident data shows that there were 16 crashes over the latest three year period of available data. Table 1 summarizes the accident history at the Van Patten Drive and Pierce Road intersections with Ushers Road and the roadway segment in between.

Table 1 – Crash Summary

Location	Number of Crashes				
	NR ¹	Property Damage	Injury	Fatality	Total
Ushers Rd/Van Patten Dr	0	2	1	0	3
Ushers Rd from Van Patten Dr to Pierce Rd	3	3	0	0	6
Ushers Rd/Pierce Rd	2	2	3	0	7

¹ A non-reportable (NR) accident indicates no personal injuries occurred and property damages totaled less than \$1,000

The following observations are evident from the accident history evaluation:

- Ushers Road/Van Patten Drive – The three crashes at this intersection include a vehicle colliding with a guide rail, a rear-end crash involving westbound vehicles, and a rear-end crash involving northbound vehicles. There is no discernible crash pattern at this intersection.
- Ushers Road between Van Patten Drive and Pierce Road – The six crashes along this roadway segment include two collisions with deer, one collision with the curb due to snow/ice conditions, and three overtaking crashes in the westbound direction. These three overtaking crashes occurred in the two-lane westbound segment and are caused by driver error such as an unsafe lane change or failure to yield the right-of-way. There are no discernible crash patterns in this roadway segment.
- Ushers Road/Pierce Road – The seven crashes at this intersection include three single-vehicle collisions, two westbound rear-end crashes, one left-turn collision, and one right-angle crash. There is no discernible crash pattern at this intersection.

Based on a review of the accident data, no discernible or prevalent accident types have been identified in the corridor.

3.0 Traffic Assessment

Trip Generation

Trip generation determines the quantity of traffic expected to travel to and from a given site. The Institute of Transportation Engineers' (ITE) *Trip Generation*, 9th Edition, is the industry standard used for estimating trip generation for proposed land uses based on data collected at similar uses; however, local data is preferred when possible, especially with a land use that has very distinct travel patterns and volumes, such as the subject church. As noted previously, trip generation counts were conducted at the existing *Northway Church* to determine the typical rate of trips entering and exiting the existing site, which can be applied to the church in its new location. The trip generation assessment for the proposed site assumes that the church will continue to generate trips at a rate consistent with its current rate with 2,000 members. Table 2 summarizes the trip generation for the Sunday peak hour. A sensitivity assessment was also conducted for the site and is also summarized below and assumes growth at the church will increase the membership by 1,000.

Table 2 – Trip Generation Summary

Land Use	Sunday Peak Hour		
	Enter	Exit	Total
Church (2,000 members)	170	132	302

Table 2 shows that at peak operational times on a Sunday morning, the site will continue to generate 302 vehicle trips with 170 entering and 132 exiting vehicles.

Future Traffic Volumes

Future traffic volume projections include trips associated with specific "other development" projects approved in the study area and a general background growth rate. Conversations with a representative from the Town of Clifton Park indicated that the proposed *Fairchild Square Phase II* (currently under construction) and the potential expansion of *Mazzone Hospitality* located at 743 Pierce Road will increase traffic volumes in the study area; however, these volume increases will not occur during the Sunday morning evaluation period. Information provided by the Capital District Transportation Committee (CDTC) indicated that traffic volumes in the study area have increased by approximately 0.5% per year over the last several years; therefore, the 2016 Existing traffic volumes were increased by 0.5% for one year to represent general growth in the study area to the 2017 design year. The 2017 No-Build traffic volumes are illustrated on Figure 1.

Trips associated with the proposed project were distributed at the study area intersections based on existing and anticipated travel patterns of the church members. Information provided by the church indicates that a high percentage of the current membership is split between residents of Saratoga and Clifton Park, with many in southern Clifton Park; therefore, it is anticipated that a large percentage of members will travel to and from the site via I-87. Based on the anticipated travel patterns, it is expected that 25% of the site generated traffic will travel to and from the west on Ushers Road, 55% will travel to and from the east on Ushers Road with access to I-87 Exit 10, 10% will travel to and from the south on Pierce Road, and the remaining 10% will travel to and from the south on Van Patten Drive as shown on Figure 2. Trips were assigned to the site driveways and the study area intersections (as shown on Figure

2) to develop the 2017 Build traffic volumes. The 2017 Build traffic volumes represent the future traffic volumes when the project is complete and are illustrated on Figure 3.

Traffic Operations

Intersection Level of Service (LOS) and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Intersection evaluations were made using Synchro Version 8 Software which automates the procedures contained in the *Highway Capacity Manual*. Table 3 summarizes the results of the level of service calculations for the proposed project. The detailed levels of service analyses are included in Attachment C.

Table 3 – Level of Service Summary

Intersection	Control	Sunday Peak Hour		
		Existing 2016	No-Build 2017	Build 2017
Ushers Rd/Van Patten Dr	TW			
Ushers Rd WB L		A (8.4)	A (8.4)	A (8.7)
Van Patten Dr NB L		C (17.6)	C (17.7)	C (22.6)
		B (12.8)	B (12.9)	B (13.6)
Ushers Rd/Pierce Rd	TW			
Ushers Rd WB L		A (8.8)	A (8.8)	A (9.3)
Pierce Rd NB L		C (20.4)	C (20.5)	D (32.1)
		B (13.1)	B (13.2)	C (15.1)
Van Patten Dr/Fairchild Sq/Site Dwy	TW			
Fairchild Square EB LR		B (10.1)	B (10.1)	--
Van Patten Dr NB L		A (7.4)	A (7.4)	--
Fairchild Square EB LTR				B (12.6)
Site Dwy 1 WB LTR				B (10.3)
Van Patten Dr NB L		--	--	A (7.4)
Van Patten Dr SB L			A (7.8)	
Pierce Rd/Site Dwy	TW			
Site Dwy 2 EB LR				B (10.4)
Pierce Rd NB L		--	--	A (7.6)

TW = Two-way Stop controlled intersection
 EB, WB, NB, SB = Eastbound, Westbound, Northbound, and Southbound intersection approaches
 L, T, R = Left-turn, Through, and/or Right-turn movements
 X (Y.Y) = Level of service (Average delay in seconds per vehicle)
 -- = Not Applicable

The following observations are noted regarding the capacity evaluations:

- Ushers Road/Van Patten Drive – The evaluation shows that the Van Patten Drive northbound left and right-turn movements operate at LOS C and LOS B, respectively during the Sunday morning peak period. These levels of service will be maintained through the No-Build and Build conditions. The Ushers Road westbound left-turn movement operates at LOS A in existing conditions. This level of service will be maintained through future conditions.
- Ushers Road/Pierce Road – The evaluation shows that the Pierce Road northbound left and right-turn movements operate at LOS C and LOS B, respectively during the Sunday morning peak period. These levels of service will be maintained through the No-Build conditions and drop to LOS D and LOS C, respectively, under Build conditions.

The Ushers Road westbound approach operates at LOS A in Existing conditions which will be maintained through future No-Build and Build conditions. Although there are increases in delay and drops in level of service at the intersection, due to the generally good operating conditions expected at this intersection with construction of the proposed project and short-term impacts that will be experienced during off-peak periods, no mitigation is recommended.

- Van Patten Drive/Fairchild Square/Site Driveway – The stop controlled Fairchild Square approach to Van Patten Drive currently operates at LOS B during the Sunday peak hour while the northbound left-turn movement currently operates at LOS A. These levels of service will be maintained under 2017 No-Build conditions. With construction of the project, the eastbound and westbound approaches will both operate at LOS B while the mainline left-turn movements operate at LOS A. The site driveway approach to Van Patten Drive will operate with good levels of service under stop sign control with a single lanes entering and exiting the site.
- Pierce Road/Site Driveway – The site driveway approach to Pierce Road will operate with good levels of service under stop sign control with a single lanes entering and exiting the site.

As shown in the detailed traffic evaluation, the intersections in the study area will maintain acceptable operating conditions during the worst case Sunday peak hour when members will be arriving and departing services. In general, the average vehicle delay increase during the peak church operating conditions is five seconds or less on any intersection approach. The northbound Pierce Road left-turn movement is shown to experience the highest increase in the average vehicle delay with an approximate 12 seconds increase; however, it is noted this increase is a function of volume increases in the mainline Ushers Road traffic as there is no increase in the northbound left-turn movement associated with the church. During other church service arrival and departure times, it is anticipated that good operating conditions with similar or slightly less average vehicle delays will be experienced when compared to the worst case peak periods at the study area intersections.

Sensitivity Evaluation

There are currently no specific plans for expansion of the *Northway Church* membership; however, relocation of the *Northway Church* allows the potential for increased membership. The church currently has 1,800 to 2,000 members attending three weekly services. Should the church expand, membership could increase up to 3,000 members. The number and times for services to accommodate this potential number of members is unknown though a worst-case scenario would simply be increased attendance at the three current services. Table 4 summarizes the potential trip generation associated with an increased membership with the current number of services assuming trips continue to generate at a rate consistent with the existing conditions.

Table 4 – Trip Generation Summary

Land Use	Sunday Peak Hour		
	Enter	Exit	Total
Church (2,000 members)	170	132	302
Church (3,000 members)	255	198	453
Potential change in trips	+85	+66	+151

Table 4 shows that should the *Northway Church* expand and increase membership, the Sunday morning peak hour trip generation could increase by an additional 151 trips. An evaluation of the study area intersection with 3,000 members is summarized in Table 5.

Table 5 – Sensitivity Analysis Level of Service Summary

Intersection	Control	Build 2017 3,000 members
Ushers Rd/Van Patten Dr	TW	A (8.8) D (26.7) B (14.0)
Ushers Rd WB L		
Van Patten Dr NB L R		
Ushers Rd/Pierce Rd	TW	A (9.6) E (42.3) C (16.3)
Ushers Rd WB L		
Pierce Rd NB L R		
Van Patten Dr/Fairchild Sq/Site Dwy	TW	B (14.2) B (10.9) A (7.4) A (7.9)
Fairchild Square EB LTR		
Site Dwy 1 WB LTR		
Van Patten Dr NB L Van Patten Dr SB L		
Pierce Rd/Site Dwy	TW	B (11.2) A (7.7)
Site Dwy 2 EB LR Pierce Rd NB L		

TW = Two-way Stop controlled intersection
 EB, WB, NB, SB = Eastbound, Westbound, Northbound, and Southbound intersection approaches
 L, T, R = Left-turn, Through, and/or Right-turn movements
 X (Y.Y) = Level of service (Average delay in seconds per vehicle)

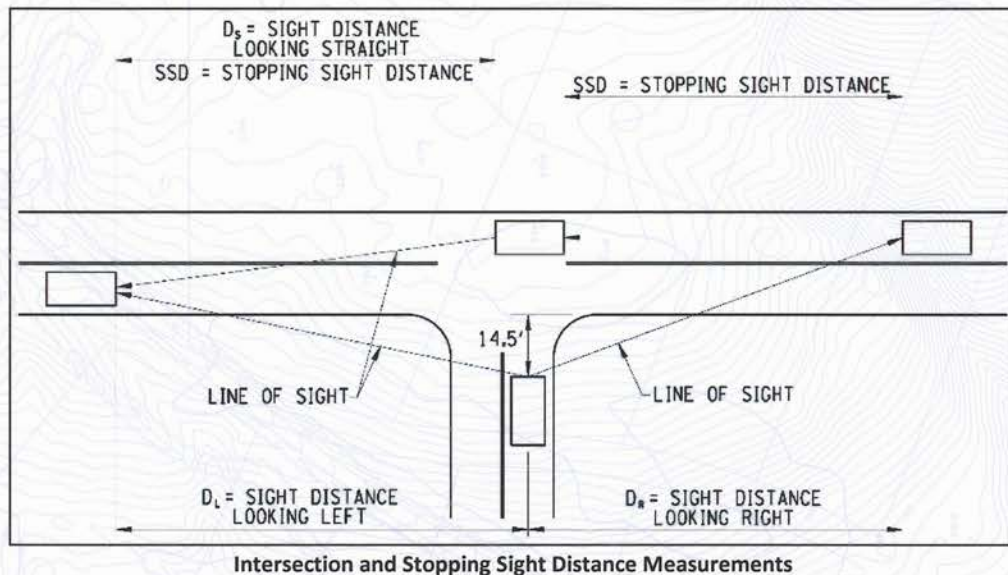
Table 5 shows that should the church membership increase to 3,000 members, the study area intersections will continue to operate with level of service D or better with the exception of the northbound Pierce Road left-turn movement which will operate at LOS E with approximately 42 seconds of average delay. As noted previously, this is a function of volume increases in the mainline Ushers Road traffic as there is no increase in the northbound left-turn movement associated with the church. Level of service E conditions often occur on unsignalized intersection approaches on busy through streets, such as Ushers Road which provides direct access to the Interstate. No mitigation is recommended based on the increase in traffic associated with the church operations with an increased membership as these worst case conditions would occur during a single off-peak hour during the week and acceptable operating conditions will be maintained.

Traffic volumes in the study area during typical commuter peak periods and when the surrounding businesses are open are higher than the Sunday morning period indicating that the peak church operations on a Sunday morning do not represent the overall worst case traffic conditions in the study area. For example, traffic volume data collected by Creighton Manning indicates that on a weekday traffic volumes on Ushers Road in the project vicinity are approximately 1,100 vehicles from 7:00 to 8:00 a.m. and 1,350 from 5:00 to 6:00 p.m. as compared to 770 vehicles on a Sunday during the church peak period.

4.0 Sight Distance Evaluation

A sight distance evaluation was completed at the proposed site driveway locations on Van Patten Drive and Pierce Road. Available *intersection* sight distance was measured from the perspective of a vehicle exiting the site. In addition, the sight distance for vehicles traveling along Van Patten Drive and Pierce Road looking straight ahead to turn left into the site was measured. The available intersection sight distance on a side street should provide drivers a sufficient view of the intersecting highway to allow vehicles to enter or exit the intersection without excessively slowing vehicles traveling at or near the operating speed on the intersecting mainline.

Stopping sight distance was also measured at the proposed site driveways. Stopping sight distance is the length of the roadway ahead that is visible to the driver. The available stopping sight distance on a roadway should be of sufficient length to enable a vehicle traveling at or near the operating speed to stop before reaching a stationary object in its path. The following diagram illustrates these sight distance measurements.



Travel speed data collected by Creighton Manning shows that the 85th percentile speed near the site is approximately 28-mph on Van Patten Drive and 37-mph on Pierce Road likely due to the proximity of the site to the Ushers Road intersections. It is noted that these operating speeds are lower than the posted speed limits of 40-mph on Van Patten Drive and 45-mph on Pierce Road and a 35-mph curve warning sign is located near the proposed site driveway. The

available sight distances on these roads were compared to the guidelines presented in AASHTO *A Policy on Geometric Design of Highways and Streets*, 2011 for a 30-mph operating speed on Van Patten Drive and for a 40-mph operating speed on Pierce Road and are summarized in Table 6.

Table 6 – Sight Distance Summary (Feet)

Intersection	Intersection Sight Distance ¹				Stopping Sight Distance ²	
	Right-Turn from Site Dwy (D _L)	Left-Turn from Site Dwy		Left-Turn from Van Patten Dr (D _S)	NB	SB
		Looking Left (D _L)	Looking Right (D _R)			
Van Patten Drive/Site Driveway 1						
Available	500	500	350*	460	470	350*
Recommended ³	290	335	335	245	200	200
Pierce Road/Site Driveway 2						
Available	320*	320*	550	320*	640	320*
Recommended ⁴	385	445	445	325	290 ⁵	315 ⁶

¹ Intersection sight distance is measured at 14.5 feet back from the travel way at an eye and object height of 3.5-ft.

² Stopping sight distance measured at an eye height of 3.5-ft for a 2-foot object located in the path of northbound and southbound vehicles on Van Patten Drive and Pierce Road.

³ Sight distance measurements are compared to AASHTO guidelines for a 30-mph operating speed on Van Patten Drive.

⁴ Sight distance measurements are compared to AASHTO guidelines for a 40-mph operating speed on Pierce Road.

⁵ Stopping sight distance guideline adjusted for a 3% upgrade on Pierce Road.

⁶ Stopping sight distance guideline adjusted for a 3% downgrade on Pierce Road.

*The distance to the adjacent intersection.

The sight distance analysis shows that the available intersection sight distances at the Van Patten Drive/Site Driveway 1 intersection meet the AASHTO guidelines for a 30-mph operating speed. The available sight distances looking to and from the south at the Pierce Road/Site Driveway 2 intersection meet the AASHTO guidelines for a 40-mph operating speed. Sight distances looking to and from the north are less than the desired guidelines but extend to the adjacent intersection. A review of criteria in the New York State Supplement to the National Manual of Uniform Traffic Control Devices (NMUTCD) indicates that the less than desirable sight distance is not critically limited indicating that mitigation such as installation of an intersection warning sign is not recommended. Since the sight distance looking left is not critical, a clear line of sight is provided into the adjacent intersection, and the stopping sight guidelines are met, no sight distance mitigation is recommended. It is noted that Pierce Road is generally characterized as a curvy roadway with some rolling vertical grades with numerous commercial/industrial driveways throughout indicating that the proposed site driveway fits within the character of the roadway. It is recommended that any site related signing be placed a minimum of 15-feet back from the roadway along the Van Patten Drive and Peirce Road site frontages to maximize sight lines for the access driveways.

5.0 Conclusions

The proposed project includes the construction of a 42,877 SF church to facilitate the relocation of the existing *Northway Church*. Consistent with the existing church, the proposed

project is expected to continue to generate 302 vehicle trips during the Sunday peak hour (170 entering and 132 exiting) at the relocated site. It is noted that vehicle trips are already on the roadway network in Clifton Park to travel to and from the existing site located in the vicinity of NY Route 146 and Vischer Ferry Road. These trips will relocate and travel to the relocated site resulting in a shift in traffic within the Town during the church service hours. Access to the site is proposed via two full access driveways; one intersecting Van Patten Drive opposite Fairchild Square, and one intersecting Pierce Road. The project is expected to be complete in 2017. The following is noted regarding the proposed project:

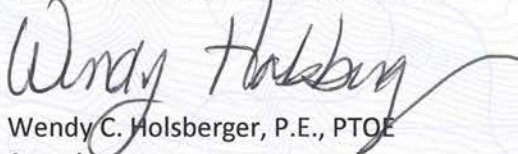
- Review of the latest three years of accident data shows that there are no discernable or prevalent crash patterns in the study area on Ushers Road between Van Patten Drive and Pierce Road or at the study intersections.
- Acceptable operating conditions will be provided at the study area intersections with general increases in the average vehicle delay of 5 seconds or less. The maximum increase in the average vehicle delay of approximately 12 seconds is anticipated on the northbound Pierce Road left-turn approach to Ushers Road as a result of the increase in through volumes on Ushers Road. No mitigation is recommended at this intersection as acceptable operating conditions with operations limited to a few services a week and short duration peaking during service arrival and departure times.
- The site driveway approaches to Pierce Road and Van Patten Drive will operate with acceptable levels of service as unsignalized driveways with single lanes entering and exiting the site.
- Traffic volumes in the study area during typical commuter peak periods and when the surrounding businesses are operational are higher than the Sunday peak hour indicating that the peak church operations on a Sunday morning do not represent the overall worst case traffic conditions in the study area. For example, traffic volume data collected by Creighton Manning indicates that on a weekday traffic volumes on Ushers Road in the project vicinity are approximately 1,100 vehicles from 7:00 to 8:00 a.m. and 1,350 from 5:00 to 6:00 p.m. as compared to 770 vehicles on a Sunday during the church peak period.
- Though there are no immediate plans for membership expansion, relocation of the *Northway Church* allows for the potential to increase membership by an additional 1,000 members. If membership increases and services times stay the same, the trip generation during Sunday morning peak hour could increase by 151 trips. Level of service analyses show that the study area intersections will continue to operate with level of service D or better with the exception of the northbound Pierce Road left-turn movement which will operate at LOS E with approximately 42 seconds of average delay which is a function of volume increases in the mainline Ushers Road traffic as there is no increase in the northbound left-turn movement associated with the church. No mitigation is recommended based on the increase in traffic associated with the church operations with an increased membership as these worst case conditions would occur during a single off-peak hour during the week and acceptable operating conditions will be maintained.
- The available intersection sight distances at the Van Patten Drive/Site Driveway 1 intersection meet the AASHTO guidelines for a 30-mph operating speed. The sight distances looking to and from the south at the Pierce Road/Site Driveway 2 intersection meet the AASHTO guidelines for a 40-mph operating speed. Sight

distances looking to and from the north are less than the desired guidelines but are not critically limited. Since the sight distance looking left is not critical, and a clear line of sight is provided into the adjacent intersection, and the stopping sight guidelines are met, no sight distance mitigation is recommended. Any site related signing should be placed a minimum of 15-feet back from Van Patten Drive and Pierce Road along the project frontage to maximize sight lines.

The proposed *Northway Church* will operate with acceptable operating conditions with the existing intersection geometry and traffic control at the study area intersections. No off-site mitigation is recommended.

Please call our office if you have any questions or comments regarding the above analysis.

Respectfully submitted,
Creighton Manning Engineering, LLP



Wendy C. Holsberger, P.E., PTOE
Associate

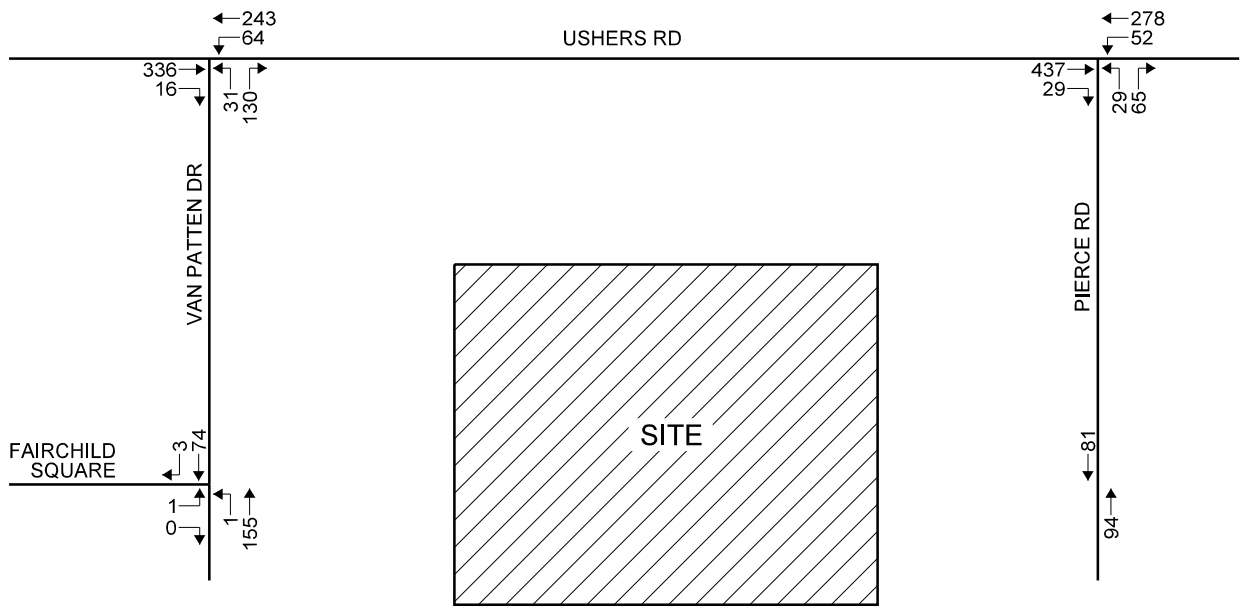


Alanna M. Moran, I.E.
Project Engineer

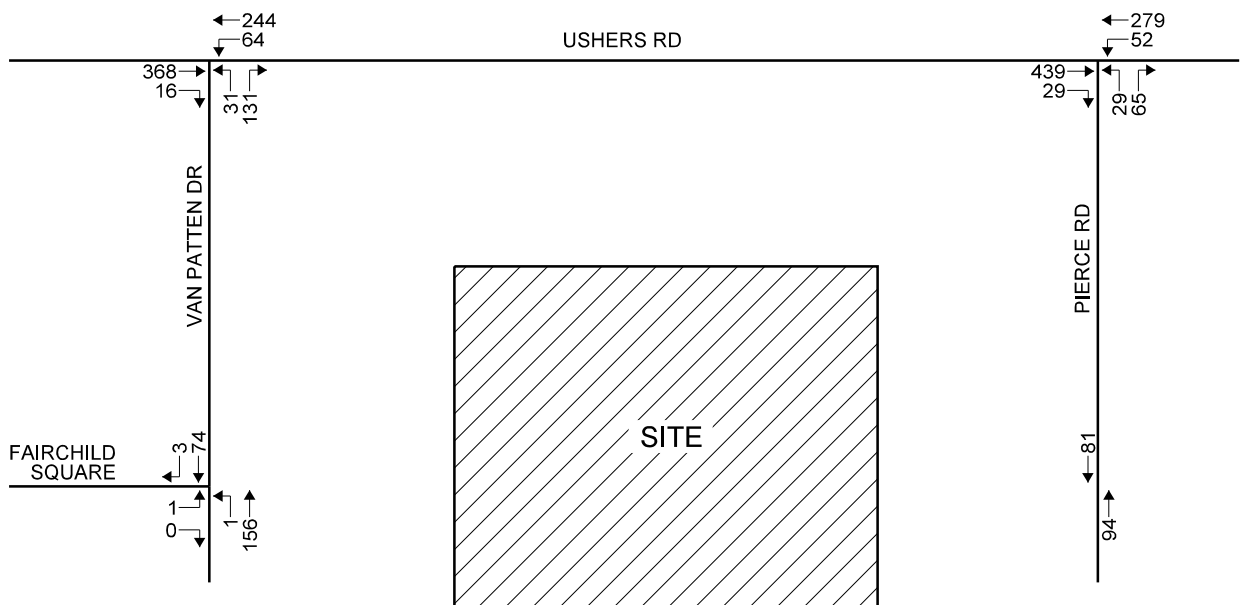
Attachments

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2016 EXISTING



2017 NO-BUILD

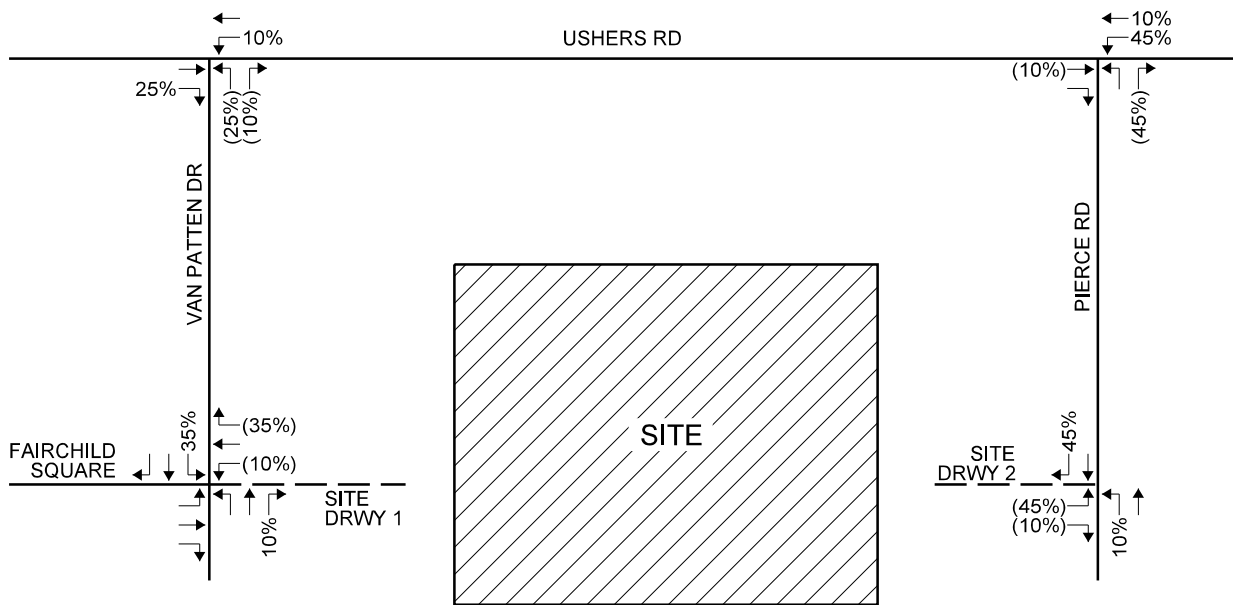


SUNDAY MORNING
TRAFFIC VOLUMES

NORTHWAY CHURCH RELOCATION
TOWN OF CLIFTON PARK, NEW YORK

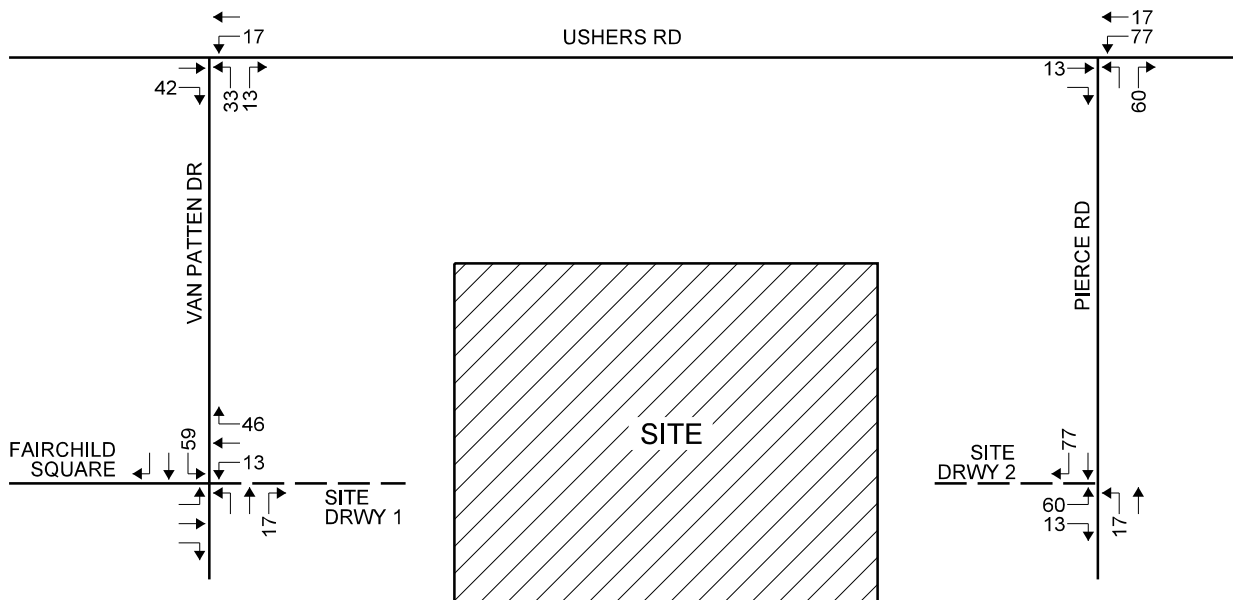


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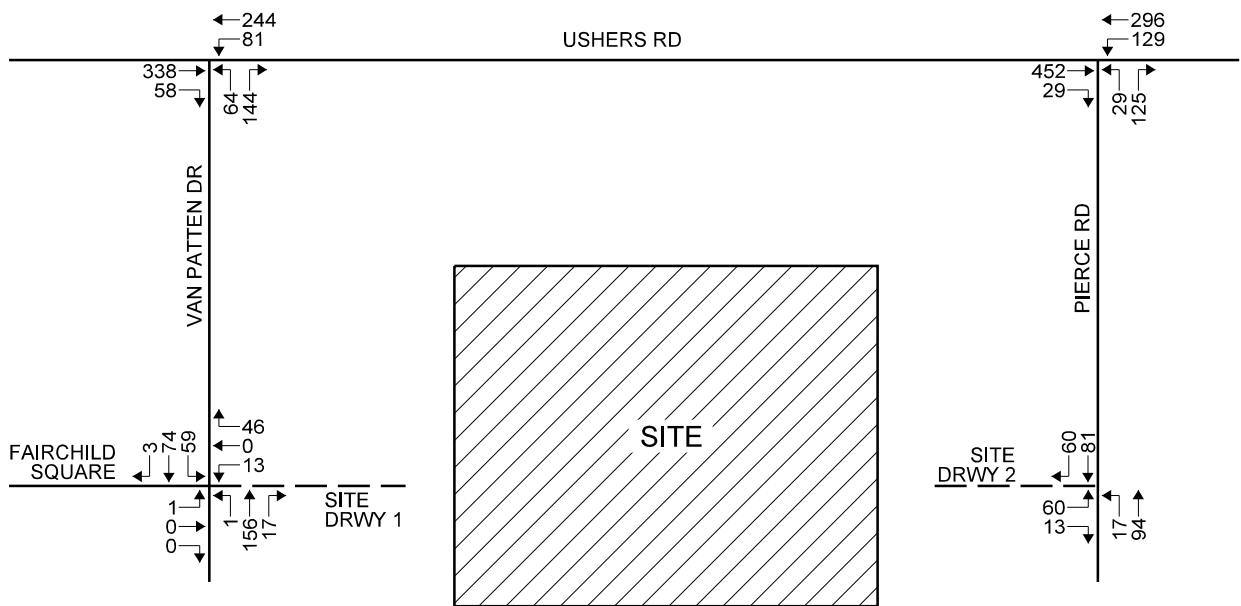
SUNDAY MORNING
TRAFFIC VOLUMES

NORTHWAY CHURCH RELOCATION
TOWN OF CLIFTON PARK, NEW YORK





2017 BUILD



SUNDAY MORNING
TRAFFIC VOLUMES

NORTHWAY CHURCH RELOCATION
TOWN OF CLIFTON PARK, NEW YORK



PROJECT: 116-064

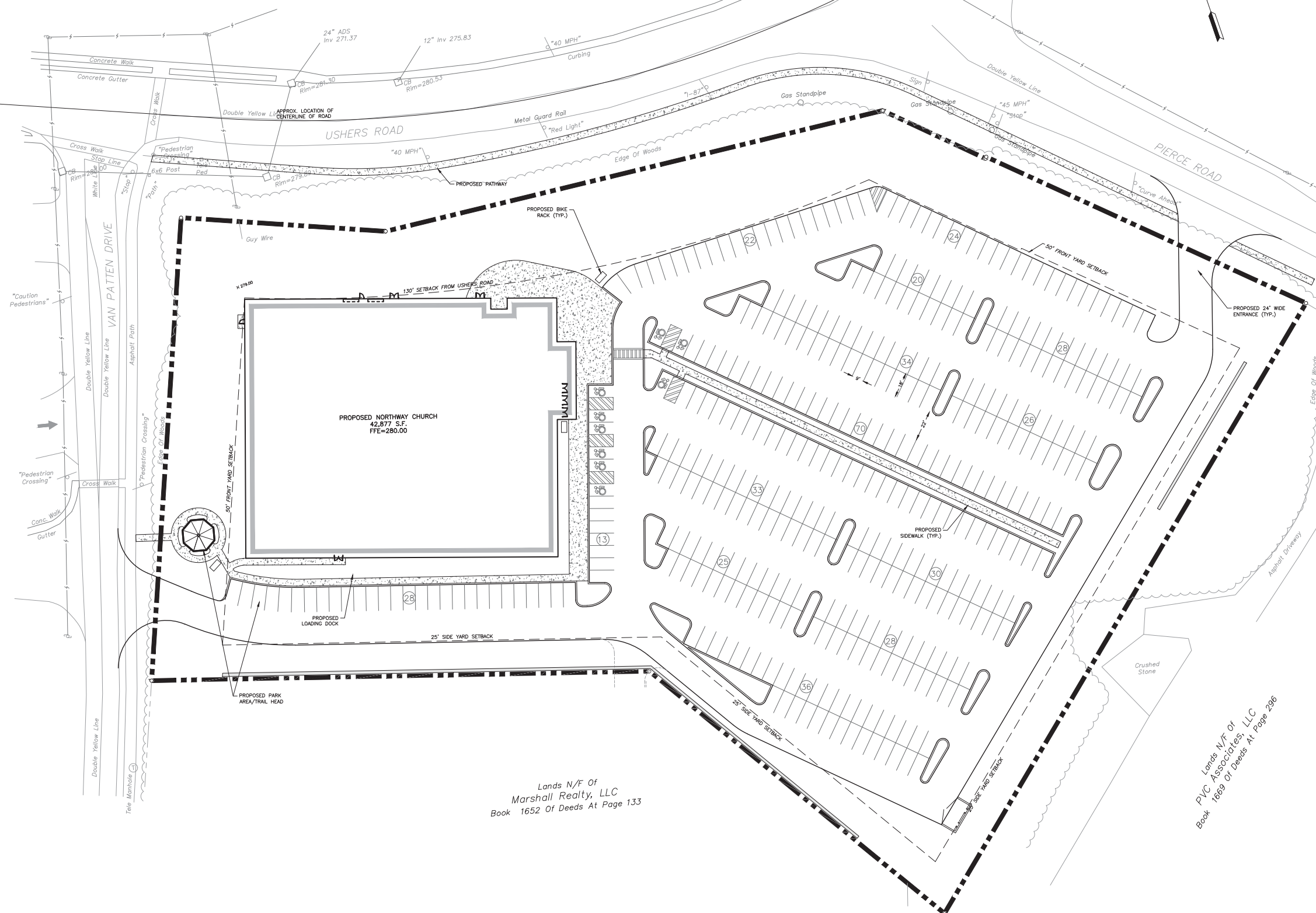
DATE: 06/2016

FIGURE: 3

Attachment A
Site Plan

Northway Church
Town of Clifton Park, New York

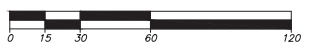
SITE STATISTICS	
EXISTING ZONING	LIGHT INDUSTRIAL (LI)
MINIMUM LOT AREA	1.0 AC
PARCEL AREA	6.83± AC
MINIMUM LOT WIDTH	200 FT
MINIMUM GREENSPACE	40% (35.3% PROVIDED)
BUILDING PROPERTIES	1-STORY CHURCH 41,218 S.F.
REQUIRED PARKING	1 PER 4 SEATS 1,205 SEATS/4 SEAT = 302 STALLS
PROVIDED PARKING	417 STALLS (9 HANDICAP STALLS)
MINIMUM BUILDING SETBACKS	130' SETBACK FROM USHERS ROAD 50' FRONT SETBACK 25' SIDE/REAR SETBACK 25' BUFFER REQ'D ON REAR/SIDE YARD
SITE COVERAGE STATISTICS	
BUILDING COVERAGE	41,218 S.F. = 13.8%
GREEN SPACE	102,037 S.F. = 34.3%
PAVED / PARKING	154,366 S.F. = 51.9%



PROPOSED NORTHWAY CHURCH
42,877 S.F.
FFE=280.00

Lands N/F Of
Marshall Realty, LLC
Book 1652 Of Deeds At Page 133

Lands N/F of
PVC Associates, LLC
Book 1669 of Deeds At Page 296



UNAUTHORIZED
ADDITION TO THIS
DRAWING IS PROHIBITED
DATE: 6/28/2016
LOCATION OF THE NYS
REGISTERED PROFESSIONAL
ENGINEER'S SEAL
LANSING ENGINEERING, INC.

PRELIMINARY / NOT FOR CONSTRUCTION



NORTHWAY CHURCH USHERS ROAD
USHERS ROAD AND PIERCE ROAD, TOWN OF CLIFTON PARK, SARATOGA COUNTY, NEW YORK

CONCEPTUAL
SITE PLAN

PROJ. NO: 773.00
SCALE: AS SHOWN
DATE: 6/28/2016
CSP-1
SHEET 1 OF 1

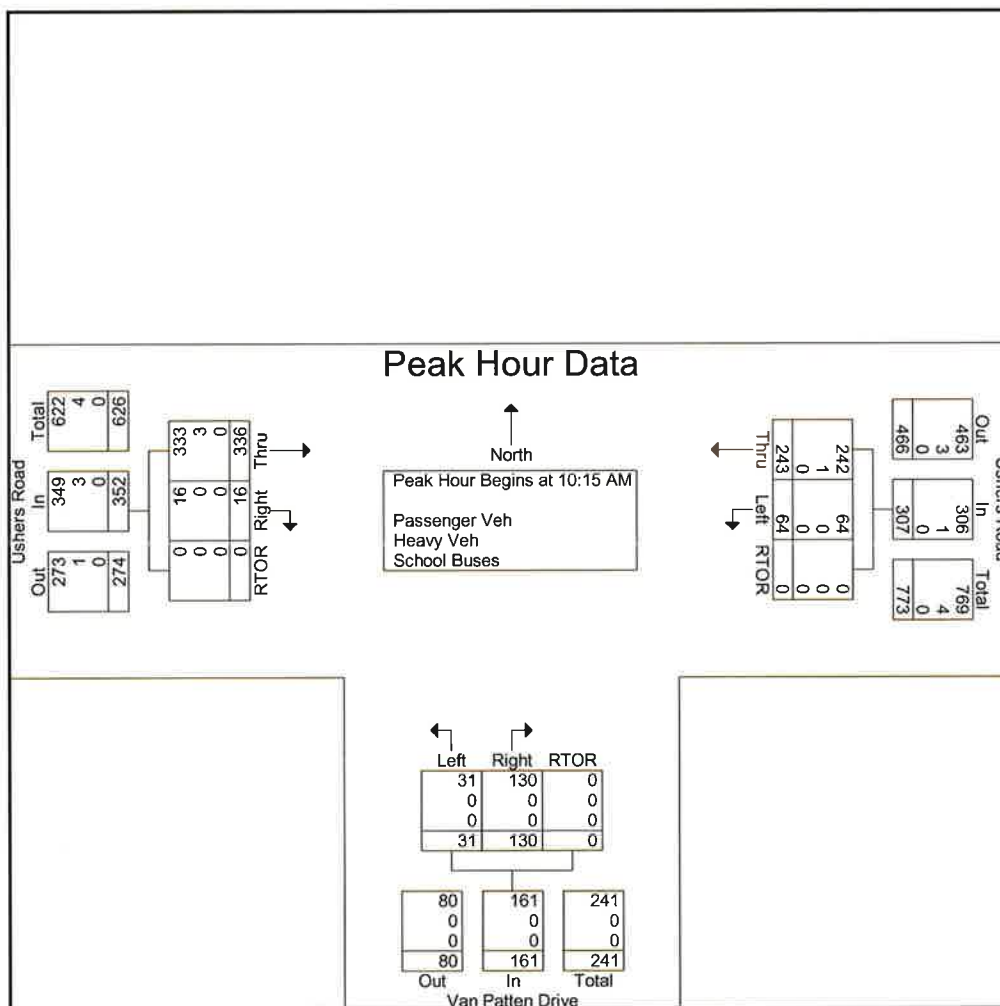
Attachment B
Traffic Volume Data

Northway Church
Town of Clifton Park, New York

Project No.: 116-064
 Counted By: DJK
 Location: Clifton Park, NY
 Comments:

File Name : TM116064SUN2
 Site Code : 16-064-2
 Start Date : 5/22/2016
 Page No : 2

Start Time	Ushers Road Eastbound				Ushers Road Westbound				Van Patten Drive Northbound				Int. Total
	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	
Peak Hour Analysis From 10:15:00 AM to 12:00:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 10:15:00 AM													
10:15:00 AM	61	4	0	65	12	67	0	79	3	26	0	29	173
10:30:00 AM	75	1	0	76	12	59	0	71	8	31	0	39	186
10:45:00 AM	127	5	0	132	14	54	0	68	8	48	0	56	256
11:00:00 AM	73	6	0	79	26	63	0	89	12	25	0	37	205
Total Volume	336	16	0	352	64	243	0	307	31	130	0	161	820
% App. Total	95.5	4.5	0		20.8	79.2	0		19.3	80.7	0		
PHF	.661	.667	.000	.667	.615	.907	.000	.862	.646	.677	.000	.719	.801
Passenger Veh	333	16	0	349	64	242	0	306	31	130	0	161	816
% Passenger Veh	99.1	100	0	99.1	100	99.6	0	99.7	100	100	0	100	99.5
Heavy Veh	3	0	0	3	0	1	0	1	0	0	0	0	4
% Heavy Veh	0.9	0	0	0.9	0	0.4	0	0.3	0	0	0	0	0.5
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0

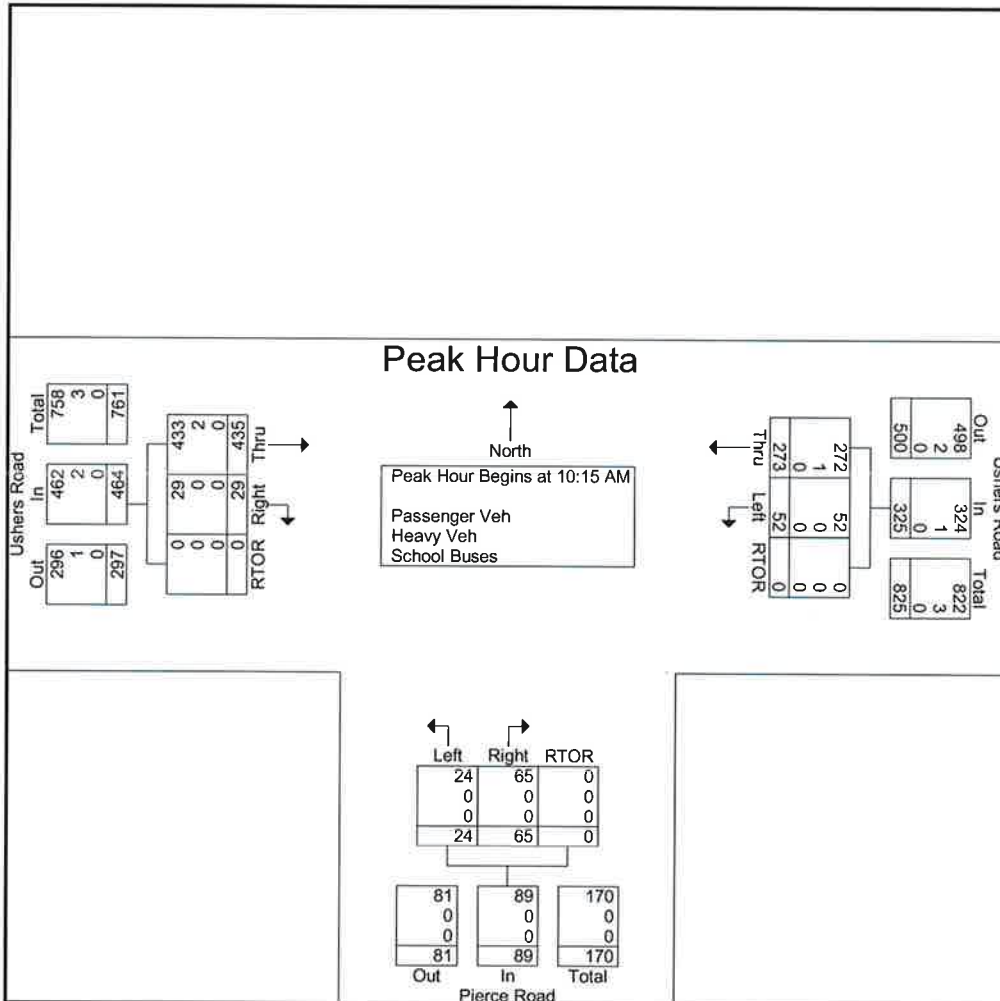




Project No.: 116-064
 Counted By: DMQ
 Location: Clifton Park, NY
 Comments:

File Name : TM116064SUN3
 Site Code : 16-064-3
 Start Date : 5/22/2016
 Page No : 2

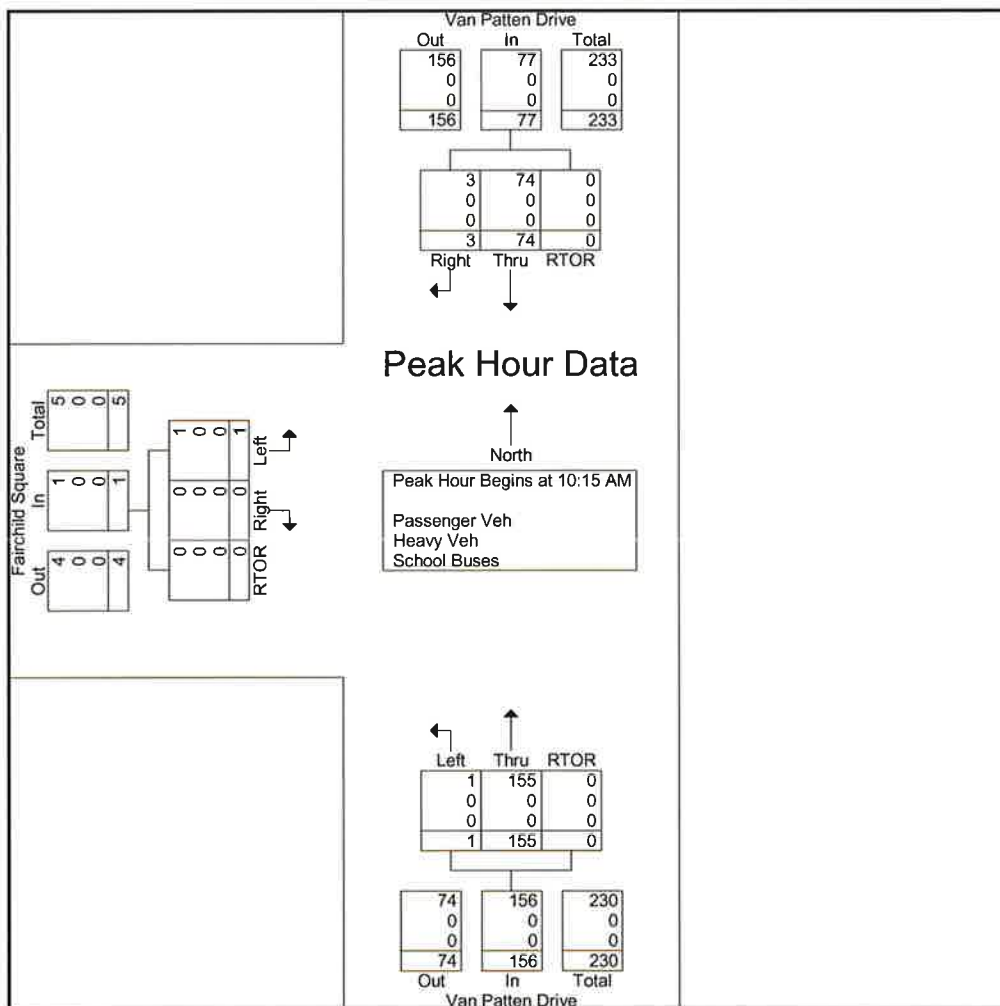
Start Time	Ushers Road Eastbound				Ushers Road Westbound				Pierce Road Northbound				Int. Total
	Thru	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Left	Right	RTOR	App. Total	
Peak Hour Analysis From 10:15:00 AM to 11:00:00 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 10:15:00 AM													
10:15:00 AM	79	4	0	83	11	76	0	87	3	16	0	19	189
10:30:00 AM	91	8	0	99	13	61	0	74	9	10	0	19	192
10:45:00 AM	156	13	0	169	14	58	0	72	4	23	0	27	268
11:00:00 AM	109	4	0	113	14	78	0	92	8	16	0	24	229
Total Volume	435	29	0	464	52	273	0	325	24	65	0	89	878
% App. Total	93.8	6.2	0		16	84	0		27	73	0		
PHF	.697	.558	.000	.686	.929	.875	.000	.883	.667	.707	.000	.824	.819
Passenger Veh	433	29	0	462	52	272	0	324	24	65	0	89	875
% Passenger Veh	99.5	100	0	99.6	100	99.6	0	99.7	100	100	0	100	99.7
Heavy Veh	2	0	0	2	0	1	0	1	0	0	0	0	3
% Heavy Veh	0.5	0	0	0.4	0	0.4	0	0.3	0	0	0	0	0.3
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0



Project No.: 116-064
 Counted By: JSG
 Location: Clifton Park, NY
 Comments:

File Name : TM116064SUN4
 Site Code : 16-064-4
 Start Date : 5/22/2016
 Page No : 2

Start Time	Fairchild Square Eastbound				Van Patten Drive Northbound				Van Patten Drive Southbound				Int. Total
	Left	Right	RTOR	App. Total	Left	Thru	RTOR	App. Total	Thru	Right	RTOR	App. Total	
Peak Hour Analysis From 10:15:00 AM to 12:00:00 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 10:15:00 AM													
10:15:00 AM	0	0	0	0	1	27	0	28	15	0	0	15	43
10:30:00 AM	0	0	0	0	0	42	0	42	11	0	0	11	53
10:45:00 AM	0	0	0	0	0	53	0	53	19	0	0	19	72
11:00:00 AM	1	0	0	1	0	33	0	33	29	3	0	32	66
Total Volume	1	0	0	1	1	155	0	156	74	3	0	77	234
% App. Total	100	0	0	100	0.6	99.4	0	100	96.1	3.9	0	100	100
PHF	.250	.000	.000	.250	.250	.731	.000	.736	.638	.250	.000	.602	.813
Passenger Veh	1	0	0	1	1	155	0	156	74	3	0	77	234
% Passenger Veh	100	0	0	100	100	100	0	100	100	100	0	100	100
Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Veh	0	0	0	0	0	0	0	0	0	0	0	0	0
School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0
% School Buses	0	0	0	0	0	0	0	0	0	0	0	0	0



Attachment C
Level of Service Analyses

Northway Church
Town of Clifton Park, New York

Intersection

Int Delay, s/veh 3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	336	16	64	243	31	130
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	420	20	80	304	39	162

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	440	0	742	431
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	312	-
Critical Hdwy	-	-	4.1	-	6.8	6.3
Critical Hdwy Stg 1	-	-	-	-	5.6	-
Critical Hdwy Stg 2	-	-	-	-	6	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1131	-	355	621
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	709	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1130	-	325	621
Mov Cap-2 Maneuver	-	-	-	-	325	-
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	648	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	325	621	-	-	1130	-
HCM Lane V/C Ratio	0.119	0.262	-	-	0.071	-
HCM Control Delay (s)	17.6	12.8	-	-	8.4	0.2
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	1	-	-	0.2	-

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	437	29	52	278	29	65
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	237
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	533	35	63	339	35	79

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	568
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1014
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1014
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	269	522	-	-	1014	-
HCM Lane V/C Ratio	0.131	0.152	-	-	0.063	-
HCM Control Delay (s)	20.4	13.1	-	-	8.8	0.2
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	0.5	-	-	0.2	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	1	0	1	155	74	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	3	-3	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	1	191	91	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	287	93	95	0	-	0
Stage 1	93	-	-	-	-	-
Stage 2	194	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	708	970	1512	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	707	970	1512	-	-	-
Mov Cap-2 Maneuver	707	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	10.1		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1512	-	707	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.4	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 3.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	338	16	64	244	31	131
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	422	20	80	305	39	164

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	443
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.1
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.2
Pot Cap-1 Maneuver	-	-	1128
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1127
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.9	13.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	619	-	-	1127	-
HCM Lane V/C Ratio	0.12	0.265	-	-	0.071	-
HCM Control Delay (s)	17.7	12.9	-	-	8.4	0.2
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.4	1.1	-	-	0.2	-

Intersection

Int Delay, s/veh 2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	439	29	52	279	29	65
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	237
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	535	35	63	340	35	79

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	571	0	850	553
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	297	-
Critical Hdwy	-	-	4.1	-	7	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1012	-	289	520
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	710	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1012	-	267	520
Mov Cap-2 Maneuver	-	-	-	-	267	-
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	655	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.6	15.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	267	520	-	-	1012	-
HCM Lane V/C Ratio	0.132	0.152	-	-	0.063	-
HCM Control Delay (s)	20.5	13.2	-	-	8.8	0.2
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	0.5	0.5	-	-	0.2	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	1	0	1	156	74	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	3	-3	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	0	1	193	91	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	288	93	95	0	-	0
Stage 1	93	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	707	970	1512	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	706	970	1512	-	-	-
Mov Cap-2 Maneuver	706	-	-	-	-	-
Stage 1	936	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB		NB		SB
HCM Control Delay, s	10.1		0		0
HCM LOS	B				

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1512	-	706	-	-
HCM Lane V/C Ratio	0.001	-	0.002	-	-
HCM Control Delay (s)	7.4	0	10.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection

Int Delay, s/veh 4.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	338	58	81	244	64	144
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	422	72	101	305	80	180

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	0	0	495	0
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Critical Hdwy	-	-	4.1	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	-	-	2.2	-
Pot Cap-1 Maneuver	-	-	1079	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Platoon blocked, %	-	-	-	-
Mov Cap-1 Maneuver	-	-	1078	-
Mov Cap-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.4	16.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	284	598	-	-	1078	-
HCM Lane V/C Ratio	0.282	0.301	-	-	0.094	-
HCM Control Delay (s)	22.6	13.6	-	-	8.7	0.3
HCM Lane LOS	C	B	-	-	A	A
HCM 95th %tile Q(veh)	1.1	1.3	-	-	0.3	-

Intersection

Int Delay, s/veh 3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	452	29	129	296	29	125
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	237
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	551	35	157	361	35	152

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	587
Stage 1	-	-	569
Stage 2	-	-	495
Critical Hdwy	-	4.1	7
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	6.2
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	998	209
Stage 1	-	-	535
Stage 2	-	-	552
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	998	168
Mov Cap-2 Maneuver	-	-	168
Stage 1	-	-	535
Stage 2	-	-	443

Approach	EB	WB	NB
HCM Control Delay, s	0	3.2	18.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	168	509	-	-	998	-
HCM Lane V/C Ratio	0.211	0.299	-	-	0.158	-
HCM Control Delay (s)	32.1	15.1	-	-	9.3	0.5
HCM Lane LOS	D	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	1.2	-	-	0.6	-

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	0	13	0	46	1	156	17	59	74	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	3	-	-	-3	-
Peak Hour Factor	81	92	81	92	92	92	81	81	92	92	81	81
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	1	0	0	14	0	50	1	193	18	64	91	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	450	435	93	425	427	202	95	0	0	211	0	0
Stage 1	221	221	-	204	204	-	-	-	-	-	-	-
Stage 2	229	214	-	221	223	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	523	514	970	540	520	839	1512	-	-	1360	-	-
Stage 1	786	720	-	798	733	-	-	-	-	-	-	-
Stage 2	778	725	-	781	719	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	473	488	970	519	494	839	1512	-	-	1360	-	-
Mov Cap-2 Maneuver	473	488	-	519	494	-	-	-	-	-	-	-
Stage 1	785	684	-	797	732	-	-	-	-	-	-	-
Stage 2	731	724	-	742	683	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	10.3	0	3.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1512	-	-	473	739	1360	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.087	0.047	-	-
HCM Control Delay (s)	7.4	0	-	12.6	10.3	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0.1	-	-

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	60	13	17	94	81	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	65	14	18	102	88	65

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	260	121	153	0	-	0
Stage 1	121	-	-	-	-	-
Stage 2	139	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	729	930	1428	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	888	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	720	930	1428	-	-	-
Mov Cap-2 Maneuver	720	-	-	-	-	-
Stage 1	904	-	-	-	-	-
Stage 2	876	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.4	1.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1428	-	750	-	-
HCM Lane V/C Ratio	0.013	-	0.106	-	-
HCM Control Delay (s)	7.6	0	10.4	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Intersection

Int Delay, s/veh 5.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	338	80	90	244	80	151
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	25	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	1	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	422	100	112	305	100	189

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	523
Stage 1	-	-	473
Stage 2	-	-	378
Critical Hdwy	-	4.1	6.8
Critical Hdwy Stg 1	-	-	5.6
Critical Hdwy Stg 2	-	-	6
Follow-up Hdwy	-	2.2	3.5
Pot Cap-1 Maneuver	-	1054	303
Stage 1	-	-	615
Stage 2	-	-	655
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	1053	264
Mov Cap-2 Maneuver	-	-	264
Stage 1	-	-	615
Stage 2	-	-	570

Approach	EB	WB	NB
HCM Control Delay, s	0	2.6	18.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	264	587	-	-	1053	-
HCM Lane V/C Ratio	0.379	0.322	-	-	0.107	-
HCM Control Delay (s)	26.7	14	-	-	8.8	0.3
HCM Lane LOS	D	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	1.4	-	-	0.4	-

Intersection

Int Delay, s/veh 4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	459	29	167	305	29	154
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	237
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	1	-	-	-1	2	-
Peak Hour Factor	82	82	82	82	82	82
Heavy Vehicles, %	1	0	0	1	0	0
Mvmt Flow	560	35	204	372	35	188

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	595	0	1170	577
Stage 1	-	-	-	-	577	-
Stage 2	-	-	-	-	593	-
Critical Hdwy	-	-	4.1	-	7	6.4
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	6.2	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	991	-	177	504
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	991	-	131	504
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	530	-
Stage 2	-	-	-	-	361	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.8	20.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	131	504	-	-	991	-
HCM Lane V/C Ratio	0.27	0.373	-	-	0.206	-
HCM Control Delay (s)	42.3	16.3	-	-	9.6	0.6
HCM Lane LOS	E	C	-	-	A	A
HCM 95th %tile Q(veh)	1	1.7	-	-	0.8	-

Intersection

Int Delay, s/veh 3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	0	0	20	0	69	1	156	25	90	74	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	3	-	-	-3	-
Peak Hour Factor	81	92	81	92	92	92	81	81	92	92	81	81
Heavy Vehicles, %	0	2	0	2	2	2	0	0	2	2	0	0
Mvmt Flow	1	0	0	22	0	75	1	193	27	98	91	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	535	511	93	498	500	206	95	0	0	220	0	0
Stage 1	289	289	-	209	209	-	-	-	-	-	-	-
Stage 2	246	222	-	289	291	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.52	6.2	7.12	6.52	6.22	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4.018	3.3	3.518	4.018	3.318	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	459	466	970	483	473	835	1512	-	-	1349	-	-
Stage 1	723	673	-	793	729	-	-	-	-	-	-	-
Stage 2	762	720	-	719	672	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	393	430	970	454	436	835	1512	-	-	1349	-	-
Mov Cap-2 Maneuver	393	430	-	454	436	-	-	-	-	-	-	-
Stage 1	722	621	-	792	728	-	-	-	-	-	-	-
Stage 2	693	719	-	664	620	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.2	10.9	0	4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1512	-	-	393	703	1349	-	-
HCM Lane V/C Ratio	0.001	-	-	0.003	0.138	0.073	-	-
HCM Control Delay (s)	7.4	0	-	14.2	10.9	7.9	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.5	0.2	-	-

Intersection

Int Delay, s/veh 3.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	89	20	25	94	81	115
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	2	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	97	22	27	102	88	125

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	308	151	213	0	-	0
Stage 1	151	-	-	-	-	-
Stage 2	157	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	684	895	1357	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	871	-	-	-	-	-
Platoon blocked, %						
Mov Cap-1 Maneuver	670	895	1357	-	-	-
Mov Cap-2 Maneuver	670	-	-	-	-	-
Stage 1	877	-	-	-	-	-
Stage 2	853	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	1.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1357	-	702	-	-
HCM Lane V/C Ratio	0.02	-	0.169	-	-
HCM Control Delay (s)	7.7	0	11.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-