A photograph of a street intersection in Winthrop, MA. The scene shows a four-way intersection with traffic lights. In the background, there is a laundry store with signs for "LAUNDRY & MORE" and "WASH - DRY - FOLD SERVICE". The sky is overcast and grey. The text "PLEASANT STREET AND MAIN STREET INTERSECTION IMPROVEMENT STUDY" is overlaid in large, bold, black letters across the center of the image.

PLEASANT STREET AND MAIN STREET INTERSECTION IMPROVEMENT STUDY

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1.0 EXECUTIVE SUMMARY

This report documents existing operational and safety-related characteristics of the intersection of Main Street at Pleasant Street. The signal operational characteristics of this intersection including safety related analyses were performed, and recommendations for improving the existing conditions are provided within this document.

Capacity analyses were performed for the intersection in-order to determine current operations for two critical time periods: weekday morning, and weekday evening peak hours. These peak time periods generate the most traffic volume, and have a critical impact on the overall mobility for the Town of Winthrop. Main Street being the gateway into Winthrop from the West and Pleasant Street being the main arterial route serving both residential and recreational traffic, makes the combination of these two streets one of the most important mobility assets in the Town of Winthrop.

Study findings revealed that intersection improvements including geometric, and signal timing improvements, would greatly improve the safety of the intersection for pedestrian, cyclist, and motor vehicle traffic. Improvements such as curb extensions, raised crosswalks, and refuge islands would facilitate these measures. In addition, removal of the existing traffic signal, and the installation of a modern roundabout was considered. This would improve the efficiency at the intersection and provide a safer flow of vehicular traffic since crashes would be limited to sideswipes or rear end collisions.

1.1 INTRODUCTION

This report presents an examination of the operations of the intersection of Pleasant Street and Main Street in Winthrop, Massachusetts and proposes improvements that could be made in terms of the overarching goals of safety, and mobility, within the local characteristics of the Town of Winthrop. The analysis was conducted using data collected according to the guidelines per the state of Massachusetts Department of Transportation (MassDOT).

1.2 STUDY PLAN

This intersection improvement transportation study is conducted in accordance with MassDOT, and The Institute Transportation Engineers (ITE) guidelines. The steps in the process include:

- Phase One – Documenting existing conditions in the transportation study area including:
 - Inventory of roadway geometry
 - Observed traffic volumes
 - Historical crash characteristics
- Phase Two – Traffic characterization including:
 - Traffic volumes by mode
 - Peak Hour Traffic data
 - Safety Audit
- Phase Three - Detailed analysis and calculation of operating characteristics of study intersection including:
 - Identification of existing deficiencies
 - Identification of safety audit improvements
 - Identification of warranted improvements
- Phase Four – Mitigation measures including:
 - Addressing specific deficiencies in the transportation study area
 - Proposed related traffic improvements

1.3 STUDY AREA

The project study area is confined primarily to the intersection of Pleasant Street and Main Street and respective approaches. The primary evaluation focuses on the current operational characteristics of the intersection from the following perspectives:

- Ensure safety for all users; pedestrian, bicyclists, automobiles and commercial vehicles while traversing in the vicinity of the intersection.
- Efficient travel with minimal delay to all users.
- Connectivity of this intersection to the overall street network in Winthrop and beyond.
- As the main gateway of the Town of Winthrop, examine the contextual fitness of the intersection into the character and land-use of the town.



Figure 1 – Study Area

2.0 CURRENT CONDITONS

This portion of the study analyzes the transportation impacts of the project, the existing roadway system, and the existing traffic operations of the study area roadways. Sections of this chapter present an overview of the data collection program, existing traffic volumes, and safety issues.

2.1 SITE AREA ROAD NETWORK

General description of the roadway physical features and intersection features is given below. The study area includes roadways under county and local jurisdictions.

2.2 ROADWAYS

2.2.1 Pleasant Street (Route 145)

Pleasant Street is a North-South Federal Aid Minor Urban Arterial (See Figure 2). Some of the geometrical features of the roadway at the northbound approach include the following:

- 26-foot roadway width with parking prohibited 81 feet from the intersection with Main Street
- Six (6) foot sidewalk along the first 37 feet of the easterly side of Pleasant Street, which turns into a 4-foot sidewalk with a 2-foot tree lawn.
- Seven (7) foot sidewalk along the westerly portion of Pleasant Street.
- 26-foot crosswalk recessed approximately 25 feet from the intersection with Main Street, with non-ADA compliant wheelchair ramps
- Traffic control devices.



Figure 2 – Pleasant Street at Main Street Northbound Approach

Pleasant Streets south of Main Street is designated as State Route 145 under county jurisdiction (See Figure 3). Pleasant Street is one of the main arterial belt roads in Winthrop. State Route 145 turns into Main Street at the signalized approach and continues towards East Boston over the Belle Isle Bridge which was re-built in 2015. Land use along this roadway is composed of a mix of residential, commercial, and light industrial uses. The intersection of Pleasant with Main Street is operating as a signalized intersection. In the vicinity of Pleasant and Main Street are several access points into and out of Pleasant Street that operate under one-way stop-sign control. The posted speed limit along Pleasant Street in the vicinity of the project site is 30 miles per hour (mph). Some of the geometric features of the southbound approach include:

- Two (2) lanes with 13 Ft. wide travel-lanes
- Seven and a half (7.5) foot sidewalk along the westerly portion of Pleasant Street
- Seven-foot sidewalk along the easterly portion of Pleasant Street
- Flared intersection with an approximately 90-foot radius along the westerly approach, and 60-foot radius along the easterly approach.
- Splitter Island
- A 108-foot crosswalk, with non-ADA compliant wheelchair ramps.
- Traffic control devices



Figure 3 – Pleasant Street at Main Street Southbound Approach

2.2.2 Main Street

Main Street is one of the main arterial roadways into Winthrop and serves as the business district road in Winthrop. (See Figure 4) Main Street is an East-West route from Saratoga Street to Cross Street. Some of the geometric features of the easterly approach include the following:

- An approximate roadway width of 42 feet, approximately 21 feet on either side.
- Parking is prohibited along the northerly side of Main Street, while parking is allowed approximately 53' from the intersection of Main Street and Pleasant Street along the southerly portion of the road.
- There is an MBTA bus stop along the southerly portion of Main Street.
- There is a six and a half (6.5)-foot sidewalk along the northerly side of Main Street, and a six (6)-foot sidewalk along the southerly portion of Main Street.
- A 50-foot crosswalk with non-ADA compliant wheelchair ramps.
- Traffic Control Devices



Figure 4 – Main Street at Pleasant Street Eastbound Approach

Along the east bound approach of Main Street, (See Figure 5) some of the geometric features include:

- An approximate roadway width of 45 feet, approximately 22.5 feet on either side.
- Parking is prohibited along both sides of the westbound approach.
- There is a MBTA bus stop along the northerly portion of Main Street.
- There are 6-foot sidewalks along the southerly side of Main Street and 7-foot sidewalk at the northerly side of Main Street.
- The eastern approach of main street has a left turn, and a thru lane, while the westbound approach has a 22-foot thru lane.
- Traffic Control Devices



Figure 5 – Main Street at Pleasant Street Westbound Approach

2.3 INTERSECTIONS

2.3.1 Main Street and Pleasant Street

The intersection of Main Street and Pleasant Street form a four-leg intersection with two travel lanes in each direction (See Figure 6). The Eastbound Main street approach has a right turn lane into Pleasant Street. The Main Street eastbound approach with Pleasant Street forms a skewed intersection with a radius that is approximately 60'. The Main Street eastbound approach with Pleasant Street also forms a skewed intersection creating a 90-foot radius. The crosswalk length at this approach is over 108' with a short median island that does not provide for pedestrian refuge. The crosswalk at the westbound approach of Main Street is approximately 50 feet long. The Main Street westbound approach has a dedicated right turn lane and a thru lane, while the eastbound approach has a thru lane.

The Pleasant Street Northbound approach has a 26-foot roadway width that forms two 13-foot travel lanes in either direction. The roadway flares out at both approaches at Main Street. The southbound Pleasant Street approach forms a standard orthogonal type intersection. The crosswalk for this approach is recessed approximately 25 feet from the intersection with Main Street and has a length of 26 feet.

There are traffic control devices at all the four approaches of this intersection. The wheelchair ramps observed during our inspection were all non-ADA compliant ramps. The bicycle accommodations in the area included shared use lanes at all approaches with the exception of the northbound Pleasant Street approach.

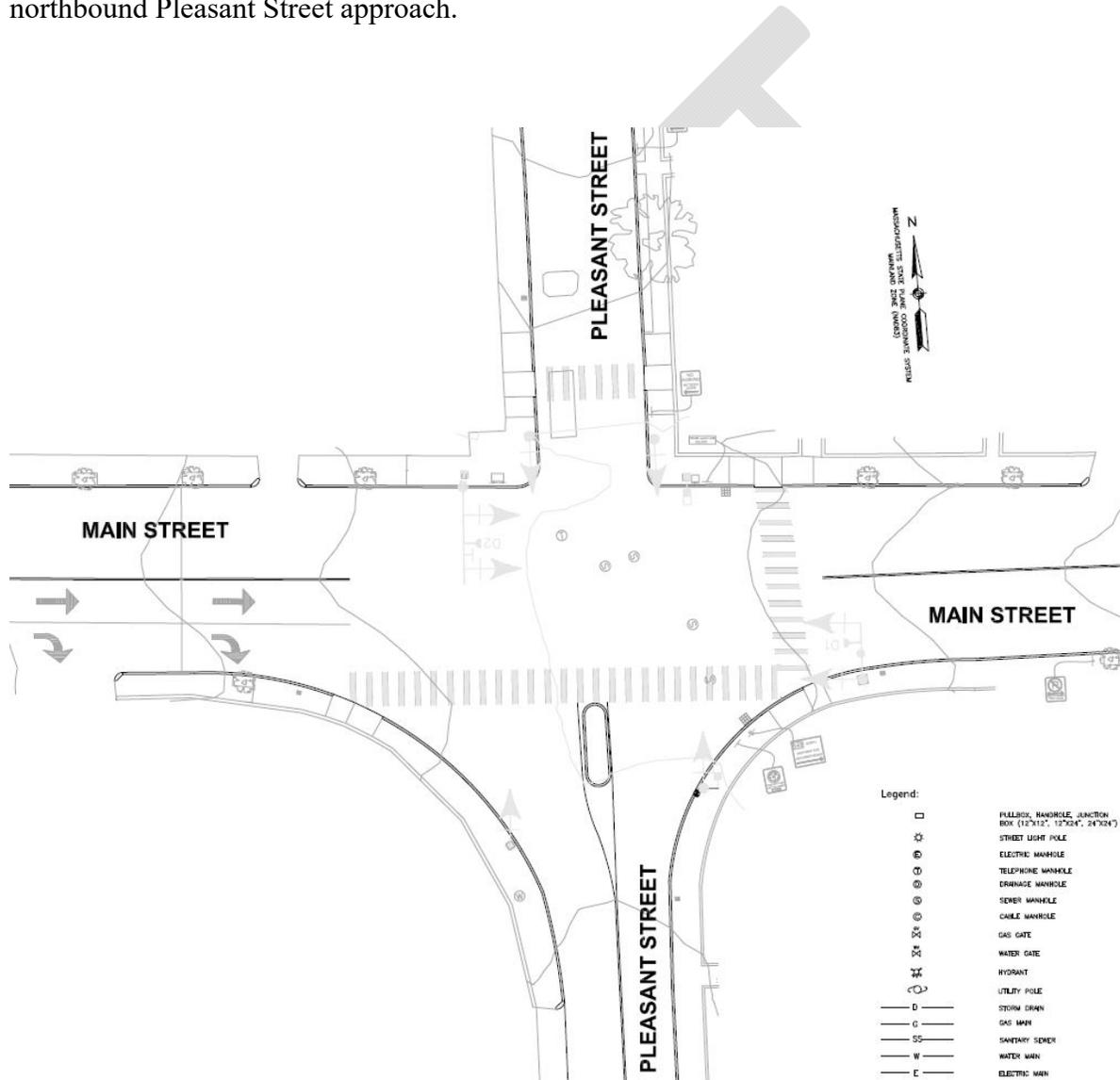


FIGURE 6 – Existing Conditions - Intersection of Main Street at Pleasant Street

2.4 EXISTING TRAFFIC DATA

Traffic data for this study was derived from video data provided by the Town of Winthrop Police department. This data was compiled by staff and the peak hour traffic data was determined to be weekday morning peak (7:00 to 9:00 AM) and weekday evening peak periods (4:00 to 6:00 PM). These hours represent the peak periods of traffic activity for the intersection.

2.5 TRAFFIC VOLUMES

The traffic volumes for this study were done by staff using video provided by the Town of Winthrop Police department and reduced in a tabular format. Table 1 below shows the forty-eight (48) hour count taken at the intersection of Main Street and Pleasant Street.

Travel Mode	Dates		Total Volumes
	1/28/2020	1/29/2020	
Bicycle	28	24	52
Car	21,934	21,207	43,141
Pedestrian	383	343	726
Truck	1,401	1,180	2,581
Total Result	23,746	22,754	46,500

Table 1 - Existing Roadway Traffic - Volume Daily Summary by Travel Mode

Direction	Date		Total Result
	1/28/2020	1/28/2020	
EB	5,041	5,477	10,518
NB	5,524	5,962	11,486
Pedestrian NB	109	111	220
Pedestrian SB	232	232	464
SB	9,815	10,444	20,259
WB	471	528	999

Table 2: Existing Roadway Traffic-Volume by Direction Summary

Movement Direction	Weekday Daily Volume (vpd) (a)	Weekday Morning Peak Hour (7:15-8:5AM)		Weekday Evening Peak Hour (4:15-5:15 PM)		% Daily Volume	
		Volume (vph) (b)	Predominant Flow (vph)(c)	Volume (vph)	Predominant Flow	AM Peak	PM Peak
Westbound	6,253	496	57.1%	306	23.80%	7.9%	4.9%
Eastbound	10,413	372	42.9%	982	76.20%	3.6%	9.4%
Northbound	5,723	570	90.3%	308	88.50%	10.0%	5.4%
Southbound	500	61	9.7%	40	11.50%	12.2%	8.0%
Total	22,887	1,499	100.0%	1636	100.00%	6.5%	7.1%

Source: Derived from Video Log by Winthrop Police Dept.

a- Two-way daily traffic expressed in vehicles per day.

b- Two-way peak-hour volume expressed in vehicles per hour.

c-The percent of daily traffic that occurs during the peak hour.

d-NB northbound; SB southbound;WB westbound; EB eastbound.

Table 3: Existing Peak Hour Volumes

As presented in Table 3, 22,887 vehicles travel Main St and Pleasant St intersection during a typical weekday, with 6.5 and 7.1 percent of the daily traffic occurring during the morning and evening peak hours, respectively.

2.5.1 Peak-hour Traffic

Morning and evening peak-hour traffic turning movement counts were computed from the video data including turning movement counts at Pleasant and Main Streets. During the morning peak hour (7:15 to 8:15 AM), the majority of traffic is oriented in the Westbound direction, which is primarily due to work trips to Boston. The heaviest traffic flows are experienced during the evening peak (4:15 to 5:15 PM), with trips coming from East Boston into Winthrop (Eastbound) direction.

2.6 VEHICLE SPEEDS

Vehicle speed is one of the major concerns, as this intersection serves close to 200 pedestrians per day. The crash intensity including one pedestrian bodily injury over the five year study period indicate that speed, as well as the geometric characteristics are important factors that contribute to the crash count in the vicinity of this intersection. A major speeding concern is the turning radius at the eastbound right turn leg of Main Street. The geometry of the turn lane at the intersection enables vehicles to travel at speeds that are higher than expected at right turns. The presence of a signal at the intersection is both a deterrent to speed during heavy volume periods and contributes to increase speeding during light volume times (vehicles beating the red light portion). Additional speed data will have to be collected in order to assess the impact of vehicle speeds at intersection.

2.7 PEDESTRIAN ACTIVITY

There is very significant pedestrian activity along the Main Street and Pleasant Street intersection. As the only west side main gateway into and out of Winthrop, the combination of Pleasant St and Main St is very important network serving as an arterial route network leading into the heart of the business and recreational centers of Winthrop. It is also very close to the downtown business center.

2.8 SIGHT DISTANCE ANALYSIS

Sight distances are deemed important due to the many driveway entrances in the vicinity of the intersection of Main St and Pleasant Street. With a posted speed limit of 30 MPH the stopping site distance per the standards established by American Association of State Highway and Transportation Officials (AASHTO) is approximately 200 feet. (Based on AASHTO's green book, "A Policy on Geometric Design 2018", minimum stopping sight distance requirements, for posted 30 mph speed is 200 feet) The stopping sight distance (SSD) is directly related to the speed of the approaching vehicle. The perception/reaction time of an approaching motorist and the required braking distance make up the total distance needed to avoid collision with a stationary object such as a vehicle stopped at the traffic light or a vehicle turning onto Main or Pleasant Street. A safety audit needs to be done to identify such things as obstructions to visibility of signal heads, entering vehicles, and presence of pedestrians especially at turns. Several of the crashes observed were left turn crashes involving auto/ pedestrian and auto/bicycle. Visibility, proper lighting and longer sight distances would alert pedestrians and motorists and give them time to respond appropriately.

It is recommended that a speed limit reduction be made to 25 mph primarily due to the presence of many entry points into both Pleasant and Main streets. The reduction in posted speed limit is consistent with crash severity reductions for non-motorized user safety. Also, an advisory sign is recommended to warn the motorists of the presence of entering/exiting vehicles from the site driveway. (Ref. A Policy on Geometric Design of Highways and Streets; American Association of State Highway and Transportation Officials (AASHTO); 2011).

2.9 CRASH DATA ANALYSIS

Crash data was analyzed to help identify trends and/or roadway safety deficiencies around the study area. The Winthrop Police Department provided crash reports and totals for the years 2017-2019. MassDOT crash data map was also consulted for the latest available data. A summary of the accident data with accident rates for each study area intersection are detailed in Table 5.

Crash rates were determined for the study area intersection. These rates quantify the number of crashes per million entering vehicles. MassDOT has determined the official year 2019 crash rates to be 0.66 for unsignalized intersections and 0.87 for signalized intersections. These rates represent "average" crash experience and serve as a basis for comparing reported crash rates for the study area intersections.

The 2017 crashes show a single pedestrian injury crash at Pleasant and Main St intersection. A total of 22 crashes were observed on the east bound approach of Main Street and Pleasant Streets. The majority of crashes involved property damage only, occurring outside the peak-commuter hours.

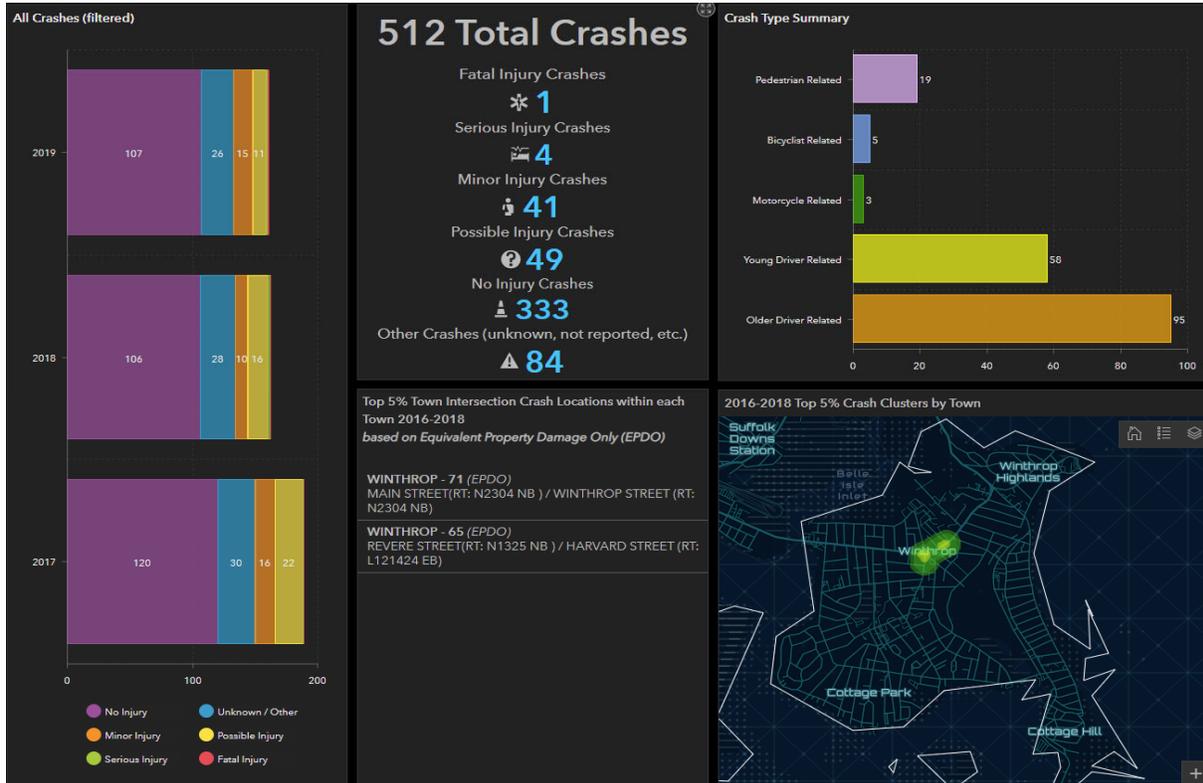


Figure 7: Winthrop Crash Data 2017-2019

Winthrop Ranking All Crashes (2013-2017)	
Ranking	Top 5
AADT	35794
MPO/RPA	Boston Region
Functional Class	Urban Minor Arterial or Rural Major Route
Facility Type	Urban 2 Lane Undivided
Route ID	SR145 NB
Street Name	Main Street
Jurisdiction	City or Town accepted road
Segment Length	0.08
City/Town	Winthrop
#Observed Crashes	22
#Expected Crashes	12.82
#Predicted Crashes	3.65
Excess Expected Crashes	9.17

Table 4: Winthrop Ranking All Crashes (2013-2017)

Crash Year	Crash Severity	Peak Hours			Total Result
		AMPeak	NonPeak	PMPeak	
2017	Peak Non Peak				
	Non-Fatal Injury	5	27	7	39
	Not Reported	3	20	5	28
	Property Damage	19	84	17	120
	Unknown		2		2
2018	Non-Fatal Injury	8	16	4	28
	Not Reported		4		4
	Property Damage	18	72	16	1062
	Unknown	6	16	2	24
2019	Fatal Injury		1		1
	Non-Fatal Injury	4	19	4	27
	Not Reported	3	16	3	22
	Property Damage	11	71	22	104
	Unknown		6	1	7
Total Result		77	354	81	512

Table 5: Types of Accidents by Period (2017-2019)

Crash Frequency

The crash frequency for the study intersection is shown in the heat map below (See Figure 8). The holes in the heat map show the most frequent crashes in the roadway network. The intersection of Main Street and Pleasant Street is shown to be one of the highest crash locations in Winthrop. The Figure 8 map has highest intensity where the hole is biggest I.E.,(at Pleasant and Main). A safety audit, including a speed study is recommended along both legs of the Main Street corridor to help identify specific crash trends.

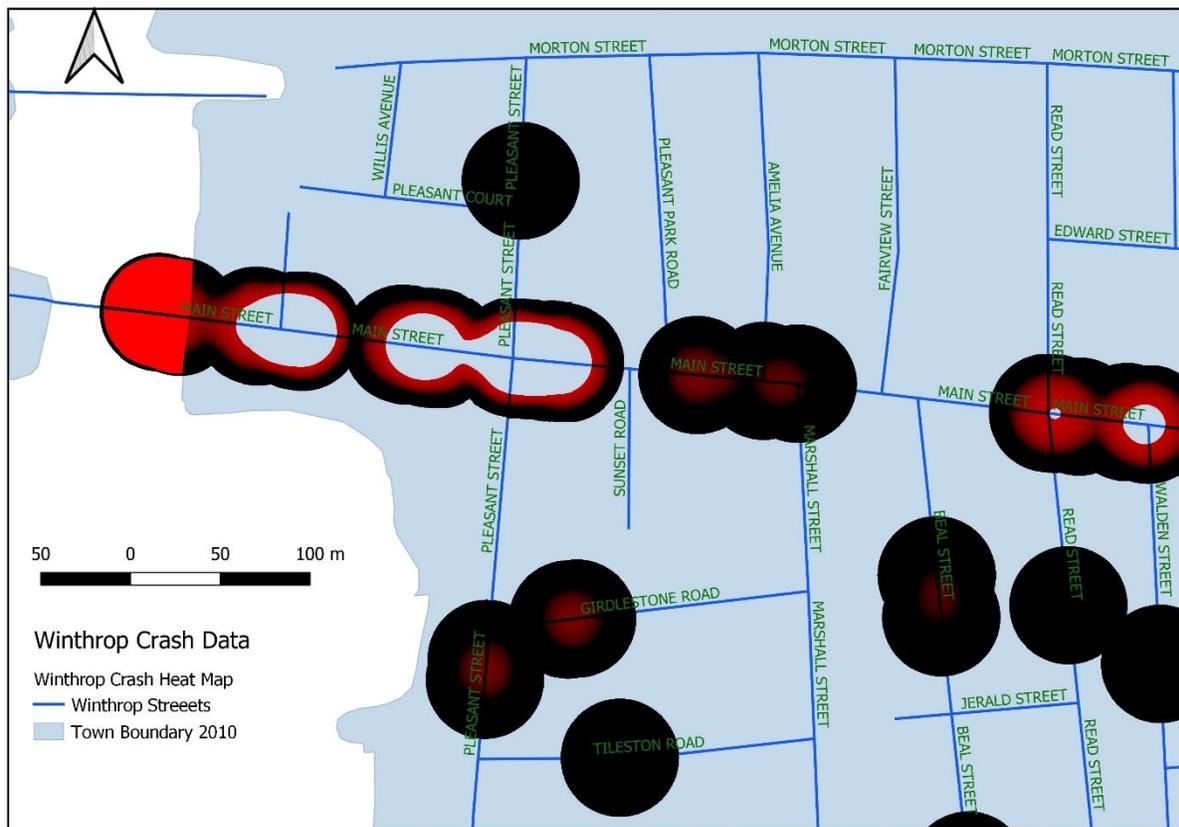


Figure 8: Winthrop Crash Data Heat Map

2.9.1 Safety Performance Function

Safety Performance Functions (SPFs) are not available for intersection of Pleasant and Main Street at this time, therefore crash-rates are computed as per MassDOT guidelines. Motor vehicle crash data was analyzed to help identify crash trends and/or roadway safety deficiencies at the intersection of Pleasant Street and Main Street. The crash rate for this intersection was based on the average MassDOT District 4 crash rate for signalized intersections. Table 6 below shows the MassDOT statewide average crash rates per million entering vehicles. This data is broken down by various district and by whether the intersection is signalized and un-signalized.

Location	Signalized Intersection	Unsignalized Intersections
Statewide	0.78	0.57
District 1*	0.80*	0.44*
District 2	0.89	0.62
District 3	0.89	0.61
District 4	0.73	0.57
District 5	0.75	0.57
District 6	0.71	0.52

*District 1 should use Statewide Rates due to low sample total. This data based upon crash information queried on June 26, 2018

Table 6: Statewide Average Crash Rates per Million Entering Vehicles By Intersection Type

The intersection crash rate was calculated based on the peak hour volumes per approach, and the total number of crashes per time period. This rate was calculated to be 1.57. The Table 7 below shows the District 4 Mass Highway crash rates for 2020 as well as the crash rates for Main Street and Pleasant Street.

MassDOT District	Intersection Avg.	Pleasant St/Main St
District 4	0.73	1.57

Table 7: MassDOT District 4 Crash Rate – Pleasant St at Main St Crash Rate

As can be seen, the Crash rate at Pleasant Street and Main for the years 2017 to 2019 is double the average rate for the district. The preliminary indications show a need for safety improvements to be made at this intersection.

3.0 CURRENT OPERATIONAL ANALYSIS

Current signal data was field collected and entered into Synchro (version 11) in order to model the traffic count data. This data was taken from video footage, provided by the Winthrop Police Department, between Jan 28 to Jan 30, 2020, and used as the 48-hour data source. Figure #9 and Figure #10 show the AM and PM peak volume summary for this intersection.



Figure 9 - AM Peak Traffic Volume (VPH)



Figure 10 - PM Peak Traffic Volume (VPH)

The operational analysis of the Pleasant and Main Street intersection was modeled using Synchro Traffic Modeling software utilizing the Highway Capacity Manual (HCM) latest edition. The analysis shows that the present Level of Service (LOS) of the intersection is "D" (see Figure 11). The same analysis revealed that the northbound (NB) leg of pleasant street operates at LOS "F" primarily due to the lack of a left turn pocket lane. The analysis also showed that the Intersection of Pleasant Street at Main Street operates at a LOS "C" during PM hours. (See Figure 12). It should be noted that this is an approximation of what the Intersections LOS would be since we were not able to receive any signal timing data from the Winthrop Department of Public Works, or the consultant that handles the traffic signal maintenance. Further information would have to be gathered in order to get a more detailed idea of the current Intersection LOS.



Figure 11 – Pleasant ST at Main ST Existing AM LOS

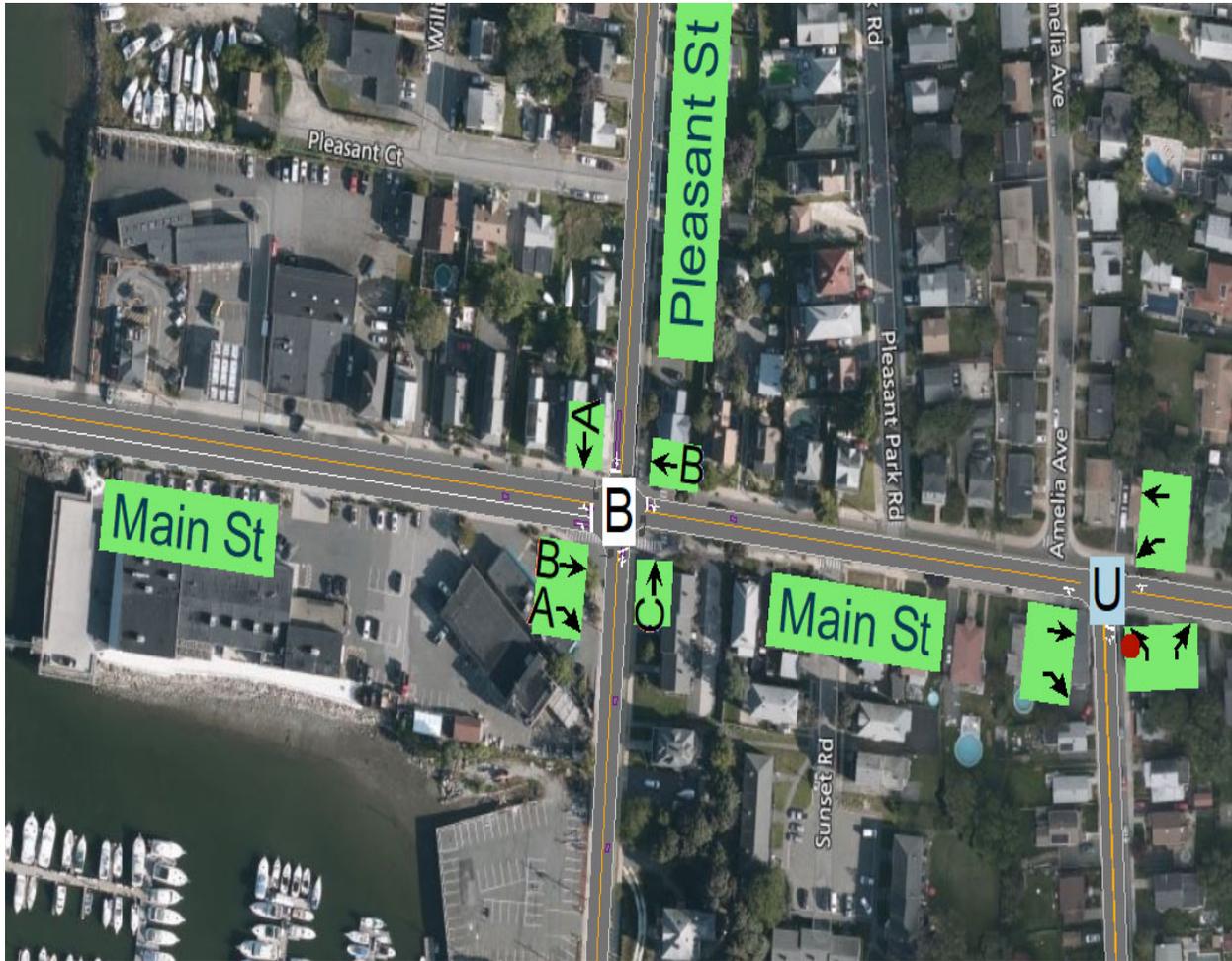


Figure 12 – Pleasant St at Main St Existing PM LOS

3.1 PROPOSED INTERSECTION IMPROVEMENTS

The Town of Winthrop intends to make safety, and traffic operation improvements at the intersection of Pleasant and Main Streets. Three types of potential improvements were considered for this project in order to address major concerns such as Safety, Mobility, Delay, and Emissions. The improvements considered were as follows:

- (1) Signal re-timing (as in Figures 9 and 10)
- (2) Geometric improvements - Signalized Intersection
 - a. Tightening of turning radii at right turns.
 - b. Installation of refuge islands
 - c. Installation of raised crosswalks
 - d. Installation of Bicycle accommodations
 - e. Installation of ADA compliant wheelchair ramps.
- (3) Geometric improvements Unsignalized Intersection – Modern Roundabout
 - a. Tightening of turning radii at right turns.
 - b. Installation of refuge islands
 - c. Installation of raised crosswalks
 - d. Installation of a modern roundabout
 - e. Installation of Bicycle accommodations
 - f. Installation of ADA compliant wheelchair ramps.

3.1.1 Signal Re-Timing

Signalized intersection analysis using the Highway Capacity Manual (HCM) version 6 and HCM 2010 (Slightly older methodology) was done at the intersection of Pleasant and Main Street. The field measured signal times were entered into a signal plan as given in appendix A.

Two alternatives were analyzed besides the current state. The current signalized analysis included no special time settings besides what was observed in the field for the four legs of the intersection. The overall Level of Service (LOS) of the intersection is "D. The same analysis also revealed that the northbound (NB) leg of pleasant street operates at LOS "F" primarily due to heavy left turn volume from Pleasant St northbound and the lack of left turn pocket lane. An alternative signalized model, using Synchro, with a protected left turn phase for the Pleasant Street northbound approach, and optimizing the signal timing resulted in the improvement of the operational analysis for the Pleasant Street leg from LOS F to D AM peak (See Figures 11 and 13) and the intersection from C to B in the PM peak (See Figures 11 and 13) . The result of this was an improvement to the signal operational efficiency.



Figure 13 – Optimized AM Peak LOS Signalized Intersection of Pleasant St at Main St



Figure 14 – Optimized PM Peak LOS Signalized Intersection of Pleasant St at Main St

3.1.2 Geometric Improvements – Signalized Intersection

While the re-timing of the existing signalized intersection would improve the operational efficiency of the intersection, safety improvements for the various modes of travel. Some of the improvements that would facilitate this process are the reduction of the turning radius at the Pleasant Street approach, and the installation of a refuge island for pedestrians. The reductions of the curb radii at Pleasant Street reduces the turning angle that vehicles traveling northbound from Pleasant Street onto Main Street can make. This reduction in the turning angle will also reduce vehicular speeds since they will be making the turns at a right angle. In order to further reduce the speed of vehicles turning onto Pleasant Street, the Main Street right turn lane will include a raised crosswalk.

In order to better facilitate pedestrian travel, improvements were considered at the Main Street and Pleasant Street approaches. The reduction in the curb radius at the Pleasant St Eastbound approach and the installation of a refuge island at the westbound approach, shortened the overall crosswalk distances. The crosswalk distance at the Pleasant Street northbound approach was shortened from 108' to a 20' and 30' crosswalk with a refuge island separating them. At the Main Street westbound approach with Pleasant Street, there is currently no pedestrian crosswalk. The proposed geometric improvements will introduce a 20' and 28' crosswalk with a refuge island. All these approaches will have ADA compliant wheelchair ramps to improve the safety for pedestrians at the intersections.

At the Pleasant Street northbound approach, a bicycle slip lane will be installed in order to safely accommodate bicycle traffic. The introduction of this geometric element should promote the shared road usage between motorists and cyclist. Figure 15 below shows the proposed geometric improvements at this approach.

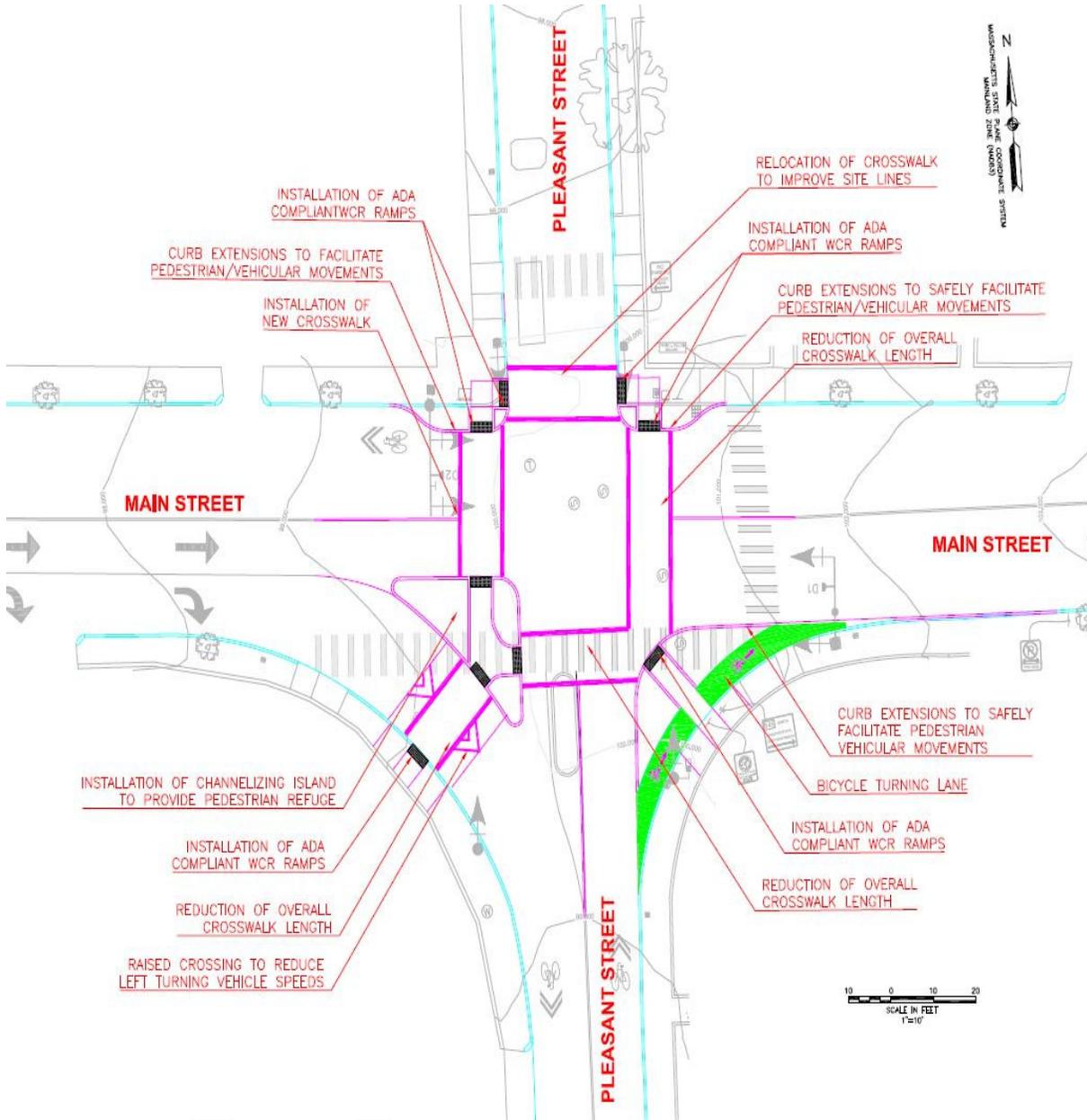


Figure 15: Proposed Geometric Improvements: Signalized Intersection

3.1.3 Geometric Improvements – Un-Signalized Intersection Modern Roundabout

The installation of a roundabout facilitates a more efficient and streamlined travel experience as there are slower speeds at the roundabout junction. The roundabout level of service has less delay than the signalized alternative. Roundabouts also offer less severe crash outcomes since most of the crashes will be side swipes or rear end collisions.

The proposed geometric improvement will see the design of a modern roundabout with the following features:

- 1) Pedestrian refuge island along three approaches.
 - a. These refuge islands will reduce the overall crossing distances and provided refuge for pedestrians crossing Main Street and Pleasant Street.
- 2) Reduced curb radii at the Pleasant Street northbound approach.
 - a. Slows vehicles turning unto Pleasant Street and Main Street
- 3) Bicycle slip lanes
 - a. Allows for the safe turning movements of cyclists unto Pleasant Street and Main Street
- 4) ADA compliant wheelchair ramps
 - a. Improves the safety of pedestrians and Americans with disabilities to cross the intersection.

Figure 16 below shows the proposed roundabout at the intersection of Pleasant St at Main St.

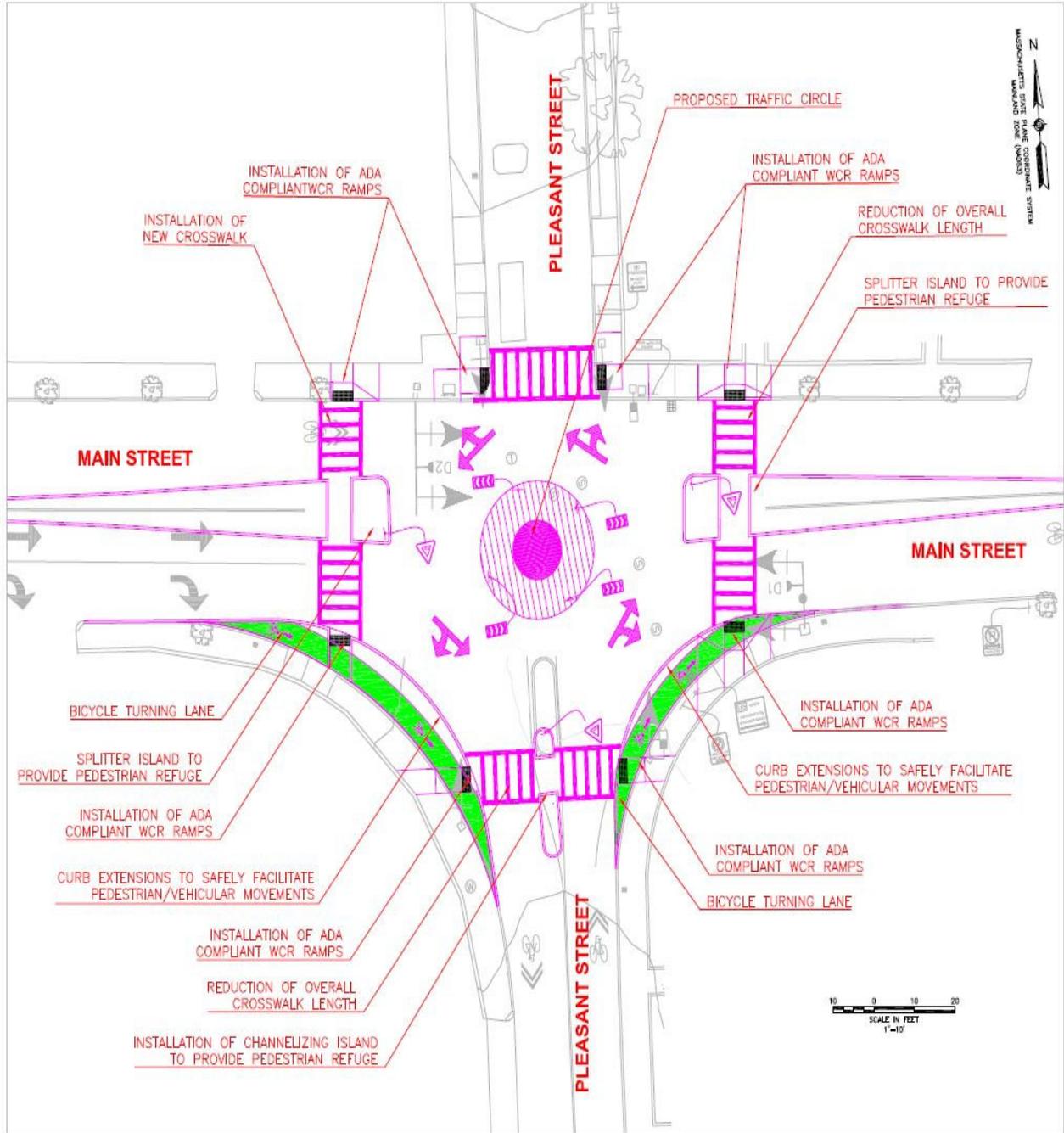


Figure 16: Proposed Geometric Improvements – Un-Signalized Intersection Modern Roundabout

Operational analysis of the roundabout using the Synchro model results in greater efficiency in mobility as given in Figures 17 (AM Peak volume and LOS) and 18 (PM Peak volume and LOS). The roundabout LOS for the AM Peak improved from D to C and PM Peak LOS improved from B to A as compared with the Signalized Intersection model.



Figure 17 - LOS AM Peak Roundabout Intersection Pleasant St and Main St



Figure 18 - LOS PM Peak Roundabout Intersection.

Appendix A: Synchro Intersection Data (AM/PM)

DRAFT

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	196	166	9	484	3	552	1	17	7	2	52
Future Volume (veh/h)	10	196	166	9	484	3	552	1	17	7	2	52
Number	7	4	14	3	8	18	5	2	12	1	6	15
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	213	180	10	550	3	627	1	19	8	2	59
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	61	811	713	51	827	4	687	1	18	111	55	681
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
Prop Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Unsig. Movement Delay												
Ln Grp Delay, s/veh	14.5	0.0	14.5	20.8	0.0	0.0	41.2	0.0	0.0	12.8	0.0	0.0
Ln Grp LOS	B	A	B	C	A	A	D	A	A	B	A	A
Approach Vol, veh/h		404			563			647			69	
Approach Delay, s/veh		14.5			20.8			41.2			12.8	
Approach LOS		B			C			D			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			8.0		7.0		8.0		8.0			
Phs Duration (G+Y+Rc), s			40.0		40.0		40.0		40.0			
Change Period (Y+Rc), s			4.0		4.0		4.0		4.0			
Max Green (Gmax), s			36.0		36.0		36.0		36.0			
Max Allow Headway (MAH), s			8.3		4.8		4.6		5.3			
Max Q Clear (g_c+1), s			38.0		8.0		4.0		21.0			
Green Ext Time (g_e), s			0.0		2.0		0.2		3.3			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			1329		31		134		11			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			2		1802		122		1838			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			40		1585		1513		10			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment		L+T+R		L+T		L+T+R		L+T+R				

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	647	0	224	0	69	0	563
Grp Sat Flow (s), veh/h/ln	0	1372	0	1833	0	1769	0	1859
Q Serve Time (g_s), s	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	36.0	0.0	6.0	0.0	2.0	0.0	19.0
Perm LT Sat Flow (s_l), veh/h/ln	0	1363	0	869	0	1414	0	1007
Shared LT Sat Flow (s_sh), veh/h/ln	0	1784	0	1866	0	1860	0	0
Perm LT Eff Green (g_p), s	0.0	36.0	0.0	36.0	0.0	36.0	0.0	36.0
Perm LT Serve Time (g_u), s	0.0	34.0	0.0	17.0	0.0	0.0	0.0	30.0
Perm LT Q Serve Time (g_ps), s	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	23.1	0.0	13.6	0.0	23.8
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	6.0	0.0	2.0	0.0	19.0
Prop LT Inside Lane (P_L)	0.00	0.97	0.00	0.05	0.00	0.12	0.00	0.02
Lane Grp Cap (c), veh/h	0	706	0	872	0	846	0	857
V/C Ratio (X)	0.00	0.92	0.00	0.26	0.00	0.08	0.00	0.64
Avail Cap (c_a), veh/h	0	706	0	872	0	846	0	882
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.5	0.0	13.7	0.0	12.6	0.0	17.3
Incr Delay (d2), s/veh	0.0	18.7	0.0	0.7	0.0	0.2	0.0	3.5
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	41.2	0.0	14.5	0.0	12.8	0.0	20.8
1st-Term Q (Q1), veh/ln	0.0	11.4	0.0	2.4	0.0	0.7	0.0	7.5
2nd-Term Q (Q2), veh/ln	0.0	3.7	0.0	0.2	0.0	0.0	0.0	0.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	15.0	0.0	2.5	0.0	0.7	0.0	8.4
%ile Storage Ratio (RQ%)	0.00	0.31	0.00	0.07	0.00	0.04	0.00	0.44
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment				R				
Lanes in Grp	0	0	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	180	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.03	0.00	1.00	0.00	0.86	0.00	0.01
Lane Grp Cap (c), veh/h	0	0	0	713	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	713	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	13.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	14.5	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	471	494	10	295	1	274	25	9	5	8	27
Future Volume (veh/h)	17	471	494	10	295	1	274	25	9	5	8	27
Number	7	4	14	3	8	18	5	2	12	1	6	15
Initial Q, 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	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	18	512	537	11	335	1	311	28	10	6	9	31
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	59	866	753	56	854	2	622	48	17	109	170	471
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
Prop Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
Unsig. Movement Delay												
Ln Grp Delay, s/veh	18.0	0.0	22.4	14.7	0.0	0.0	20.0	0.0	0.0	13.8	0.0	0.0
Ln Grp LOS	B	A	C	B	A	A	C	A	A	B	A	A
Approach Vol, veh/h		1067			347			349			46	
Approach Delay, s/veh		20.2			14.7			20.0			13.8	
Approach LOS		C			B			C			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			8.0		7.0		8.0		8.0			
Phs Duration (G+Y+Rc), s			38.0		42.0		38.0		42.0			
Change Period (Y+Rc), s			4.0		4.0		4.0		4.0			
Max Green (Gmax), s			34.0		38.0		34.0		38.0			
Max Allow Headway (MAH), s			8.2		4.7		4.5		5.4			
Max Q Clear (g_c+1), s			16.8		23.5		3.3		11.6			
Green Ext Time (g_e), s			4.3		5.0		0.1		2.3			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			1264		26		137		19			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			114		1824		399		1797			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			41		1585		1108		5			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment		L+T+R		L+T		L+T+R		L+T+R				

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	349	0	530	0	46	0	347
Grp Sat Flow (s), veh/h/ln	0	1418	0	1850	0	1644	0	1822
Q Serve Time (g_s), s	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.8	0.0	16.6	0.0	1.3	0.0	9.6
Perm LT Sat Flow (s_l), veh/h/ln	0	1389	0	1061	0	1391	0	546
Shared LT Sat Flow (s_sh), veh/h/ln	0	1791	0	1867	0	1858	0	0
Perm LT Eff Green (g_p), s	0.0	34.0	0.0	38.0	0.0	34.0	0.0	38.0
Perm LT Serve Time (g_u), s	0.0	32.7	0.0	28.4	0.0	19.2	0.0	21.4
Perm LT Q Serve Time (g_ps), s	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	22.1	0.0	12.1	0.0	24.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	16.6	0.0	1.3	0.0	9.6
Prop LT Inside Lane (P_L)	0.00	0.89	0.00	0.03	0.00	0.13	0.00	0.03
Lane Grp Cap (c), veh/h	0	688	0	925	0	750	0	912
V/C Ratio (X)	0.00	0.51	0.00	0.57	0.00	0.06	0.00	0.38
Avail Cap (c_a), veh/h	0	688	0	925	0	750	0	912
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.3	0.0	15.4	0.0	13.6	0.0	13.5
Incr Delay (d2), s/veh	0.0	2.7	0.0	2.6	0.0	0.2	0.0	1.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.0	0.0	18.0	0.0	13.8	0.0	14.7
1st-Term Q (Q1), veh/ln	0.0	4.5	0.0	6.5	0.0	0.5	0.0	3.7
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.7	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	5.0	0.0	7.1	0.0	0.5	0.0	4.0
%ile Storage Ratio (RQ%)	0.00	0.11	0.00	0.21	0.00	0.03	0.00	0.21
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 6th Signalized Intersection Capacity Analysis

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3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data

Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment				R				
Lanes in Grp	0	0	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	537	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1585	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	21.5	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	21.5	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.03	0.00	1.00	0.00	0.67	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	753	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	753	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.7	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	22.4	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

**Appendix B: Synchro Intersection Data: Modern
Roundabout (AM/PM)**

HCM 2010 Signalized Intersection Capacity Analysis

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	196	166	9	484	3	552	1	17	7	2	52
Future Volume (veh/h)	10	196	166	9	484	3	552	1	17	7	2	52
Number	7	4	14	3	8	18	5	2	12	1	7	16
Initial Q, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	11	213	180	10	550	3	627	1	17	5	2	59
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	61	808	712	51	824	4	684	1	18	110	55	679
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
Prop Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Ln Grp Delay, s/veh	14.5	0.0	14.5	20.9	0.0	0.0	41.8	0.0	0.0	12.8	0.0	0.0
Ln Grp LOS	B		B	C			D			B		
Approach Vol, veh/h		404			563			647			69	
Approach Delay, s/veh		14.5			20.9			41.8			12.8	
Approach LOS		B			C			D			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			8.0		7.0		8.0		8.0			
Phs Duration (G+Y+Rc), s			40.0		40.0		40.0		40.0			
Change Period (Y+Rc), s			4.0		4.0		4.0		4.0			
Max Green (Gmax), s			36.0		36.0		36.0		36.0			
Max Allow Headway (MAH), s			8.2		4.8		4.6		5.3			
Max Q Clear (g_c+I1), s			38.0		8.0		4.0		21.1			
Green Ext Time (g_e), s			0.0		2.0		0.2		3.3			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			1324		31		134		11			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			2		1795		122		1830			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			40		1583		1508		10			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment		L+T+R		L+T		L+T+R		L+T+R				

Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	647	0	224	0	69	0	563
Grp Sat Flow (s), veh/h/ln	0	1366	0	1826	0	1764	0	1851
Q Serve Time (g_s), s	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	36.0	0.0	6.0	0.0	2.0	0.0	19.1
Perm LT Sat Flow (s_l), veh/h/ln	0	1363	0	869	0	1414	0	1007
Shared LT Sat Flow (s_sh), veh/h/ln	0	1777	0	1858	0	1852	0	0
Perm LT Eff Green (g_p), s	0.0	36.0	0.0	36.0	0.0	36.0	0.0	36.0
Perm LT Serve Time (g_u), s	0.0	34.0	0.0	16.9	0.0	0.0	0.0	30.0
Perm LT Q Serve Time (g_ps), s	0.0	34.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	23.1	0.0	13.6	0.0	23.8
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	6.0	0.0	2.0	0.0	19.1
Prop LT Inside Lane (P_L)	0.00	0.97	0.00	0.05	0.00	0.12	0.00	0.02
Lane Grp Cap (c), veh/h	0	703	0	869	0	844	0	879
V/C Ratio (X)	0.00	0.92	0.00	0.26	0.00	0.08	0.00	0.64
Avail Cap (c_a), veh/h	0	703	0	869	0	844	0	879
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	22.6	0.0	13.8	0.0	12.0	0.0	17.3
Incr Delay (d2), s/veh	0.0	19.2	0.0	0.7	0.0	0.2	0.0	3.6
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	41.8	0.0	14.5	0.0	12.8	0.0	20.9
1st-Term Q (Q1), veh/ln	0.0	14.2	0.0	3.0	0.0	0.9	0.0	9.7
2nd-Term Q (Q2), veh/ln	0.0	3.7	0.0	0.2	0.0	0.0	0.0	0.9
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	17.9	0.0	3.2	0.0	0.9	0.0	10.6
%ile Storage Ratio (RQ%)	0.00	0.37	0.00	0.09	0.00	0.05	0.00	0.56
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R							
Lanes in Grp	0	0	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	180	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1583	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.03	0.00	1.00	0.00	0.86	0.00	0.01
Lane Grp Cap (c), veh/h	0	0	0	712	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	712	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	13.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	14.5	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	2.6	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM 2010 Ctrl Delay	27.1							
HCM 2010 LOS	C							

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	17	471	494	10	295	1	274	25	9	5	8	27
Future Volume (veh/h)	17	471	494	10	295	1	274	25	9	5	8	27
Number	7	4	14	3	8	18	5	2	12	1	7	16
Initial Q, 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
Adj Sat Flow, veh/h/ln	1900	1863	1863	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	18	512	537	11	335	1	311	28	10	5	9	31
Adj No. of Lanes	0	1	1	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	59	863	752	56	850	2	620	48	17	109	169	470
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
Prop Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.43	0.43	0.43	0.43	0.43	0.43
Ln Grp Delay, s/veh	18.0	0.0	22.4	14.8	0.0	0.0	20.1	0.0	0.0	13.8	0.0	0.0
Ln Grp LOS	B		C	B			C			B		
Approach Vol, veh/h		1067			347			349			46	
Approach Delay, s/veh		20.2			14.8			20.1			13.8	
Approach LOS		C			B			C			B	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phs			2		4		6		8			
Case No			8.0		7.0		8.0		8.0			
Phs Duration (G+Y+Rc), s			38.0		42.0		38.0		42.0			
Change Period (Y+Rc), s			4.0		4.0		4.0		4.0			
Max Green (Gmax), s			34.0		38.0		34.0		38.0			
Max Allow Headway (MAH), s			8.2		4.7		4.5		5.4			
Max Q Clear (g_c+1), s			16.8		23.6		3.3		11.6			
Green Ext Time (g_e), s			4.2		5.0		0.1		2.3			
Prob of Phs Call (p_c)			1.00		1.00		1.00		1.00			
Prob of Max Out (p_x)			0.00		0.00		0.00		0.00			
Left-Turn Movement Data												
Assigned Mvmt			5		7		1		3			
Mvmt Sat Flow, veh/h			1258		26		137		19			
Through Movement Data												
Assigned Mvmt			2		4		6		8			
Mvmt Sat Flow, veh/h			113		1816		398		1790			
Right-Turn Movement Data												
Assigned Mvmt			12		14		16		18			
Mvmt Sat Flow, veh/h			40		1583		1106		5			
Left Lane Group Data												
Assigned Mvmt		0	5	0	7	0	1	0	3			
Lane Assignment		L+T+R		L+T		L+T+R		L+T+R				

HCM 2010 Signalized Intersection Capacity Analysis
 4: Pleasant St & Main St

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Lanes in Grp	0	1	0	1	0	1	0	1
Grp Vol (v), veh/h	0	349	0	530	0	46	0	347
Grp Sat Flow (s), veh/h/ln	0	1412	0	1842	0	1641	0	1814
Q Serve Time (g_s), s	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	14.8	0.0	16.7	0.0	1.3	0.0	9.6
Perm LT Sat Flow (s_l), veh/h/ln	0	1389	0	1061	0	1391	0	546
Shared LT Sat Flow (s_sh), veh/h/ln	0	1783	0	1860	0	1851	0	0
Perm LT Eff Green (g_p), s	0.0	34.0	0.0	38.0	0.0	34.0	0.0	38.0
Perm LT Serve Time (g_u), s	0.0	32.7	0.0	28.4	0.0	19.2	0.0	21.3
Perm LT Q Serve Time (g_ps), s	0.0	13.5	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	22.1	0.0	12.1	0.0	24.7
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	16.7	0.0	1.3	0.0	9.6
Prop LT Inside Lane (P_L)	0.00	0.89	0.00	0.03	0.00	0.13	0.00	0.03
Lane Grp Cap (c), veh/h	0	685	0	922	0	748	0	908
V/C Ratio (X)	0.00	0.51	0.00	0.58	0.00	0.06	0.00	0.38
Avail Cap (c_a), veh/h	0	685	0	922	0	748	0	908
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d1), s/veh	0.0	17.4	0.0	15.4	0.0	13.6	0.0	13.6
Incr Delay (d2), s/veh	0.0	2.7	0.0	2.6	0.0	0.2	0.0	1.2
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.1	0.0	18.0	0.0	13.8	0.0	14.8
1st-Term Q (Q1), veh/ln	0.0	5.8	0.0	8.5	0.0	0.6	0.0	4.9
2nd-Term Q (Q2), veh/ln	0.0	0.5	0.0	0.7	0.0	0.0	0.0	0.3
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	6.3	0.0	9.2	0.0	0.6	0.0	5.2
%ile Storage Ratio (RQ%)	0.00	0.13	0.00	0.27	0.00	0.03	0.00	0.28
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Mvmt	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Grp	0	0	0	0	0	0	0	0
Grp Vol (v), veh/h	0	0	0	0	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

HCM 2010 Signalized Intersection Capacity Analysis
 4: Pleasant St & Main St

07/18/2021

2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Mvmt	0	12	0	14	0	16	0	18
Lane Assignment	R							
Lanes in Grp	0	0	0	1	0	0	0	0
Grp Vol (v), veh/h	0	0	0	537	0	0	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	1583	0	0	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	21.6	0.0	0.0	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	21.6	0.0	0.0	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.03	0.00	1.00	0.00	0.67	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	0	752	0	0	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.71	0.00	0.00	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	752	0	0	0	0
Upstream Filter (I)	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	16.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	5.7	0.0	0.0	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
Control Delay (d), s/veh	0.0	0.0	0.0	22.4	0.0	0.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	9.4	0.0	0.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	10.6	0.0	0.0	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM 2010 Ctrl Delay	19.0							
HCM 2010 LOS	B							

Appendix C: Traffic Volume Data

DRAFT

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop
GPS Coordinates:
Date: 2020-05-12
Day of week: Tuesday
Weather:
Analyst: Omar Fraser



Intersection Peak Hour

23:45 - 00:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	24	13	0	0	1	0	81	0	54	1	2	177
Factor	0.25	0.75	0.54	0.00	0.00	0.25	0.00	0.84	0.00	0.75	0.25	0.25	0.83
Approach Factor	0.68			0.25			0.84			0.71			

Intersection Peak Hour

13:15 - 14:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	46	43	0	1	7	2	189	0	166	5	4	466
Factor	0.38	0.68	0.63	0.00	0.25	0.58	0.50	0.58	0.00	0.57	0.42	0.33	0.62
Approach Factor	0.66			0.50			0.58			0.57			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	37	38	0	1	7	1	177	0	157	4	4	429
Truck	0	9	5	0	0	0	1	11	0	9	1	0	36
Bicycle	0	0	0	0	0	0	0	1	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	0	0	0	0	0	0	3	3	3

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-17
Day of week: Sunday
Weather:
Analyst:



Intersection Peak Hour

13:15 - 14:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	46	43	0	1	7	2	189	0	166	5	4	466
Factor	0.38	0.68	0.63	0.00	0.25	0.58	0.50	0.58	0.00	0.57	0.42	0.33	0.62
Approach Factor	0.66			0.50			0.58			0.57			

Intersection Peak Hour

12:30 - 13:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	185	170	3	3	56	9	500	5	463	3	27	1432
Factor	0.67	0.94	0.92	0.25	0.75	0.88	0.75	0.91	0.62	0.95	0.75	0.75	0.95
Approach Factor	0.96			0.82			0.90			0.93			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	6	161	150	3	2	50	7	470	5	449	1	25	1329
Truck	2	24	20	0	1	6	2	29	0	13	2	2	101
Bicycle	0	0	0	0	0	0	0	1	0	1	0	0	2

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	0	5	0	0	0	8	5	13	3	9	12	30

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

12:30 - 13:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	185	170	3	3	56	9	500	5	463	3	27	1432
Factor	0.67	0.94	0.92	0.25	0.75	0.88	0.75	0.91	0.62	0.95	0.75	0.75	0.95
Approach Factor	0.96			0.82			0.90			0.93			

Turn Count Summary

Location: at ,
GPS Coordinates:
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:45	7	36	40	2	0	14	1	100	0	122	1	2	325
14:00	3	57	15	0	1	1	0	83	0	78	0	4	242
14:15	5	41	35	1	2	7	0	101	1	86	0	3	287
14:30	2	49	44	2	0	8	2	81	0	65	0	9	262
14:45	1	1	0	0	0	0	0	6	0	0	0	0	8

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:45	6	29	38	2	0	12	1	38	0	118	1	2	297
14:00	2	51	10	0	1	1	0	77	0	73	0	2	217
14:15	4	37	25	1	1	7	0	90	1	81	0	7	254
14:30	2	35	38	1	0	8	0	77	0	60	0	9	230
14:45	1	1	0	0	0	0	0	6	0	0	0	0	8

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:45	1	7	2	0	0	2	0	12	0	4	0	0	28
14:00	1	6	5	0	0	0	0	6	0	5	0	2	25
14:15	1	4	10	0	1	0	0	10	0	5	0	1	32
14:30	0	14	6	1	0	0	2	4	0	5	0	0	32
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15	0	0	0	0	0	0	0	1	0	0	0	0	1
14:30	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
13:45	0	0	0	0	1	1	0	1	1	0	1	1	3
14:00	0	0	0	1	0	1	0	2	2	0	3	3	6
14:15	0	0	0	0	0	0	0	0	0	0	2	2	2
14:30	0	1	1	0	0	0	1	1	2	0	3	3	6
14:45	0	0	0	0	0	0	0	0	0	0	1	1	1

Intersection Peak Hour

13:45 - 14:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	17	183	134	5	3	30	3	365	1	351	1	23	1116
Factor	0.61	0.80	0.76	0.62	0.38	0.54	0.38	0.90	0.25	0.72	0.25	0.64	0.86
Approach Factor	0.88			0.59			0.90			0.75			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	14	152	111	4	2	28	1	332	1	332	1	20	998
Truck	3	31	23	1	1	2	2	32	0	19	0	3	117
Bicycle	0	0	0	0	0	0	0	1	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	1	1	1	1	2	1	4	5	0	9	9	17

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

13:45 - 14:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	17	183	134	5	3	30	3	365	1	351	1	23	1116
Factor	0.61	0.80	0.76	0.62	0.38	0.54	0.38	0.90	0.25	0.72	0.25	0.64	0.86
Approach Factor	0.88			0.59			0.90			0.75			

Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	196	168	0	2	24	14	310	0	266	2	12	1003
Factor	0.75	0.71	0.78	0.00	0.50	0.75	0.50	0.79	0.00	0.86	0.50	0.43	0.81
Approach Factor	0.74			0.72			0.78			0.85			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	5	159	147	0	2	24	13	276	0	243	2	10	881
Truck	4	36	21	0	0	0	1	32	0	23	0	2	119
Bicycle	0	1	0	0	0	0	0	2	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	1	6	1	1	2	9	4	13	7	6	13	34

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	196	168	0	2	24	14	310	0	266	2	12	1003
Factor	0.75	0.71	0.78	0.00	0.50	0.75	0.50	0.79	0.00	0.86	0.50	0.43	0.81
Approach Factor	0.74			0.72			0.78			0.85			

Intersection Peak Hour

00:30 - 01:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	238	192	1	4	19	7	276	0	264	4	15	1024
Factor	0.50	0.83	0.73	0.25	0.33	0.59	0.44	0.90	0.00	0.88	0.50	0.62	0.92
Approach Factor	0.87			0.75			0.91			0.91			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	4	216	183	1	4	15	7	253	0	254	3	14	954
Truck	0	21	9	0	0	4	0	21	0	10	1	1	67
Bicycle	0	1	0	0	0	0	0	2	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	4	0	4	0	1	1	1	5	6	1	9	10	21

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127995, Lon=-77.717970
Date: 2020-05-20
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

00:30 - 01:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	238	192	1	4	19	7	276	0	264	4	15	1024
Factor	0.50	0.83	0.73	0.25	0.33	0.59	0.44	0.90	0.00	0.88	0.50	0.62	0.92
Approach Factor	0.87			0.75			0.91			0.91			

Intersection Peak Hour

13:30 - 14:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	256	216	3	4	13	17	263	2	223	2	19	1027
Factor	0.45	0.76	0.79	0.38	0.33	0.65	0.71	0.85	0.50	0.83	0.75	0.59	0.84
Approach Factor	0.77			0.71			0.87			0.79			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	9	228	196	3	3	12	12	236	2	206	1	18	926
Truck	0	28	20	0	1	1	5	27	0	17	1	1	101

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	3	2	5	0	3	3	2	5	7	2	7	9	24

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates:
Date: 2020-06-17
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

13:30 - 14:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	256	216	3	4	13	17	263	2	223	2	19	1027
Factor	0.45	0.76	0.79	0.38	0.33	0.65	0.71	0.85	0.50	0.83	0.25	0.59	0.84
Approach Factor	0.77			0.71			0.87			0.79			

Intersection Count Summary

14:46 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	75	75	1	0	1	2	76	2	68	0	6	309

Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	70	64	1	0	1	1	71	2	59	0	5	277
Truck	0	5	11	0	0	0	1	5	0	9	0	1	32

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	0	1	0	0	0	1	0	1	0	0	0	2

Intersection Count Summary

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates:
Date: 2020-06-17
Day of week: Wednesday
Weather:
Analyst:



Intersection Count Summary

14:46 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	75	75	1	0	1	2	76	2	68	0	6	309

Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	326	283	1	4	20	10	316	2	265	3	24	1262
Factor	0.50	0.90	0.88	0.25	0.50	0.71	0.62	0.93	0.50	0.86	0.75	0.67	0.95
Approach Factor	0.88			0.69			0.91			0.91			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	7	296	261	1	4	10	8	283	2	242	1	21	1145
Truck	1	30	22	0	0	1	2	33	0	23	2	3	117
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	3	0	3	0	3	3	4	3	7	3	4	7	20

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	326	283	1	4	20	10	316	2	265	3	24	1262
Factor	0.50	0.90	0.88	0.25	0.50	0.71	0.62	0.93	0.50	0.86	0.75	0.67	0.95
Approach Factor	0.88			0.69			0.91			0.91			

Intersection Peak Hour

19:45 - 20:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	16	425	394	1	3	24	22	332	1	279	8	39	1544
Factor	0.50	0.85	0.81	0.25	0.38	0.75	0.69	0.97	0.25	0.86	0.50	0.75	0.92
Approach Factor	0.85			0.70			0.95			0.87			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	12	390	369	1	3	10	21	297	1	258	8	36	1415
Truck	4	33	25	0	0	5	1	34	0	21	0	3	126
Bicycle	0	2	0	0	0	0	0	1	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	4	0	4	0	5	5	5	7	12	1	8	9	30

Intersection Peak Hour

Location: at ,
GPS Coordinates:
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

19:45 - 20:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	16	425	394	1	3	24	22	332	1	279	8	39	1544
Factor	0.50	0.85	0.81	0.25	0.38	0.75	0.69	0.97	0.25	0.86	0.50	0.75	0.92
Approach Factor	0.85			0.70			0.95			0.87			

Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	413	414	3	4	17	12	302	4	209	6	28	1426
Factor	0.44	0.88	0.83	0.38	0.33	0.42	0.50	0.85	0.50	0.78	0.75	0.58	0.87
Approach Factor	0.88			0.50			0.84			0.83			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	12	386	399	3	4	16	10	279	3	194	6	27	1339
Truck	2	27	14	0	0	1	2	22	1	14	0	1	84
Bicycle	0	0	1	0	0	0	0	1	0	1	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	0	5	0	2	2	4	3	7	1	8	9	23

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop, MA
GPS Coordinates: Lat=39.127783, Lon=-77.717663
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	413	414	3	4	17	12	302	4	209	6	28	1426
Factor	0.44	0.88	0.83	0.38	0.33	0.42	0.50	0.85	0.50	0.78	0.75	0.58	0.87
Approach Factor	0.88			0.50			0.84			0.83			

Turn Count Summary

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127806, Lon=-77.718145
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14:56	0	21	24	0	0	0	1	17	0	19	1	1	84
15:00	4	116	120	0	1	4	6	67	0	64	6	7	395
15:15	4	113	124	1	0	8	5	66	0	71	1	7	400
15:30	2	125	111	0	0	3	4	80	1	71	2	9	408
15:45	2	92	118	0	1	4	2	63	1	38	1	3	325
16:00	3	143	131	0	1	3	4	62	0	69	1	11	428
16:15	3	130	128	2	3	6	2	54	0	69	4	11	412
16:30	2	115	106	0	2	6	3	59	3	52	3	4	355
16:45	2	94	90	0	0	10	3	51	2	52	1	9	314
17:00	1	48	46	1	1	3	2	36	0	19	0	6	163

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14:56	0	21	24	0	0	0	1	17	0	19	1	1	84
15:00	4	111	118	0	1	4	6	65	0	64	6	7	386
15:15	4	105	123	1	0	8	5	61	0	70	1	7	385
15:30	2	120	111	0	0	3	4	76	1	66	2	9	394
15:45	2	89	118	0	1	4	2	61	1	37	1	3	319
16:00	3	141	131	0	1	3	4	59	0	68	1	10	421
16:15	3	125	127	2	3	6	2	53	0	69	4	10	404
16:30	2	114	104	0	2	6	3	56	3	52	3	4	349
16:45	2	92	90	0	0	10	3	46	2	52	1	8	306
17:00	1	47	46	1	1	3	2	34	0	19	0	6	160

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14:56	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	4	2	0	0	0	0	2	0	0	0	0	8
15:15	0	5	1	0	0	0	0	5	0	1	0	0	12
15:30	0	5	0	0	0	0	0	4	0	5	0	0	14
15:45	0	2	0	0	0	0	0	2	0	0	0	0	4
16:00	0	2	0	0	0	0	0	3	0	1	0	1	7
16:15	0	4	1	0	0	0	0	1	0	0	0	1	7
16:30	0	1	2	0	0	0	0	3	0	0	0	0	6
16:45	0	2	0	0	0	0	0	5	0	0	0	1	8
17:00	0	1	0	0	0	0	0	2	0	0	0	0	3

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14:56	0	0	0	0	0	0	0	0	0	0	0	0	0
15:00	0	1	0	0	0	0	0	0	0	0	0	0	1
15:15	0	3	0	0	0	0	0	0	0	0	0	0	3
15:30	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	1	0	0	0	0	0	0	0	1	0	0	2
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0
16:15	0	1	0	0	0	0	0	0	0	0	0	0	1
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
14:56	0	0	0	0	1	1	0	0	0	0	0	0	1
15:00	3	0	3	0	2	2	0	2	2	0	1	1	8
15:15	3	0	3	0	1	1	1	0	1	4	2	6	11
15:30	0	0	0	0	3	3	0	2	2	2	1	3	8
15:45	0	0	0	0	1	1	0	0	0	0	1	1	2
16:00	0	0	0	0	1	1	0	2	2	0	1	1	4
16:15	2	0	2	0	0	0	0	0	0	0	0	0	2
16:30	0	0	0	0	0	0	0	1	1	0	1	1	2
16:45	1	0	1	0	1	1	0	2	2	1	1	2	6
17:00	0	0	0	1	0	1	0	4	4	1	1	2	7

Intersection Peak Hour

15:30 - 16:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	490	488	2	5	16	12	259	2	247	8	34	1573
Factor	0.83	0.86	0.93	0.25	0.42	0.67	0.75	0.81	0.50	0.87	0.50	0.77	0.92
Approach Factor	0.89			0.52			0.80			0.86			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	10	475	487	2	5	16	12	249	2	240	8	32	1538
Truck	0	13	1	0	0	0	0	10	0	6	0	2	32
Bicycle	0	2	0	0	0	0	0	0	0	1	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	0	5	5	0	4	4	2	3	5	16

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127806, Lon=-77.718145
Date: 2020-05-18
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

15:30 - 16:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	490	488	2	5	16	12	259	2	247	8	34	1573
Factor	0.83	0.86	0.93	0.25	0.42	0.67	0.75	0.81	0.50	0.87	0.50	0.77	0.92
Approach Factor	0.89			0.52			0.80			0.86			

Intersection Peak Hour

11:15 - 12:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	360	299	2	5	12	13	261	4	157	2	26	1149
Factor	0.67	0.89	0.83	0.50	0.31	0.50	0.65	0.84	0.50	0.84	0.25	0.93	0.90
Approach Factor	0.86			0.43			0.83			0.87			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	7	347	298	2	5	12	13	251	4	155	2	26	1122
Truck	0	11	1	0	0	0	0	10	0	2	0	0	24
Bicycle	1	2	0	0	0	0	0	0	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	3	0	3	0	9	9	0	1	1	0	2	2	15

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127974, Lon=-77.718035
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

11:15 - 12:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	360	299	2	5	12	13	261	4	157	2	26	1149
Factor	0.67	0.89	0.83	0.50	0.31	0.50	0.65	0.84	0.50	0.84	0.25	0.93	0.90
Approach Factor	0.86			0.43			0.83			0.87			

Turn Count Summary

Location: Pleasant at Main , Winthrop, MA

GPS Coordinates: Lat=39.127847, Lon=-77.717930

Date: 2020-05-19

Day of week: Tuesday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:46	1	54	51	1	0	6	2	32		30	1	7	186

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:46	1	51	51	1	0	6	2	31	1	30	1	7	182

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:46	0	3	0	0	0	0	0	1	0	0	0	0	4

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
17:46	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
17:46	2	0	2	1	0	1	0	0	0	0	1	1	4

Intersection Count Summary

17:46 - 17:59

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	54	51	1	0	6	2	32	1	30	1	7	186

Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	1	51	51	1	0	6	2	31	1	30	1	7	182
Truck	0	3	0	0	0	0	0	1	0	0	0	0	4
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	1	0	1	0	0	0	0	1	1	4

Intersection Count Summary

Location: Pleasant at Main , Winthrop, MA
GPS Coordinates: Lat=39.127847, Lon=-77.717930
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Count Summary

17:46 - 17:59

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	54	51	1	0	6	2	32	1	30	1	7	186

Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	216	191	1	3	9	9	118	0	78	1	5	641
Factor	0.42	0.78	0.84	0.25	0.38	0.56	0.56	0.87	0.00	0.75	0.25	0.31	0.81
Approach Factor	0.81			0.54			0.88			0.70			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	10	212	190	1	3	0	9	108	0	78	1	5	626
Truck	0	4	1	0	0	0	0	9	0	0	0	0	14
Bicycle	0	0	0	0	0	0	0	1	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	0	5	0	3	3	0	2	2	0	3	3	13

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127695, Lon=-77.717845
Date: 2020-05-19
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	216	191	1	3	9	9	118	0	78	1	5	641
Factor	0.42	0.78	0.84	0.25	0.38	0.56	0.56	0.87	0.00	0.75	0.25	0.31	0.81
Approach Factor	0.81			0.54			0.88			0.70			

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127870, Lon=-77.717964
Date: 2020-05-20
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

15:45 - 16:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	7	104	78	0	0	10	1	57	0	32	0	2	291
Factor	0.58	0.87	0.72	0.00	0.00	0.62	0.25	0.68	0.00	0.73	0.00	0.50	0.80
Approach Factor	0.84			0.62			0.69			0.71			

Intersection Peak Hour

17:15 - 18:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	48	43	0	0	2	2	20	0	24	0	1	141
Factor	0.25	0.80	0.72	0.00	0.00	0.50	0.50	0.71	0.00	0.86	0.00	0.25	0.82
Approach Factor	0.82			0.50			0.79			0.89			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	1	46	43	0	0	2	2	16	0	24	0	1	135
Truck	0	2	0	0	0	0	0	4	0	0	0	0	6
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	0	1	0	0	0	0	1	1	0	1	1	3

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127823, Lon=-77.717826
Date: 2020-05-20
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

17:15 - 18:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	48	43	0	0	2	2	20	0	24	0	1	141
Factor	0.25	0.80	0.72	0.00	0.00	0.50	0.50	0.71	0.00	0.86	0.00	0.25	0.82
Approach Factor	0.82			0.50			0.79			0.89			

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127678, Lon=-77.718243
Date: 2020-05-21
Day of week: Thursday
Weather:
Analyst:



Intersection Peak Hour

14:00 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	44	19	1	0	1	3	22	0	10	0	2	102
Factor	0.00	1.00	0.47	0.25	0.00	0.25	0.75	0.61	0.00	0.62	0.00	0.25	0.77
Approach Factor	0.75			0.50			0.62			0.75			

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127634, Lon=-77.718100
Date: 2020-05-21
Day of week: Thursday
Weather:
Analyst:



Intersection Peak Hour

15:45 - 16:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	13	7	0	0	2	0	16	0	8	0	1	47
Factor	0.00	0.46	0.35	0.00	0.00	0.50	0.00	0.50	0.00	0.50	0.00	0.25	0.45
Approach Factor	0.42			0.50			0.50			0.45			

Intersection Count Summary

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127907, Lon=-77.718234
Date: 2020-05-21
Day of week: Thursday
Weather:
Analyst:



Intersection Count Summary

14:47 - 15:29

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	9	9	0	0	4	0	31	0	18	0	1	73

Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	53	47	0	0	5	1	197	1	156	7	2	472
Factor	0.25	0.58	0.73	0.00	0.00	0.62	0.25	0.69	0.25	0.55	0.25	0.50	0.64
Approach Factor	0.66			0.62			0.69			0.57			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	49	44	0	0	5	1	190	1	147	6	2	448
Truck	0	4	3	0	0	0	0	6	0	9	1	0	23
Bicycle	0	0	0	0	0	0	0	1	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	0	0	0	1	1	0	3	3	4

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127884, Lon=-77.718164
Date: 2020-05-21
Day of week: Thursday
Weather:
Analyst:



Intersection Peak Hour

21:00 - 22:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	53	47	0	0	5	1	197	1	156	7	2	472
Factor	0.25	0.58	0.73	0.00	0.00	0.62	0.25	0.69	0.25	0.55	0.35	0.50	0.64
Approach Factor	0.66			0.62			0.69			0.57			

Turn Count Summary

Location: Pleasant at Main, Winthrop, MA

GPS Coordinates: Lat=39.127889, Lon=-77.717986

Date: 2020-05-22

Day of week: Friday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:47	0	9	14	0	0	1	0	54	0	55	2	0	135
12:00	1	27	25	0	3	6	0	90	0	70	1	0	223
12:15	0	17	24	1	0	11	0	108	1	98	1	1	262
12:30	0	30	41	0	2	10	0	111	0	98	0	2	294
12:45	0	38	26	0	0	6	0	123	0	105	2	2	302
13:00	1	36	37	0	1	7	1	115	0	138	0	5	341
13:15	0	0	0	1	0	0	0	0	0	11	0	0	12

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:47	0	8	14	0	0	1	0	48	0	53	2	0	126
12:00	1	23	24	0	3	5	0	85	0	69	1	0	211
12:15	0	16	24	0	0	11	0	101	1	95	1	1	250
12:30	0	27	36	0	2	10	0	104	0	94	0	2	275
12:45	0	32	25	0	0	6	0	120	0	100	2	2	287
13:00	1	29	37	0	1	6	1	112	0	136	0	4	327
13:15	0	0	0	1	0	0	0	0	0	11	0	0	12

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:47	0	1	0	0	0	0	0	6	0	2	0	0	9
12:00	0	4	1	0	0	1	0	5	0	1	0	0	12
12:15	0	1	0	0	0	0	0	7	0	3	0	0	11
12:30	0	3	5	0	0	0	0	7	0	4	0	0	19
12:45	0	6	1	0	0	0	0	3	0	5	0	0	15
13:00	0	7	0	0	0	1	0	3	0	2	0	1	14
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
11:47	0	0	0	0	0	0	0	0	0	0	0	0	0
12:00	0	0	0	0	0	0	0	0	0	0	0	0	0
12:15	0	0	0	1	0	0	0	0	0	0	0	0	1
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
11:47	0	0	0	0	0	0	0	1	1	0	1	1	2
12:00	0	0	0	0	1	1	0	1	1	0	1	1	3
12:15	0	0	0	0	0	0	0	1	1	0	1	1	2
12:30	1	0	1	0	1	1	0	2	2	1	3	4	8
12:45	0	0	0	0	0	0	2	0	2	0	0	0	2
13:00	3	0	3	0	0	0	0	6	6	2	7	9	18
13:15	0	0	0	0	0	0	0	0	0	0	1	1	1

Intersection Peak Hour

12:15 - 13:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	121	128	1	3	34	1	457	1	439	3	10	1199
Factor	0.25	0.80	0.78	0.25	0.38	0.77	0.25	0.93	0.25	0.80	0.23	0.50	0.88
Approach Factor	0.84			0.79			0.93			0.79			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	1	104	122	0	3	32	1	437	1	425	3	9	1139
Truck	0	17	6	0	0	1	0	20	0	14	0	1	59
Bicycle	0	0	0	1	0	0	0	0	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	4	0	4	0	1	1	2	9	11	3	11	14	30

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127889, Lon=-77.717986
Date: 2020-05-22
Day of week: Friday
Weather:
Analyst:



Intersection Peak Hour

12:15 - 13:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	121	128	1	3	34	1	457	1	439	3	10	1199
Factor	0.25	0.80	0.78	0.25	0.38	0.77	0.25	0.93	0.25	0.80	0.38	0.50	0.88
Approach Factor	0.84			0.79			0.93			0.79			

Turn Count Summary

Location: Pleasant at Main, Winthrop, MA

GPS Coordinates: Lat=39.127909, Lon=-77.717800

Date: 2020-05-22

Day of week: Friday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:55	0	14	14	0	0	1	0	38	1	29	0	6	103
16:00	1	40	33	0	2	6	3	141	0	133	0	5	364
16:15	4	47	24	5	1	8	1	121	0	132	2	2	347
16:30	2	47	41	1	0	12	1	121	1	129	0	5	370
16:45	3	45	54	2	1	11	3	103	0	128	0	4	354
17:00	0	21	12	0	0	5	1	45	1	52	0	0	137

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:55	0	11	14	0	0	1	0	38	1	28	0	5	98
16:00	0	39	32	0	1	4	3	133	0	132	0	5	347
16:15	3	43	23	5	1	6	1	113	0	132	2	2	331
16:30	2	45	36	1	0	11	1	116	1	126	0	5	344
16:45	3	42	52	2	0	11	3	99	0	123	0	4	339
17:00	0	20	12	0	0	5	1	42	1	49	0	0	130

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:55	0	0	0	0	0	0	0	0	0	1	0	1	5
16:00	0	0	1	0	1	1	0	10	0	1	0	0	16
16:15	0	4	1	0	0	2	0	7	0	0	0	0	15
16:30	0	2	5	0	0	1	0	4	0	3	0	0	15
16:45	0	3	2	0	1	0	0	4	0	5	0	0	15
17:00	0	1	0	0	0	0	0	3	0	3	0	0	7

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:55	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	1	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	1	0	0	0	0	1
16:30	0	0	0	0	0	0	0	1	0	0	0	0	1
16:45	0	0	0	0	0	0	0	0	0	0	0	0	0
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
15:55	0	0	0	0	0	0	1	0	1	0	0	0	1
16:00	0	0	0	0	0	0	1	4	5	0	4	4	9
16:15	1	0	1	0	0	0	1	0	1	0	0	0	2
16:30	0	0	0	1	0	1	3	0	3	1	1	2	6
16:45	2	0	2	0	0	0	2	4	6	1	5	6	14
17:00	1	1	2	0	0	0	0	1	1	0	2	2	5

Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	179	152	8	4	37	8	486	1	522	2	16	1425
Factor	0.62	0.95	0.70	0.40	0.50	0.77	0.67	0.86	0.25	0.98	0.25	0.80	0.98
Approach Factor	0.84			0.88			0.86			0.98			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	8	169	143	8	2	32	8	459	1	513	2	16	1361
Truck	2	10	9	0	2	4	0	25	0	9	0	0	61
Bicycle	0	0	0	0	0	1	0	2	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	3	0	3	1	0	1	7	8	15	2	10	12	31

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127909, Lon=-77.717800
Date: 2020-05-22
Day of week: Friday
Weather:
Analyst:



Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	179	152	8	4	37	8	486	1	522	2	16	1425
Factor	0.62	0.95	0.70	0.40	0.50	0.77	0.67	0.86	0.25	0.98	0.25	0.80	0.98
Approach Factor	0.84			0.88			0.86			0.98			

Intersection Peak Hour

12:15 - 13:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	185	153	3	4	47	8	407	5	410	2	19	1253
Factor	0.83	0.87	0.87	0.75	1.00	0.69	0.67	0.86	0.62	0.74	0.50	0.59	0.83
Approach Factor	0.93			0.71			0.85			0.74			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	7	151	128	3	3	42	6	366	5	392	1	16	1120
Truck	3	34	25	0	1	5	2	41	0	18	1	3	133
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	1	2	1	1	2	3	4	7	2	7	9	20

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127882, Lon=-77.717911
Date: 2020-05-22
Day of week: Friday
Weather:
Analyst:



Intersection Peak Hour

12:15 - 13:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	10	185	153	3	4	47	8	407	5	410	2	19	1253
Factor	0.83	0.87	0.87	0.75	1.00	0.69	0.67	0.86	0.62	0.74	0.50	0.59	0.83
Approach Factor	0.93			0.71			0.85			0.74			

Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	271	183	3	4	20	9	353	2	283	3	22	1162
Factor	0.75	0.86	0.93	0.38	1.00	0.71	0.45	0.88	0.50	0.92	0.75	0.79	0.95
Approach Factor	0.89			0.84			0.87			0.94			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	7	234	162	2	3	10	7	321	2	265	2	19	1043
Truck	2	37	21	1	1	1	2	31	0	17	1	3	117
Bicycle	0	0	0	0	0	0	0	1	0	1	0	0	2

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	1	6	1	2	3	5	1	6	3	6	9	24

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127841, Lon=-77.717953
Date: 2020-05-22
Day of week: Friday
Weather:
Analyst:



Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	271	183	3	4	20	9	353	2	283	3	22	1162
Factor	0.75	0.86	0.93	0.38	1.00	0.71	0.45	0.88	0.50	0.92	0.75	0.79	0.95
Approach Factor	0.89			0.84			0.87			0.94			

Intersection Peak Hour

13:45 - 14:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	339	258	3	6	24	22	307	5	273	6	39	1291
Factor	0.45	0.94	0.91	0.38	0.75	0.75	0.55	0.88	0.42	0.89	0.83	0.70	0.94
Approach Factor	0.96			0.82			0.89			0.84			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	9	320	254	3	6	22	20	292	4	258	6	37	1231
Truck	0	18	4	0	0	2	2	15	1	15	0	2	59
Bicycle	0	1	0	0	0	0	0	0	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	1	3	0	3	3	6	1	7	2	2	4	17

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127980, Lon=-77.717765
Date: 2020-05-23
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

13:45 - 14:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	9	339	258	3	6	24	22	307	5	273	6	39	1291
Factor	0.45	0.94	0.91	0.38	0.75	0.75	0.55	0.88	0.42	0.89	0.38	0.70	0.94
Approach Factor	0.96			0.82			0.89			0.84			

Intersection Count Summary

17:45 - 18:20

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	175	165	6	2	16	10	184	2	178	2	13	761

Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	6	165	156	6	2	15	10	173	2	165	2	13	715
Truck	2	10	9	0	0	1	0	11	0	13	0	0	46
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	1	0	1	0	3	3	1	7	8	14

Intersection Count Summary

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127834, Lon=-77.717813
Date: 2020-05-23
Day of week: Saturday
Weather:
Analyst:



Intersection Count Summary

17:45 - 18:20

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	8	175	165	6	2	16	10	184	2	178	2	13	761

Turn Count Summary

Location: Pleasant Street at Main Street, Winthrop, MA

GPS Coordinates: Lat=39.127878, Lon=-77.717913

Date: 2020-05-23

Day of week: Saturday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:15	2	72	60	0	0	6	1	83	1	76	3	14	318
15:30	3	55	76	0	1	1	5	69	0	6	1	5	283
15:45	2	73	74	1	0	4	6	101	0	75	1	3	340
16:00	5	86	94	1	1	5	2	72	1	7	2	8	347

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:15	2	63	54	0	0	6	0	75	1	70	3	14	288
15:30	3	49	71	0	1	0	5	66	0	61	1	5	262
15:45	1	65	69	1	0	4	6	91	0	70	0	3	310
16:00	5	76	85	1	0	5	2	64	0	69	2	6	315

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:15	0	9	6	0	0	0	1	8	0	6	0	0	30
15:30	0	6	5	0	0	0	0	3	0	6	0	0	20
15:45	1	8	5	0	0	0	0	10	0	5	1	0	30
16:00	0	10	9	0	1	0	0	8	0	2	0	2	32

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0
15:30	0	0	0	0	0	1	0	0	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
15:15	2	0	2	0	1	1	0	1	1	0	2	2	6
15:30	2	0	2	0	1	1	4	1	5	3	3	6	14
15:45	0	0	0	0	2	2	0	3	3	0	2	2	7
16:00	0	0	0	0	0	0	2	0	2	1	0	1	3

Intersection Peak Hour

15:15 - 16:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	12	286	304	2	2	16	14	325	1	289	7	30	1288
Factor	0.60	0.83	0.81	0.50	0.50	0.67	0.58	0.80	0.25	0.95	0.53	0.54	0.93
Approach Factor	0.81			0.71			0.79			0.88			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	11	253	279	2	1	15	13	296	1	270	6	28	1175
Truck	1	33	25	0	1	0	1	29	0	19	1	2	112
Bicycle	0	0	0	0	0	1	0	0	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	4	0	4	0	4	4	6	5	11	4	7	11	30

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop, MA
GPS Coordinates: Lat=39.127878, Lon=-77.717913
Date: 2020-05-23
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

15:15 - 16:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	12	286	304	2	2	16	14	325	1	289	7	30	1288
Factor	0.60	0.83	0.81	0.50	0.50	0.67	0.58	0.80	0.25	0.95	0.58	0.54	0.93
Approach Factor	0.81			0.71			0.79			0.88			

Intersection Peak Hour

19:00 - 20:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	12	362	405	3	3	21	16	326	5	320	6	25	1504
Factor	0.60	0.91	0.82	0.38	0.38	0.66	0.50	0.86	0.62	0.82	0.50	0.78	0.86
Approach Factor	0.85			0.68			0.83			0.81			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	9	334	371	3	3	21	14	289	5	289	6	22	1366
Truck	3	27	33	0	0	0	2	36	0	31	0	3	135
Bicycle	0	1	1	0	0	0	0	1	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	7	0	7	0	3	3	2	2	4	1	5	6	20

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop, MA
GPS Coordinates: Lat=39.127901, Lon=-77.717889
Date: 2020-05-23
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

19:00 - 20:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	12	362	405	3	3	21	16	326	5	320	6	25	1504
Factor	0.60	0.91	0.82	0.38	0.38	0.66	0.50	0.86	0.62	0.82	0.50	0.78	0.86
Approach Factor	0.85			0.68			0.83			0.81			

Intersection Peak Hour

18:15 - 19:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	449	496	3	8	21	12	286	1	283	9	26	1609
Factor	0.62	0.92	0.89	0.38	0.50	0.66	0.43	0.94	0.25	0.91	0.75	0.59	0.95
Approach Factor	0.92			0.73			0.97			0.88			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	14	433	494	3	8	21	12	272	1	276	8	26	1568
Truck	1	14	2	0	0	0	0	13	0	7	1	0	38
Bicycle	0	2	0	0	0	0	0	1	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	6	0	6	2	4	6	0	4	4	1	3	4	20

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127889, Lon=-77.718043
Date: 2020-05-24
Day of week: Sunday
Weather:
Analyst:



Intersection Peak Hour

18:15 - 19:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	15	449	496	3	8	21	12	286	1	283	9	26	1609
Factor	0.62	0.92	0.89	0.38	0.50	0.66	0.43	0.94	0.25	0.91	0.75	0.59	0.95
Approach Factor	0.92			0.73			0.97			0.88			

Turn Count Summary

Location: Pleasant at Main, Winthrop, MA

GPS Coordinates: Lat=39.127872, Lon=-77.718083

Date: 2020-05-26

Day of week: Tuesday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
09:40	4	41	36	0	0	3	1	22	0	19	1	0	127
09:45	7	109	111	2	2	5	3	73	0	5	2	3	369
10:00	5	137	108	0	0	2	1	71	0	42	3	4	373
10:15	5	131	135	1	2	0	3	54	0	4	1	4	380

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
09:40	4	40	36	0	0	3	1	22	0	19	1	0	126
09:45	7	106	111	2	2	5	3	72	0	49	2	3	362
10:00	5	134	108	0	0	2	1	65	0	42	3	4	364
10:15	5	126	133	1	2	0	3	49	0	43	1	4	367

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
09:40	0	1	0	0	0	0	0	0	0	0	0	0	1
09:45	0	3	0	0	0	0	0	1	0	3	0	0	7
10:00	0	3	0	0	0	0	0	6	0	0	0	0	9
10:15	0	5	2	0	0	0	0	5	0	1	0	0	13

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
09:40	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	0	0	0
10:00	0	0	0	0	0	0	0	0	0	0	0	0	0
10:15	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
09:40	0	0	0	0	0	0	0	0	0	0	0	0	0
09:45	0	0	0	0	0	0	0	0	0	0	1	1	1
10:00	1	0	1	1	1	2	0	0	0	0	1	1	4
10:15	1	0	1	0	0	0	1	0	1	0	0	0	2

Intersection Peak Hour

09:30 - 10:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	21	418	390	3	4	10	8	220	0	157	7	11	1249
Factor	0.75	0.76	0.72	0.38	0.50	0.50	0.67	0.75	0.00	0.75	0.53	0.69	0.82
Approach Factor	0.76			0.47			0.75			0.77			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	21	406	388	3	4	10	8	208	0	153	7	11	1219
Truck	0	12	2	0	0	0	0	12	0	4	0	0	30
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	1	1	2	1	0	1	0	2	2	7

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127872, Lon=-77.718083
Date: 2020-05-26
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

09:30 - 10:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	21	418	390	3	4	10	8	220	0	157	7	11	1249
Factor	0.75	0.76	0.72	0.38	0.50	0.50	0.67	0.75	0.00	0.75	0.58	0.69	0.82
Approach Factor	0.76			0.47			0.75			0.77			

Intersection Peak Hour

14:00 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	444	443	3	4	21	10	261	3	214	2	28	1447
Factor	0.58	0.86	0.85	0.38	0.50	0.66	0.62	0.84	0.38	0.79	0.50	0.70	0.90
Approach Factor	0.86			0.78			0.86			0.84			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	14	432	433	3	4	20	10	250	3	209	2	28	1408
Truck	0	12	10	0	0	1	0	11	0	5	0	0	39
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	4	0	4	0	2	2	0	5	5	1	6	7	18

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop, MA
GPS Coordinates: Lat=39.127919, Lon=-77.717883
Date: 2020-05-24
Day of week: Sunday
Weather:
Analyst:



Intersection Peak Hour

14:00 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	14	444	443	3	4	21	10	261	3	214	2	28	1447
Factor	0.58	0.86	0.85	0.38	0.50	0.66	0.62	0.84	0.38	0.79	0.50	0.70	0.90
Approach Factor	0.86			0.78			0.86			0.84			

Turn Count Summary

Location: Pleasant Street at Main Street, Winthrop, MA

GPS Coordinates: Lat=39.127908, Lon=-77.718017

Date: 2020-05-24

Day of week: Sunday

Weather:

Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:32	0	77	71	0	0	3	1	49	0	44	0	6	231
15:45	6	79	87	0	1	3	1	55	1	36	1	9	279
16:00	4	87	67	1	1	8	2	50	1	32	3	5	261
16:15	6	66	78	0	1	7	1	51	0	37	1	1	248
16:30	0	0	1	0	0	0	0	3	0	0	0	0	4

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:32	0	75	68	0	0	3	1	46	0	42	0	6	241
15:45	6	76	87	0	1	3	1	52	1	36	1	9	273
16:00	3	86	65	1	1	8	2	46	1	31	3	5	252
16:15	6	60	74	0	1	7	1	51	0	34	0	1	235
16:30	0	0	1	0	0	0	0	2	0	0	0	0	3

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:32	0	2	3	0	0	0	0	2	0	2	0	0	9
15:45	0	3	0	0	0	0	0	3	0	0	0	0	6
16:00	0	1	2	0	0	0	0	4	0	1	0	0	8
16:15	0	6	4	0	0	0	0	0	0	3	0	0	13
16:30	0	0	0	0	0	0	0	1	0	0	0	0	1

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:32	0	0	0	0	0	0	0	1	0	0	0	0	1
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0
16:00	1	0	0	0	0	0	0	0	0	0	0	0	1
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0
16:30	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
15:32	0	0	0	0	1	1	0	2	2	0	0	0	3
15:45	2	0	2	0	0	0	0	1	1	0	0	0	3
16:00	0	0	0	0	0	0	1	0	1	0	0	0	1
16:15	1	0	1	0	1	1	0	0	0	0	0	0	2
16:30	1	0	1	0	0	0	0	0	0	1	0	1	2

Intersection Peak Hour

15:30 - 16:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	16	309	303	1	3	21	5	205	2	149	4	21	1039
Factor	0.67	0.89	0.87	0.25	0.75	0.66	0.62	0.93	0.50	0.85	0.93	0.58	0.93
Approach Factor	0.91			0.62			0.93			0.87			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	15	297	294	1	3	21	5	195	2	143	4	21	1001
Truck	0	12	9	0	0	0	0	9	0	6	0	0	36
Bicycle	1	0	0	0	0	0	0	1	0	0	0	0	2

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	3	0	3	0	2	2	1	3	4	0	0	0	9

Intersection Peak Hour

Location: Pleasant Street at Main Street, Winthrop, MA
GPS Coordinates: Lat=39.127908, Lon=-77.718017
Date: 2020-05-24
Day of week: Sunday
Weather:
Analyst:



Intersection Peak Hour

15:30 - 16:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	16	309	303	1	3	21	5	205	2	149	4	21	1039
Factor	0.67	0.89	0.87	0.25	0.75	0.66	0.62	0.93	0.50	0.85	0.33	0.58	0.93
Approach Factor	0.91			0.62			0.93			0.87			

Intersection Peak Hour

11:00 - 12:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	204	153	0	0	8	4	148	1	93	2	11	628
Factor	0.50	0.68	0.70	0.00	0.00	0.50	0.50	0.64	0.25	0.66	0.25	0.46	0.69
Approach Factor	0.71			0.50			0.64			0.65			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	4	202	153	0	0	8	4	145	1	91	2	11	621
Truck	0	2	0	0	0	0	0	3	0	2	0	0	7
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	5	0	5	1	1	2	0	2	2	2	5	7	16

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=39.127858, Lon=-77.717699
Date: 2020-05-28
Day of week: Thursday
Weather:
Analyst:



Intersection Peak Hour

11:00 - 12:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	4	204	153	0	0	8	4	148	1	93	2	11	628
Factor	0.50	0.68	0.70	0.00	0.00	0.50	0.50	0.64	0.25	0.66	0.25	0.46	0.69
Approach Factor	0.71			0.50			0.64			0.65			

Intersection Count Summary

15:11 - 15:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	69	55	1	2	4	2	42	0	35	1	3	214

Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	68	54	1	2	4	2	42	0	35	1	3	212
Truck	0	1	1	0	0	0	0	0	0	0	0	0	2
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	0	1	1	0	1	1	1	1	2	6

Intersection Count Summary

Location: at ,
 GPS Coordinates:
 Date: 2020-06-11
 Day of week: Thursday
 Weather:
 Analyst:



Intersection Count Summary

15:11 - 15:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	69	55	1	2	4	2	42	0	35	1	3	214

Turn Count Summary

Location: at ,
GPS Coordinates:
Date: 2020-06-11
Day of week: Thursday
Weather:
Analyst:

Total vehicle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:31	0	46	44	0	1	2	1	28	0	26	3	3	155
15:45	0	50	37	1	0	1	3	29	0	22	1	5	149

Car traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:31	0	45	44	0	1	2	1	24	1	26	3	3	150
15:45	0	47	37	1	0	1	3	29	0	22	1	5	146

Truck traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:31	0	0	0	0	0	0	0	4	0	0	0	0	5
15:45	0	0	0	0	0	0	0	0	0	0	0	0	3

Bicycle traffic

Interval starts	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
15:31	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian volumes

Interval starts	NE			NW			SW			SE			Total
	Left	Right	Total										
15:31	1	0	1	0	0	0	0	0	0	1	0	1	2
15:45	0	0	0	1	1	2	0	0	0	0	1	1	3

Intersection Count Summary

15:31 - 15:59

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	96	81	1	1	3	4	57	1	48	4	8	304

Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	0	92	81	1	1	3	0	53	1	48	4	8	296
Truck	0	4	0	0	0	0	0	4	0	0	0	0	8
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrians Summary

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	0	1	1	1	2	0	0	0	1	1	2	5

Intersection Count Summary

Location: at ,
GPS Coordinates:
Date: 2020-06-11
Day of week: Thursday
Weather:
Analyst:



Intersection Count Summary

15:31 - 15:59

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	96	81	1	1	3	4	57	1	48	4	8	304

Intersection Peak Hour

15:45 - 16:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	182	143	0	0	10	5	93	0	78	1	8	523
Factor	0.38	0.66	0.73	0.00	0.00	0.36	0.42	0.73	0.00	0.75	0.25	0.40	0.72
Approach Factor	0.68			0.36			0.70			0.68			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	179	143	0	0	10	5	88	0	78	1	8	515
Truck	0	3	0	0	0	0	0	5	0	0	0	0	8
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	0	1	0	2	2	2	2	4	0	0	0	7

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=40.453022, Lon=-79.934679
Date: 2020-06-13
Day of week: Saturday
Weather:
Analyst:



Intersection Peak Hour

15:45 - 16:45

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	182	143	0	0	10	5	93	0	78	1	8	523
Factor	0.38	0.66	0.73	0.00	0.00	0.36	0.42	0.73	0.00	0.75	0.25	0.40	0.72
Approach Factor	0.68			0.36			0.70			0.68			

Intersection Peak Hour

17:15 - 18:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	11	135	117	1	1	7	5	63	0	12	34	0	386
Factor	0.46	0.91	0.86	0.25	0.25	0.44	0.62	0.72	0.00	0.75	0.50	0.00	0.86
Approach Factor	0.89			0.45			0.77			0.55			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	11	133	117	1	0	7	5	63	0	12	34	0	383
Truck	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	2	0	0	1	0	0	0	0	0	0	0	3

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	1	1	0	0	0	0	0	0	1

Intersection Peak Hour

Location: Pleasant at Main , Winthrop, MA
GPS Coordinates: Lat=40.453146, Lon=-79.934560
Date: 2020-06-14
Day of week: Sunday
Weather:
Analyst:



Intersection Peak Hour

17:15 - 18:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	11	135	117	1	1	7	5	63	0	12	34	0	386
Factor	0.46	0.91	0.86	0.25	0.25	0.44	0.62	0.72	0.00	0.75	0.50	0.00	0.86
Approach Factor	0.89			0.45			0.77			0.55			

Intersection Peak Hour

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=40.452928, Lon=-79.934770
Date: 2020-06-24
Day of week: Wednesday
Weather:
Analyst:



Intersection Peak Hour

11:30 - 12:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	47	23	0	1	2	1	22	1	11	0	0	109
Factor	0.25	0.69	0.64	0.00	0.25	0.50	0.25	0.69	0.25	0.55	0.00	0.00	0.76
Approach Factor	0.68			0.75			0.75			0.55			

Intersection Count Summary

Location: Pleasant at Main, Winthrop, MA
GPS Coordinates: Lat=40.452863, Lon=-79.934780
Date: 2020-06-24
Day of week: Wednesday
Weather:
Analyst:



Intersection Count Summary

12:32 - 12:40

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	8	2	0	1	0	1	2	0	0	0	0	15

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127938, Lon=-77.717733
Date: 2020-06-01
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

16:30 - 17:30

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	45	29	0	0	1	2	21	0	17	0	0	115
Factor	0.00	0.87	0.60	0.00	0.00	0.25	0.50	0.75	0.00	0.71	0.00	0.00	0.76
Approach Factor	0.74			0.25			0.72			0.71			

Intersection Peak Hour

19:15 - 20:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	2	21	5	0	0	5	0	34	0	13	1	0	81
Factor	0.25	0.58	0.62	0.00	0.00	0.62	0.00	0.65	0.00	0.46	0.25	0.00	0.68
Approach Factor	0.58			0.62			0.65			0.50			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	2	19	5	0	0	5	0	33	0	12	1	0	77
Truck	0	2	0	0	0	0	0	1	0	1	0	0	4
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	0	0	0	0	0	0	1	1	1

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127885, Lon=-77.718002
Date: 2020-06-01
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

19:15 - 20:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	2	21	5	0	0	5	0	34	0	13	1	0	81
Factor	0.25	0.58	0.62	0.00	0.00	0.62	0.00	0.65	0.00	0.46	0.25	0.00	0.68
Approach Factor	0.58			0.62			0.65			0.50			

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127945, Lon=-77.717777
Date: 2020-06-01
Day of week: Monday
Weather:
Analyst:



Intersection Peak Hour

20:15 - 21:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	15	11	1	0	5	1	45	0	30	0	0	111
Factor	0.75	0.54	0.92	0.25	0.00	0.62	0.25	0.62	0.00	0.75	0.00	0.00	0.77
Approach Factor	0.72			0.75			0.64			0.75			

Intersection Peak Hour

14:00 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	57	49	0	0	8	2	199	0	155	4	4	481
Factor	0.25	0.59	0.72	0.00	0.00	0.50	0.50	0.71	0.00	0.60	0.00	0.33	0.67
Approach Factor	0.68			0.50			0.71			0.62			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	49	47	0	0	8	1	192	0	148	4	4	456
Truck	0	8	2	0	0	0	1	6	0	7	0	0	24
Bicycle	0	0	0	0	0	0	0	1	0	0	0	0	1

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	0	0	0	0	0	0	0	1	1	0	3	3	4

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.128049, Lon=-77.717700
Date: 2020-06-02
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

14:00 - 15:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	57	49	0	0	8	2	199	0	155	4	4	481
Factor	0.25	0.59	0.72	0.00	0.00	0.50	0.50	0.71	0.00	0.60	1.00	0.33	0.67
Approach Factor	0.68			0.50			0.71			0.62			

Intersection Peak Hour

15:15 - 16:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	62	74	0	1	17	2	300	0	245	5	8	717
Factor	0.38	0.65	0.74	0.00	0.25	0.61	0.25	0.64	0.00	0.60	0.21	0.50	0.64
Approach Factor	0.71			0.56			0.63			0.61			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	3	52	70	0	1	16	2	277	0	228	5	7	661
Truck	0	10	4	0	0	1	0	23	0	17	0	1	56
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	1	0	1	0	0	0	0	4	4	1	6	7	12

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.128049, Lon=-77.717700
Date: 2020-06-02
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

15:15 - 16:15

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	3	62	74	0	1	17	2	300	0	245	5	8	717
Factor	0.38	0.65	0.74	0.00	0.25	0.61	0.25	0.64	0.00	0.60	0.31	0.50	0.64
Approach Factor	0.71			0.56			0.63			0.61			

Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	2	113	132	1	8	34	7	388	0	420	2	21	1128
Factor	0.25	0.58	0.75	0.25	0.67	0.65	0.44	0.73	0.00	0.75	0.50	0.66	0.75
Approach Factor	0.73			0.72			0.74			0.74			

Peak Hour Vehicle Summary

Vehicle	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Car	2	98	118	1	8	32	5	353	0	401	2	17	1037
Truck	0	15	14	0	0	2	2	35	0	19	0	4	91
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak Hour Pedestrians

	NE			NW			SW			SE			Total
	Left	Right	Total										
Pedestrians	2	0	2	0	1	1	1	8	9	2	11	13	25

Intersection Peak Hour

Location: Pleasant Street at Main Street , Winthrop, MA
GPS Coordinates: Lat=39.127936, Lon=-77.718174
Date: 2020-06-02
Day of week: Tuesday
Weather:
Analyst:



Intersection Peak Hour

16:00 - 17:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	2	113	132	1	8	34	7	388	0	420	2	21	1128
Factor	0.25	0.58	0.75	0.25	0.67	0.65	0.44	0.73	0.00	0.75	0.50	0.66	0.75
Approach Factor	0.73			0.72			0.74			0.74			

Appendix D: Traffic Accident Data

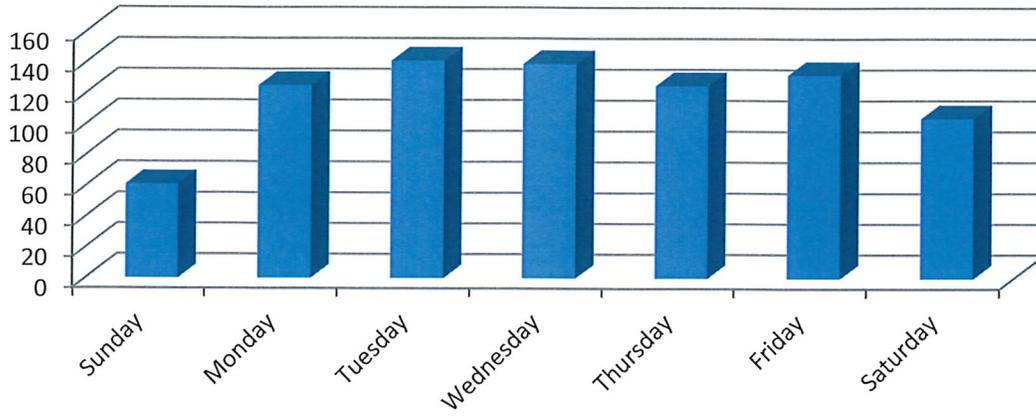
DRAFT

Traffic Citations & Accidents

The following charts and graphs offer data on traffic citations in the Town of Winthrop in Fiscal Year 2019. Information below includes traffic citations by time of day, per week, and the racial composition of those receiving citations in the Town of Winthrop for Fiscal year 2019. The first chart breaks down citations by day and by hour; the second chart illustrates citation by day of the week, and the third offers information on the racial composition of those issued citations.

Traffic Citations in Winthrop, FY19								
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Totals
12:00 AM	7	10	15	18	13	10	11	84
1:00 AM	5	8	6	5	5	6	9	44
2:00 AM	0	0	1	2	0	5	4	12
3:00 AM	1	1	0	0	1	0	1	4
4:00 AM	0	0	2	0	0	0	0	2
5:00 AM	0	0	0	0	0	0	1	1
6:00 AM	0	1	2	1	1	0	0	5
7:00 AM	1	4	4	1	5	2	2	19
8:00 AM	3	4	7	6	3	5	3	31
9:00 AM	2	6	6	7	5	3	2	31
10:00 AM	5	10	8	13	10	12	8	66
11:00 AM	5	6	8	12	9	11	7	58
12:00 PM	4	9	9	10	7	10	8	57
1:00 PM	1	9	14	6	12	8	4	54
2:00 PM	7	7	9	12	4	6	9	54
3:00 PM	3	9	11	9	10	14	4	60
4:00 PM	1	2	1	2	3	3	1	13
5:00 PM	3	4	1	2	5	6	6	27
6:00 PM	1	4	4	4	1	6	4	24
7:00 PM	2	8	3	6	4	2	8	33
8:00 PM	1	4	6	3	6	5	1	26
9:00 PM	1	5	0	2	3	4	1	16
10:00 PM	1	4	4	4	8	3	1	25
11:00 PM	7	10	20	14	10	11	9	81
TOTAL	61	125	141	139	125	132	104	827

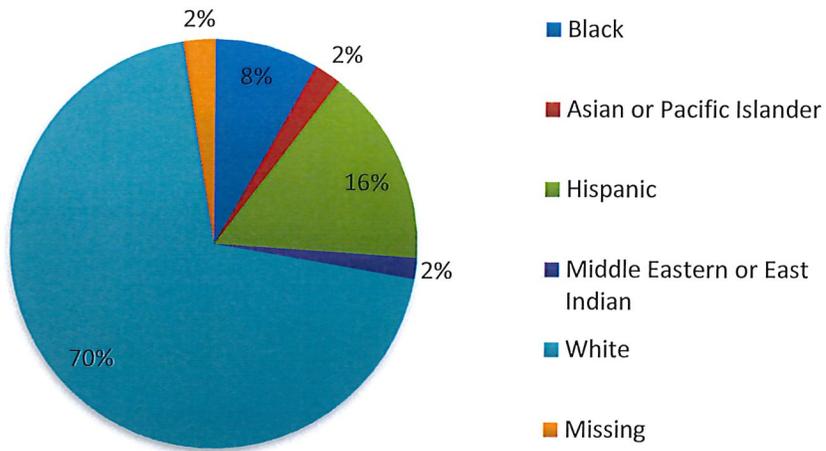
Citations by Day of the Week



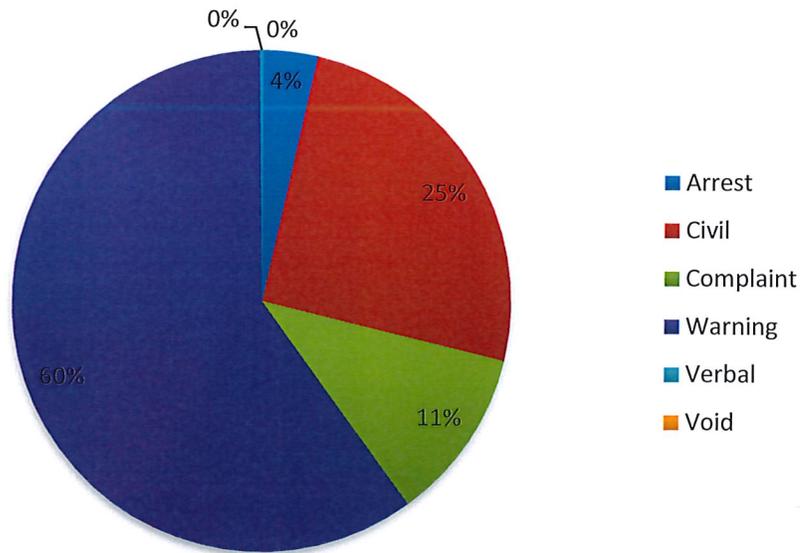
OPERATOR AGE/GENDER/RACE

		<21	22-25	26-35	36-55	>55
WHITE	Male	48	41	98	143	86
	Female	10	19	41	42	34
BLACK	Male	0	7	13	15	7
	Female	1	1	3	6	0
Asian	Male	3	1	1	5	4
	Female	1	0	1	0	2
Indian	Male	0	0	0	0	0
	Female	0	0	0	0	0
Unknown	Male	9	10	34	41	18
	Female	3	8	16	18	9

Racial Composition of Citations



Citations



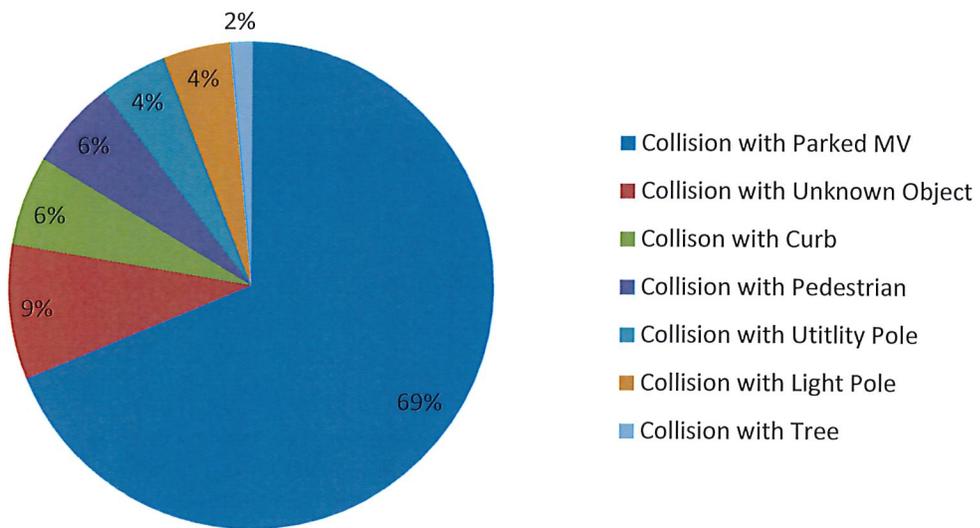
The following graphs represent information on traffic accidents in Winthrop in Fiscal Year 2019. It is important to note that there were 155 traffic accidents involving 198 vehicle operators. Traffic accidents as recorded may or may not involve more than one motor vehicle operators. The first chart offers information on the day and time of accidents, the second and third chart and graph offer demographic information on those involved in traffic accidents in the Town of Winthrop in Fiscal Year 2019.

Traffic Accidents in Winthrop, FY19								
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12:00 AM	1	1	0	1	1	0	2	5
1:00 AM	0	0	0	0	1	1	2	4
2:00 AM	1	1	1	0	0	0	1	4
3:00 AM	0	0	0	0	1	0	0	1
4:00 AM	0	0	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	1	0	1
6:00 AM	1	1	1	1	0	0	0	4
7:00 AM	0	2	1	1	0	1	1	6
8:00 AM	0	1	1	1	4	1	0	8
9:00 AM	0	4	0	2	0	3	0	9
10:00 AM	1	0	1	1	3	1	3	10
11:00 AM	1	1	0	1	2	3	1	9
12:00 PM	1	1	0	1	2	3	0	8
1:00 PM	0	1	1	1	2	3	3	11
2:00 PM	3	1	5	2	2	4	1	18
3:00 PM	1	0	0	1	1	3	1	7
4:00 PM	0	2	2	2	1	0	2	9
5:00 PM	0	1	2	2	2	1	0	8
6:00 PM	2	1	1	0	0	0	0	4
7:00 PM	1	0	2	0	2	2	0	7
8:00 PM	1	1	0	0	1	0	4	7
9:00 PM	0	0	1	0	2	0	1	4
10:00 PM	1	0	0	1	0	1	1	4
11:00 PM	1	0	0	2	0	2	2	7
TOTAL	16	19	19	20	26	30	25	155

Operator Age/Sex

	<21	22-25	26-35	36-45	46-60	>60
Male	14	14	24	11	28	25
Female	5	9	18	14	14	22
Totals	19	23	42	25	42	47

Type of MV Accident

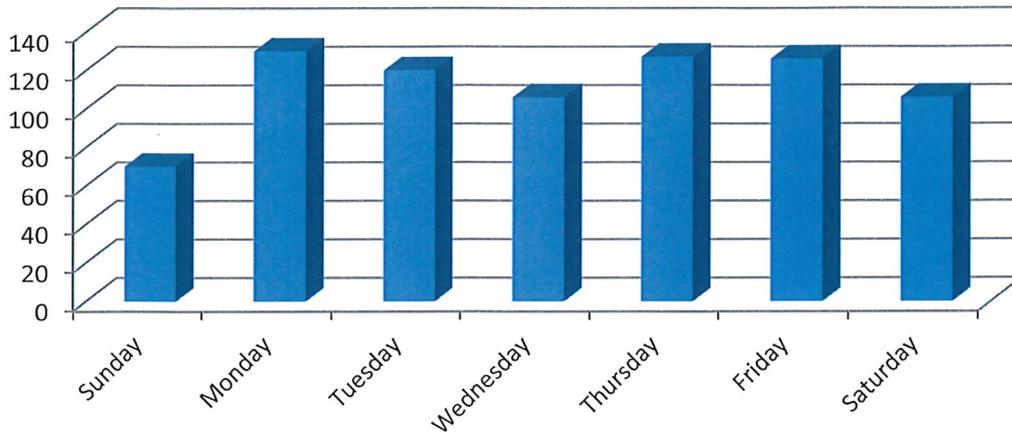


Traffic Citations & Accidents

The following charts and graphs offer data on traffic citations in the Town of Winthrop in Fiscal Year 2018. Information below includes traffic citations by time of day, per week, and the demographic composition of those receiving citations in the Town of Winthrop for Fiscal year 2018. The first chart breaks down citations by day and by hour; the second chart illustrates citation by day of the week, and the third offers information on the racial composition of those issued citations.

Traffic Citations in Winthrop, FY18								
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Totals
12:00 AM	10	9	9	8	11	8	8	63
1:00 AM	3	10	4	7	5	9	10	48
2:00 AM	5	3	5	2	1	1	3	20
3:00 AM	0	3	1	1	2	3	4	14
4:00 AM	1	1	1	0	0	0	0	3
5:00 AM	0	3	0	0	0	1	1	5
6:00 AM	0	0	0	0	4	1	0	5
7:00 AM	0	1	0	1	2	1	0	5
8:00 AM	3	5	4	9	10	11	3	45
9:00 AM	5	12	12	10	8	16	6	69
10:00 AM	5	12	14	9	10	7	6	63
11:00 AM	6	11	15	4	9	7	7	59
12:00 PM	3	6	11	9	8	4	7	48
1:00 PM	3	5	6	7	6	4	3	34
2:00 PM	3	9	7	5	8	5	4	41
3:00 PM	2	4	6	4	4	10	5	35
4:00 PM	2	1	1	4	2	3	2	15
5:00 PM	2	2	5	2	3	2	2	18
6:00 PM	4	4	4	4	7	1	1	25
7:00 PM	2	4	3	5	8	4	4	30
8:00 PM	4	6	1	3	6	6	8	34
9:00 PM	2	4	3	3	4	6	2	24
10:00 PM	3	8	0	1	1	8	8	29
11:00 PM	2	7	8	8	8	8	12	53
TOTAL	70	130	120	106	127	126	106	785

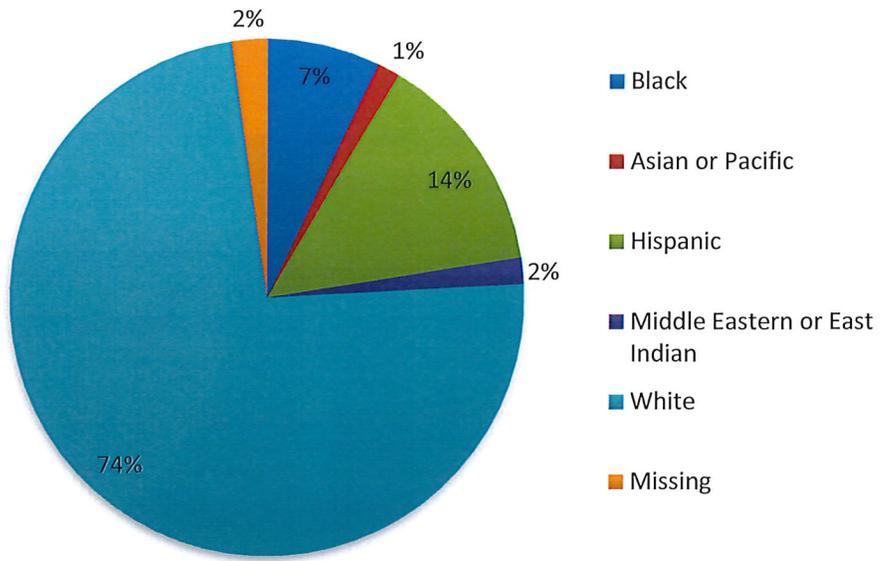
Citations by Day of the Week



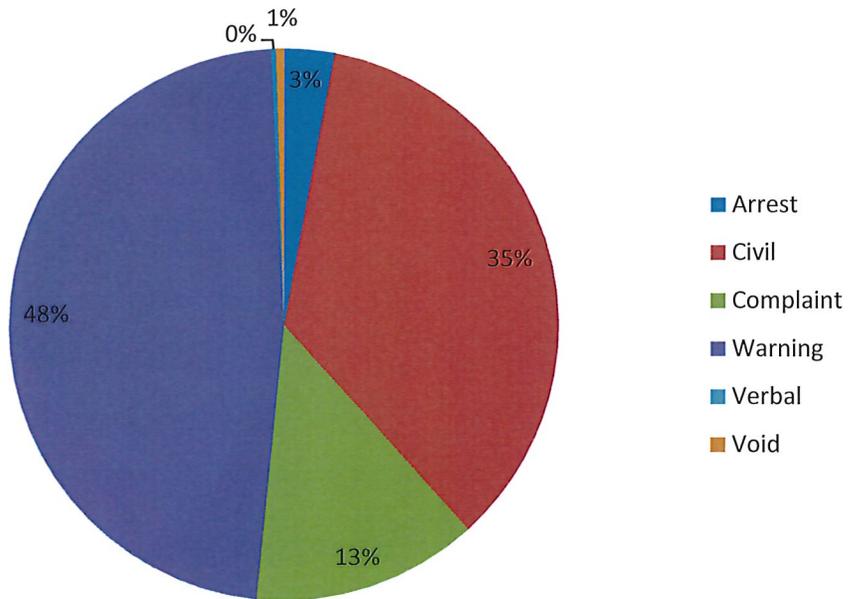
OPERATOR AGE/SEX/RACE

		<21	22-25	26-35	36-55	>55
WHITE	Male	30	37	110	135	72
	Female	21	13	43	67	42
BLACK	Male	1	5	17	11	1
	Female	1	1	3	4	0
Asian	Male	0	1	1	5	1
	Female	1	0	0	0	0
Indian	Male	0	0	0	0	0
	Female	0	0	0	0	0
Unknown	Male	11	8	24	29	17
	Female	4	3	5	9	8

Racial Composition of Citations



Citations



The following graphs represent information on traffic accidents in Winthrop in Fiscal Year 2018. It is important to note that there were 189 traffic accidents involving 264 vehicle operators. Traffic accidents as recorded may or may not involve more than one motor vehicle operators. The first chart offers information on the day and time of accidents, the second and third chart and graph offer demographic information on those involved in traffic accidents in the Town of Winthrop in Fiscal Year 2018.

Traffic Accidents in Winthrop, FY18								
Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12:00 AM	0	0	0	1	0	2	2	5
1:00 AM	0	0	0	1	1	0	2	4
2:00 AM	1	0	0	0	0	0	3	4
3:00 AM	0	0	0	0	0	0	1	1
4:00 AM	0	0	1	0	0	1	0	2
5:00 AM	1	1	0	1	0	0	0	3
6:00 AM	0	2	2	3	2	0	3	12
7:00 AM	2	0	1	3	4	4	1	15
8:00 AM	1	1	2	2	0	1	3	10
9:00 AM	1	0	2	3	1	3	2	12
10:00 AM	2	1	4	1	0	1	4	13
11:00 AM	3	2	1	1	2	2	2	13
12:00 PM	0	0	1	2	3	2	0	8
1:00 PM	1	2	3	2	3	1	2	14
2:00 PM	1	0	4	0	2	0	2	9
3:00 PM	1	3	1	0	3	2	3	13
4:00 PM	0	1	2	2	0	3	0	8
5:00 PM	1	1	1	1	0	2	1	7
6:00 PM	1	1	1	2	3	3	3	14
7:00 PM	0	1	1	1	1	1	1	6
8:00 PM	0	2	1	2	2	1	0	8
9:00 PM	1	0	0	0	0	2	0	3
10:00 PM	0	0	1	0	0	0	1	2
11:00 PM	1	0	0	0	0	0	2	3
TOTAL	18	18	29	28	27	31	38	189

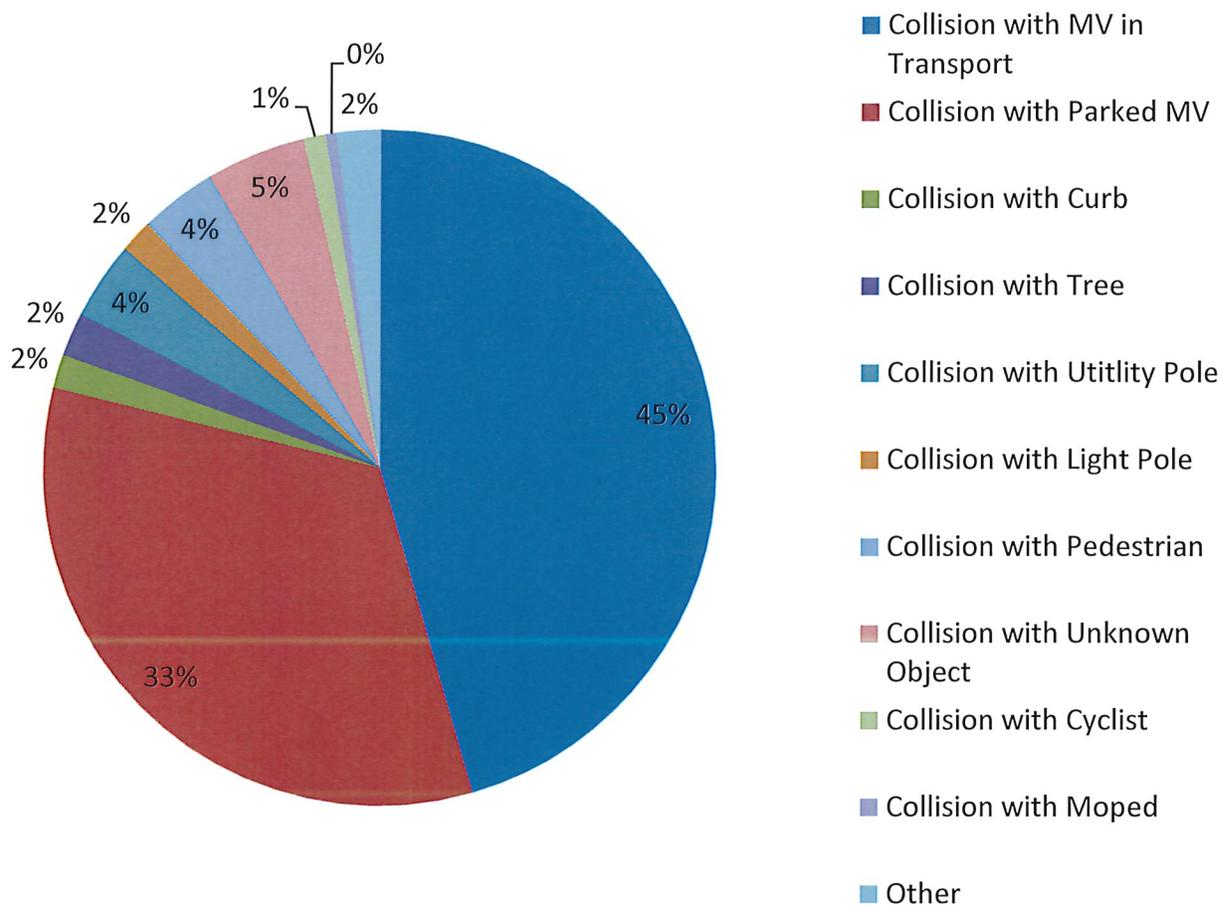
Traffic Accidents in Winthrop by Month, FY18

Time	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	Total
12:00 AM	0	1	1	0	0	0	0	0	0	0	1	0	3
1:00 AM	1	0	0	1	0	0	1	0	1	0	0	1	5
2:00 AM	0	0	0	0	0	1	0	0	1	0	1	1	4
3:00 AM	0	1	0	0	0	1	0	0	1	0	1	0	4
4:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
5:00 AM	1	0	0	0	0	0	0	0	0	1	0	0	2
6:00 AM	0	1	0	0	0	0	0	1	0	0	1	0	3
7:00 AM	0	0	2	2	1	0	2	1	1	0	1	2	12
8:00 AM	1	2	3	1	1	2	3	1	0	0	0	1	15
9:00 AM	0	0	1	3	1	1	1	0	1	0	1	1	10
10:00 AM	2	0	1	1	2	1	1	1	0	2	0	1	12
11:00 AM	1	2	0	0	1	3	0	1	2	2	0	1	13
12:00 PM	1	1	1	1	2	1	0	0	2	1	2	1	13
1:00 PM	2	1	0	1	0	0	0	0	1	2	1	0	8
2:00 PM	1	1	0	1	3	2	2	0	0	1	2	1	14
3:00 PM	2	1	1	0	2	1	1	0	0	0	1	0	9
4:00 PM	4	0	0	3	1	2	0	0	2	1	0	0	13
5:00 PM	0	0	1	1	1	0	2	1	0	0	0	2	8
6:00 PM	2	0	0	0	0	1	0	0	1	0	2	1	7
7:00 PM	2	0	1	1	3	0	0	2	1	1	1	2	14
8:00 PM	3	0	0	0	0	0	0	0	0	2	0	1	6
9:00 PM	0	0	0	1	0	1	0	1	2	1	1	1	8
10:00 PM	0	1	1	0	0	0	0	0	0	0	0	1	3
11:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	2
TOTAL	23	12	13	18	19	17	13	9	16	14	17	18	189

Operator Age/Sex/Race

	<21	22-25	26-35	36-45	46-60	>60
Male	27	14	32	22	31	31
Female	22	7	20	17	24	16
Totals	49	21	52	39	55	47

Type of MV Accident



Top 5 Accident Streets

Main St	24
Pleasant St	11
Revere St	22
Sea Foam Ave	21
Winthrop St	10



Accident Breakdown

<u>Street / Location Names</u>	<u>INJURIES</u>	<u>FATALITIES</u>	<u>OUI INVLD.</u>	<u>PEDESTRIAN</u>	<u>BICYCLISTS</u>	<u># OF ACC.</u>
BARTLETT RD	0	0	0	0	0	2
COTTAGE PARK RD	0	0	0	0	0	1
MAIN ST	9	0	0	1	0	24
PLEASANT ST	2	0	0	1	0	11
WINTHROP ST	0	0	0	0	0	2
TOTALS	11	0	0	2	0	40



Accident Breakdown

<u>Street / Location Names</u>	<u>INJURIES</u>	<u>FATALITIES</u>	<u>OUI</u>	<u>INVLD.</u>	<u>PEDESTRIAN</u>	<u>BICYCLISTS</u>	<u># OF ACC.</u>
BUCHANAN ST	0	0		0	0	0	1
HERMON ST	0	0		0	0	0	1
MAIN ST	5	0		0	1	0	20
PALMYRA ST	0	0		0	0	0	1
PLEASANT ST	4	0		0	0	0	6
REVERE ST	0	0		0	0	0	1
WALDEN ST	0	0		0	0	0	1
TOTALS	9	0		0	1	0	31



Accident Breakdown

<u>Street / Location Names</u>	<u>INJURIES</u>	<u>FATALITIES</u>	<u>OUI INVLD.</u>	<u>PEDESTRIAN</u>	<u>BICYCLISTS</u>	<u># OF ACC.</u>
BARTLETT RD	0	0	0	0	0	1
COURT RD	0	0	0	0	0	1
MAIN ST	3	0	0	1	0	17
PLEASANT ST	1	1	0	2	0	7
REVERE ST	0	0	0	0	0	1
TOTALS	<u>4</u>	<u>1</u>	<u>0</u>	<u>3</u>	<u>0</u>	<u>27</u>

FY20

Intersection of Main and Pleasant

JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
1	0	1	0	0	1	0	0	0	0	0	0

FY19

Intersection of Main and Pleasant

JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
0	1	0	0	0	0	0	0	0	0	0	0

FY18

Intersection of Main and Pleasant

JUL	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
0	0	0	0	1	0	0	0	0	0	0	1

Appendix E: Existing Conditions Survey Plan

DRAFT

**FRASER
POLY-ENGINEERING
SERVICES**

**CIVIL ENGINEERING
CONSULTANTS**

236 HUNTINGTON AVE SUITE 404
BOSTON, MA. 02115
Business Phone: 617-377-4110
Cell Phone: 617-291-2423
Email: kurt@fraseres.com
www.fraseres.com

**PROJECT:
PLEASANT STREET AT
MAIN STREET
WINTHROP, MA**

**DEVELOPER / OWNER:
Town of Winthrop
Austin Faison - Town Manager
1 Metcalf Square
Winthrop, MA 02152**

Notes:

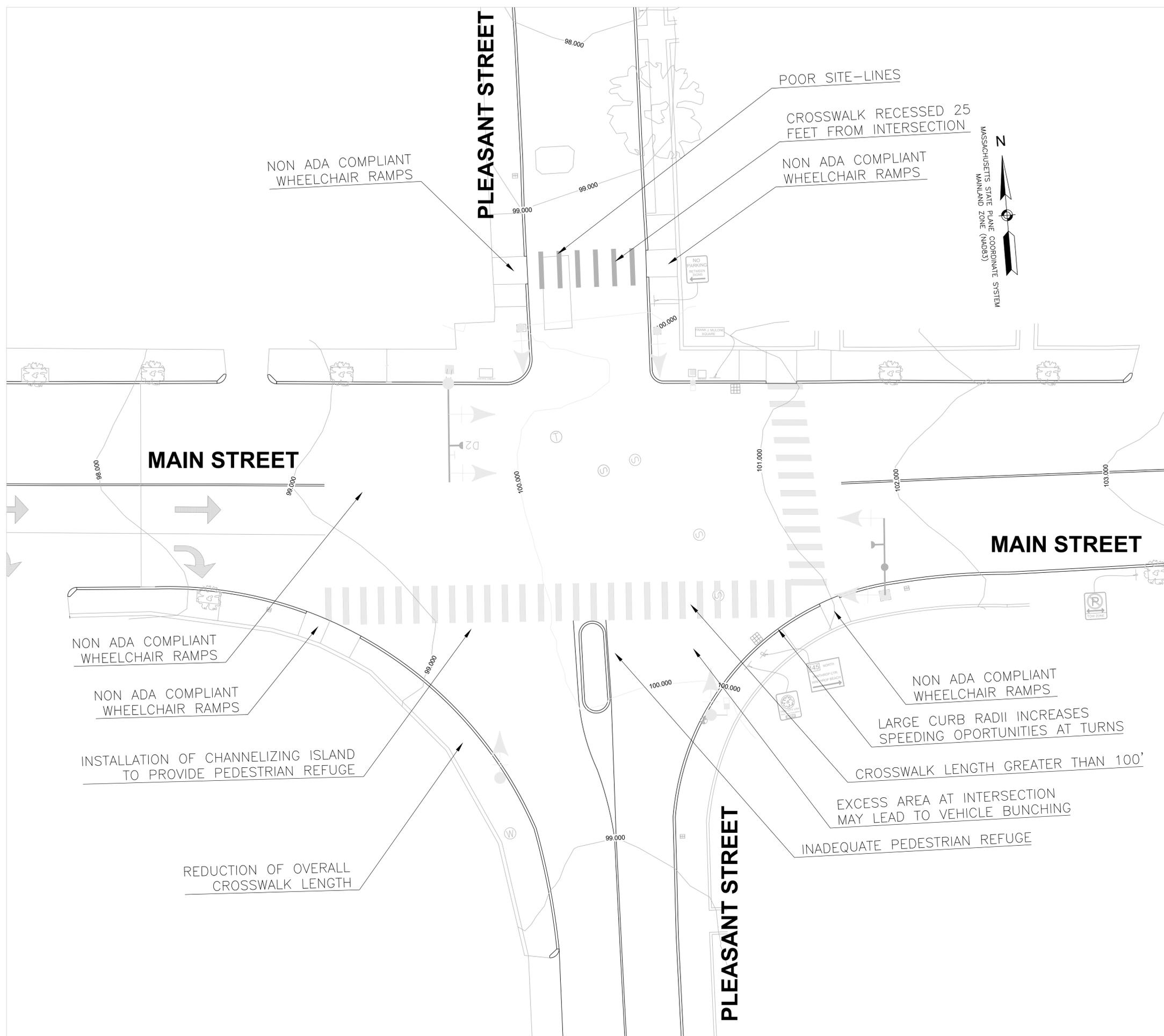
1. The Topography Survey Information Shown Is A Result Of An On-The-Ground Field Survey Conducted In March Of 2020 By Fraser Polyengineering Services Using A Leica Robotic Total Station TCRP1202 For The Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines.
2. The Boundary Survey Was The Result Of A Survey Provided By CHESSE Engineering As Depicted On A Plan Titled "Record Plan, Prepared For Fraser Polyengineering Services, Angell Street, Boston, MA 02124" Dated April 22, 2020.

I Declare That This Survey And Plan Were Prepared For Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines In Accordance With The Procedural And Technical Standards For The Practice Of Engineering And Land Surveying In The Commonwealth Of Massachusetts.

Kurt Fraser, PE #49843 Date:

Legend:

- PULLBOX, HANDHOLE, JUNCTION BOX (12"x12", 12"x24", 24"x24")
- STREET LIGHT POLE
- ELECTRIC MANHOLE
- TELEPHONE MANHOLE
- DRAINAGE MANHOLE
- SEWER MANHOLE
- CABLE MANHOLE
- GAS GATE
- WATER GATE
- HYDRANT
- UTILITY POLE
- STORM DRAIN
- GAS MAIN
- SANITARY SEWER
- WATER MAIN
- ELECTRIC MAIN
- CABLE MAIN



STAMP:

STAMP:

REVISIONS:

NO.	DATE:	DESCRIPTION:

**EXISTING CONDITIONS
SURVEY PLAN**

SCALE: 1"=10'
DATE: 5-27-2020
DRAWN BY: K.A.F.
CHECKED BY: K.A.F.
FILE:

**DRAWING SHEET NO.
1 OF 1**

Appendix F: Proposed Geometric Improvements :
Intersection Redesign

**FRASER
POLY-ENGINEERING
SERVICES**

**CIVIL ENGINEERING
CONSULTANTS**

236 HUNTINGTON AVE SUITE 404
BOSTON, MA. 02115
Business Phone: 617-377-4110
Cell Phone: 617-291-2423
Email: kurt@fraseres.com
www.fraseres.com

**PROJECT:
PLEASANT STREET AT
MAIN STREET
WINTHROP, MA**

**DEVELOPER / OWNER:
Town of Winthrop
Auston Faison - Town Manager
1 Metcalf Square
Winthrop, MA 02152**

STAMP:

STAMP:

REVISIONS:

NO.	DATE:	DESCRIPTION:

**PROPOSED GEOMETRIC
IMPROVEMENTS**

SCALE: 1"=10'
DATE: 5-27-2021
DRAWN BY: K.A.F.
CHECKED BY: K.A.F.
FILE:

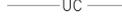
**DRAWING SHEET NO.
1 OF 1**

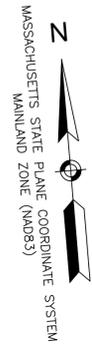
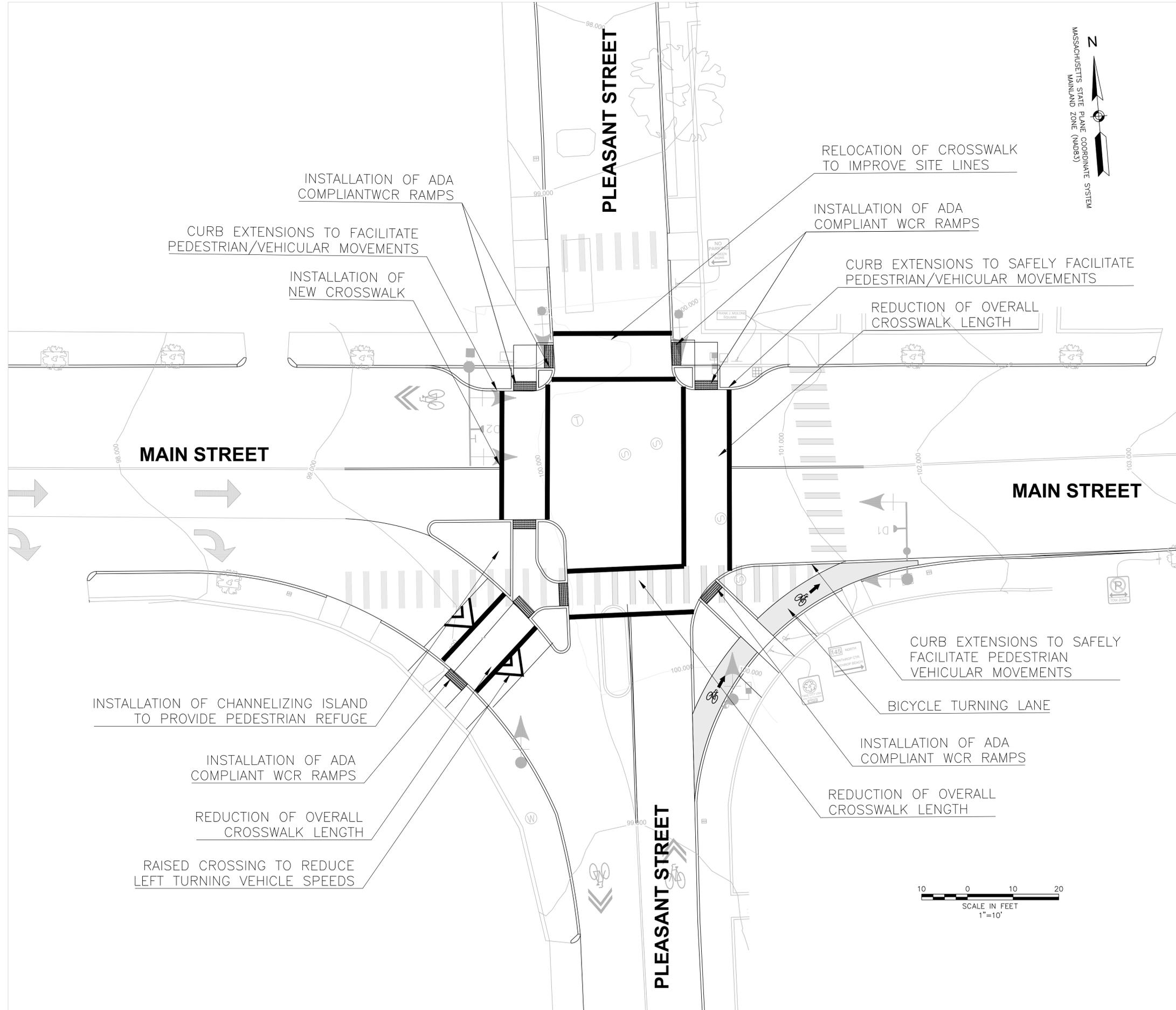
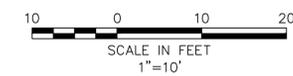
Notes:
1. The Topography Survey Information Shown Is A Result Of An On-The-Ground Field Survey Conducted In March Of 2021 By Fraser Polyengineering Services Using A Leica Robotic Total Station TCRP1202 For The Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines.

I Declare That This Survey And Plan Were Prepared For Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines In Accordance With The Procedural And Technical Standards For The Practice Of Engineering And Land Surveying In The Commonwealth Of Massachusetts.

Kurt Fraser, PE #49843 Date:

Legend:

-  PULLBOX, HANDHOLE, JUNCTION BOX (12"x12", 12"x24", 24"x24")
-  STREET LIGHT POLE
-  ELECTRIC MANHOLE
-  TELEPHONE MANHOLE
-  DRAINAGE MANHOLE
-  SEWER MANHOLE
-  CABLE MANHOLE
-  GAS GATE
-  WATER GATE
-  HYDRANT
-  UTILITY POLE
-  D STORM DRAIN
-  G GAS MAIN
-  SS SANITARY SEWER
-  W WATER MAIN
- E ELECTRIC MAIN
- UC CABLE MAIN



Appendix G: Proposed Geometric Improvements:
Modern Roundabout

**FRASER
POLY-ENGINEERING
SERVICES**

**CIVIL ENGINEERING
CONSULTANTS**

236 HUNTINGTON AVE SUITE 404
BOSTON, MA. 02115
Business Phone: 617-377-4110
Cell Phone: 617-291-2423
Email: kurt@fraseres.com
www.fraseres.com

**PROJECT:
PLEASANT STREET AT
MAIN STREET
WINTHROP, MA**

DEVELOPER / OWNER:

**Town of Winthrop
Auston Faison - Town Manager
1 Metcalf Square
Winthrop, MA 02152**

STAMP:

STAMP:

REVISIONS:

NO.	DATE:	DESCRIPTION:

**PROPOSED GEOMETRIC
IMPROVEMENTS MODERN
ROUNDAABOUT**

SCALE: 1"=10'
DATE: 5-27-2021
DRAWN BY: K.A.F.
CHECKED BY: K.A.F.
FILE:

**DRAWING SHEET NO.
1 OF 1**

Notes:

1. The Topography Survey Information Shown Is A Result Of An On-The-Ground Field Survey Conducted In March of 2020 By Fraser Polyengineering Services Using a Leica Robotic Total Station TCRP1202 For The Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines.

I Declare That This Survey And Plan Were Prepared For Purposes Incidental To Engineering Work Relative To Locating Fixed-Works Within The Practice Of Civil Engineering Excluding Property Lines In Accordance With The Procedural And Technical Standards For The Practice Of Engineering And Land Surveying In The Commonwealth Of Massachusetts.

Kurt Fraser, PE #49843 Date:

Legend:

	PULLBOX, HANDHOLE, JUNCTION BOX (12"x12", 12"x24", 24"x24")
	STREET LIGHT POLE
	ELECTRIC MANHOLE
	TELEPHONE MANHOLE
	DRAINAGE MANHOLE
	SEWER MANHOLE
	CABLE MANHOLE
	GAS GATE
	WATER GATE
	HYDRANT
	UTILITY POLE
	STORM DRAIN
	GAS MAIN
	SANITARY SEWER
	WATER MAIN
	ELECTRIC MAIN
	CABLE MAIN

