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36 Years

Proposed School
205 Scholastic Drive, Ottawa (Deschâtelets Building)
Transportation Impact Assessment

Proposed School
205 Scholastic Drive (Deschâtelets Building)

Transportation Impact Assessment

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

Dated: June 2020
Revised: July 2020

Novatech File: 120055
Ref: R-2020-047

NOVATECH
Engineers, Planners & Landscape Architects

July 29, 2020

City of Ottawa
Planning and Growth Management Department
110 Laurier Ave. W., 4th Floor,
Ottawa, Ontario K1P 1J1

Attention: **Ms. Josiane Gervais**
Project Manager, Infrastructure Approvals

Dear Ms. Gervais:

Reference: **205 Scholastic Drive (Deschâtelets Building)**
Transportation Impact Assessment
Novatech File No. 120055
City File No. D02-02-20-0037

We are pleased to submit the following revised Transportation Impact Assessment (TIA) in support of a Zoning By-Law Amendment application for the property located at 205 Scholastic Drive, which was addressed 225 Scholastic Drive at the time of the previous submission. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

The original TIA for this proposed development was prepared in June 2020, and this revised TIA has been prepared to reflect City comments.

If you have any questions or comments regarding this report, please feel free to contact Brad Byvelds, or the undersigned.

Yours truly,

NOVATECH

Joshua Audia, B.Sc.
E.I.T. | Transportation/Traffic

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TIA Plan Reports

On 14 June 2017, the Council of the City of Ottawa adopted new Transportation Impact Assessment (TIA) Guidelines. In adopting the guidelines, Council established a requirement for those preparing and delivering transportation impact assessments and reports to sign a letter of certification.

Individuals submitting TIA reports will be responsible for all aspects of development-related transportation assessment and reporting, and undertaking such work, in accordance and compliance with the City of Ottawa's Official Plan, the Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines.

By submitting the attached TIA report (and any associated documents) and signing this document, the individual acknowledges that s/he meets the four criteria listed below.

CERTIFICATION

1. I have reviewed and have a sound understanding of the objectives, needs and requirements of the City of Ottawa's Official Plan, Transportation Master Plan and the Transportation Impact Assessment (2017) Guidelines;
2. I have a sound knowledge of industry standard practice with respect to the preparation of transportation impact assessment reports, including multi modal level of service review;
3. I have substantial experience (more than 5 years) in undertaking and delivering transportation impact studies (analysis, reporting and geometric design) with strong background knowledge in transportation planning, engineering or traffic operations; and
4. I am either a licensed[1] or registered[2] professional in good standing, whose field of expertise [check √ appropriate field(s)] is either transportation engineering ☑ or transportation planning ☐.

[1,2] **License of registration body that oversees the profession is required to have a code of conduct and ethics guidelines that will ensure appropriate conduct and representation for transportation planning and/or transportation engineering works.**

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Dated at ____Ottawa____ this __29th__ day of _____July_____, 2020.
(City)

Name: _____Brad Byvelds, P.Eng._____
(Please Print)

Professional Title: _____Project Coordinator, Transportation/Traffic_____

Signature of Individual certifier that s/he meets the above four criteria

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-Law Amendment application for the property located at 205 Scholastic Drive. The proponent (Conseil des école catholiques du Centre-Est, or CECCE) is seeking to renovate the existing historic Deschâtelets Building, and repurpose it to include a school containing 17 classrooms and two daycare rooms for up to 351 students. The catchment area of the school is not anticipated to increase when relocating to the subject site, as the proponent is projecting enrollment to increase within the same catchment area.

The Greystone Village subdivision area is approximately 10.3 hectares in area, east of Main Street, south of Springhurst Avenue, and north of Clegg Street. The original Community Transportation Study (CTS), prepared by Novatech in January 2015, reviewed an overall development of approximately 40 single-detached dwellings, 779 condominium/townhouse dwellings, 150 retirement home dwellings, and 36,539 ft^2 of retail space. An addendum dated May 2017 reviewed the changes to Phase 3 of the subdivision which resulted in 110 additional condominium/townhouse dwellings and 10 fewer retirement dwellings. Based on the Addendum, a total of 140 retirement units were planned for the renovated Deschâtelets Building.

The existing Au Coeur Elementary School is located in the southwest corner of the Main Street/Graham Street intersection and contains approximately 127 students from kindergarten to grade 8. The proposed Deschâtelets school will expand enrollment of the existing school to approximately 351 students and will provide a daycare for approximately 45 children/staff. Sixteen parking spaces will be reserved for the school in the underground parking garage for 175 Main Street, which is currently under construction. Initial occupancy of the school is anticipated in 2021, however enrollment is anticipated to increase to a maximum of 351 students over several years.

The subject site is located within the Old Ottawa East Community Design and Secondary Plans. The location of the subject site is designated as ‘General Urban Area’ in Schedule B of the City of Ottawa’s Official Plan. The implemented zoning for the subject site is ‘General Mixed-Use Zone’ (GM). The application seeks to amend the zoning such that the proposed land use is permitted.

The study area for this report includes the roadways Main Street, Oblats Avenue, and Hazel Street, and the signalized intersections at Main Street/Oblats Avenue and Main Street/Hazel Street.

The selected time periods for the analysis are the weekday AM and PM peak hours of the school, as they represent the ‘worst case’ combination of site generated traffic and adjacent street traffic. For the purposes of this TIA, full enrollment of 351 students is assumed for the 2021 buildout year. Analysis will be completed for the weekday AM and PM peak periods in the buildout year 2021 and the horizon year 2026.

The conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- At full occupancy, the proposed school is estimated to generate 68 vehicle trips (38 inbound, 30 outbound) during the AM peak hour and 168 vehicle trips (80 inbound, 88 outbound) during the PM peak hour.

- Compared to the development assumed for the Deschâtelets Building in the Greystone Village CTS, the proposed school is anticipated to generate approximately 47 additional vehicle trips during the AM peak hour and 143 additional vehicle trips during the PM peak hour.

Development Design and Parking

- Pedestrian facilities in the form of sidewalks or pathways are provided along both sides of all study area roadways within the Greystone Village subdivision. In addition, the Grande Alleé will be repurposed to become a broad pedestrian promenade with restricted vehicular access. The semi-circular Forecourt immediately west of the Deschâtelets Building will be similarly repurposed as a public space, but will also serve as a fire route. Within the subdivision, cyclists will be accommodated on the internal roadways or the multi-use pathway between Scholastic Drive and the Rideau River.

- Measuring walking distance from the stops to the main entrance, stop #1141 is approximately 180m away, stop #7636 is approximately 270m away, and stop #6809 is approximately 330m away. These stops represent the closest stops to the Deschâtelets Building. Stops #7638 and #7639 are also located within 400m walking distance of the main entrance to the Deschâtelets Building.

- Garbage collection and loading will take place at the northwestern corner of the building. The fire route will be a north-south lane within the Forecourt, immediately west of the Deschâtelets Building.

- A bus pick-up/drop-off zone and a kiss and ride zone will be provided within the proposed fire route in front of the main entrance. The bus loading zone and the kiss and ride zone can be located in the fire route, as drivers are not permitted to leave their vehicles.

- Drivers utilizing the kiss and ride zone, as well as school buses, will enter the fire route from the southern end via Deschâtelets Avenue and exit from the northern end via Oblats Avenue. One-way signage will be provided at the entrance and exit of the fire route. Adjustments to the approved subdivision curb design for Deschâtelets Avenue and Oblats Avenue will be required to accommodate the turning movements of school buses at the fire route. To facilitate loading procedures in front of the building, a new 2.0m-wide depressed concrete sidewalk at grade with the fire route will be constructed. Attendants (school staff or parent volunteers) will control bus loading, kiss and ride activities, and pedestrian crossing of the fire route during peak times when students are entering and exiting the school.

- Parking for parents or visitors who need to enter the school will be provided on-street on Oblats Avenue and Deschâtelets Avenue, and off-street using the surface parking lot provided for the mixed-use buildings at 175 Main Street. Although the surface parking spaces at 175 Main Street will not be reserved for school, the excess spaces above the ZBL can be utilized by parents and visitors of the school.

- As enrollment increases within the school, it is anticipated that the school board will file a Site Plan Control application to construct a new gymnasium and a new parking lot containing approximately 26 parking spaces near the northeast corner of the Deschâtelets Building. The new parking lot can be used as additional parking for parent pick-up/drop-off activities.

- A total of 16 parking spaces will be reserved for school staff off-site, on parking level one of the underground parking garage at 175 Main Street. This adheres to the requirements of the ZBL. The proposed bicycle parking exceeds the requirements of the ZBL.

- It is acknowledged that the existing school has sufficient parking for all staff members to drive in individual vehicles to/from the school, and no TDM measures were provided by the school to mitigate this traffic, since none were required. However, given the constraints on parking for the proposed relocation, a suite of TDM measures have been proposed by the CECCE to ensure more parking will not be required.

- Assuming an average dwell time of 20 minutes for parents before departing from the school, approximately 23 parking spaces would be utilized for parent pick-ups, distributed between on-street spaces on Oblats Avenue and Deschâtelets Avenue and surface parking spaces at 175 Main Street.

Boundary Streets

- The boundary streets Oblats Avenue, Deschâtelets Avenue, and Scholastic Drive meet the target PLOS A and BLOS D.

Transportation Demand Management

- The proponent will implement the following TDM measures upon opening of the proposed school:
    - Display local area maps with walking/cycling access routes and key destinations (will be displayed in staff room);
    - Offer on-site cycling courses for commuters or subsidize off-site courses (course registration will be displayed in staff room);
    - Display relevant transit schedules and route maps (will be displayed in staff room);
    - Provide online links to OC Transpo and STO information;
    - Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (school buses coordinated through CECCE's transportation department);
    - Provide a dedicated matchmaking portal at OttawaRideMatch.com;
    - Provide a multimodal travel option information package to new/relocating employees and students;
    - Offer personalized trip planning to new/relocating employees.

Transit

- At full occupancy, the proposed school is anticipated to generate 13 inbound transit trips during the AM peak hour and 13 outbound transit trips during the PM peak hour. No capacity problems are anticipated on the routes and at the stops within the study area as a result of these transit trips.

Intersection Design

- The intersection MMLOS analysis can be summarized as follows:
  - Neither study area intersection meets the target PLOS A;
  - Main Street/Oblats Avenue meets the target BLOS C, but Main Street/Hazel Street does not;
  - Both study area intersections meet the target Auto LOS E.

- Pedestrian Level of Service
  - All approaches of Main Street/Oblats Avenue and Main Street/Hazel Street do not meet the target PLOS, and cannot achieve the target PLOS without significantly reducing the number of lanes and restricting turning movements. Leading pedestrian intervals and textured crosswalks have been implemented at all approaches, which improves the level of comfort for pedestrians. No other modifications are recommended.

- Bicycle Level of Service
  - The east approach of Main Street/Hazel Street does not meet the target BLOS, based on right turn lane characteristics. For roadways with an AADT less than 4,000 vehicles/day and a speed limit of 30 km/h, the *Ontario Traffic Manual – Book 18* states that a 'shared roadway' is appropriate (per the selection tool included in OTM Book 18). Therefore, no further modifications are recommended.

- The study area intersections are anticipated to operate at an acceptable vehicular level of service in existing traffic conditions, background traffic conditions, and total traffic conditions.

1.0 INTRODUCTION

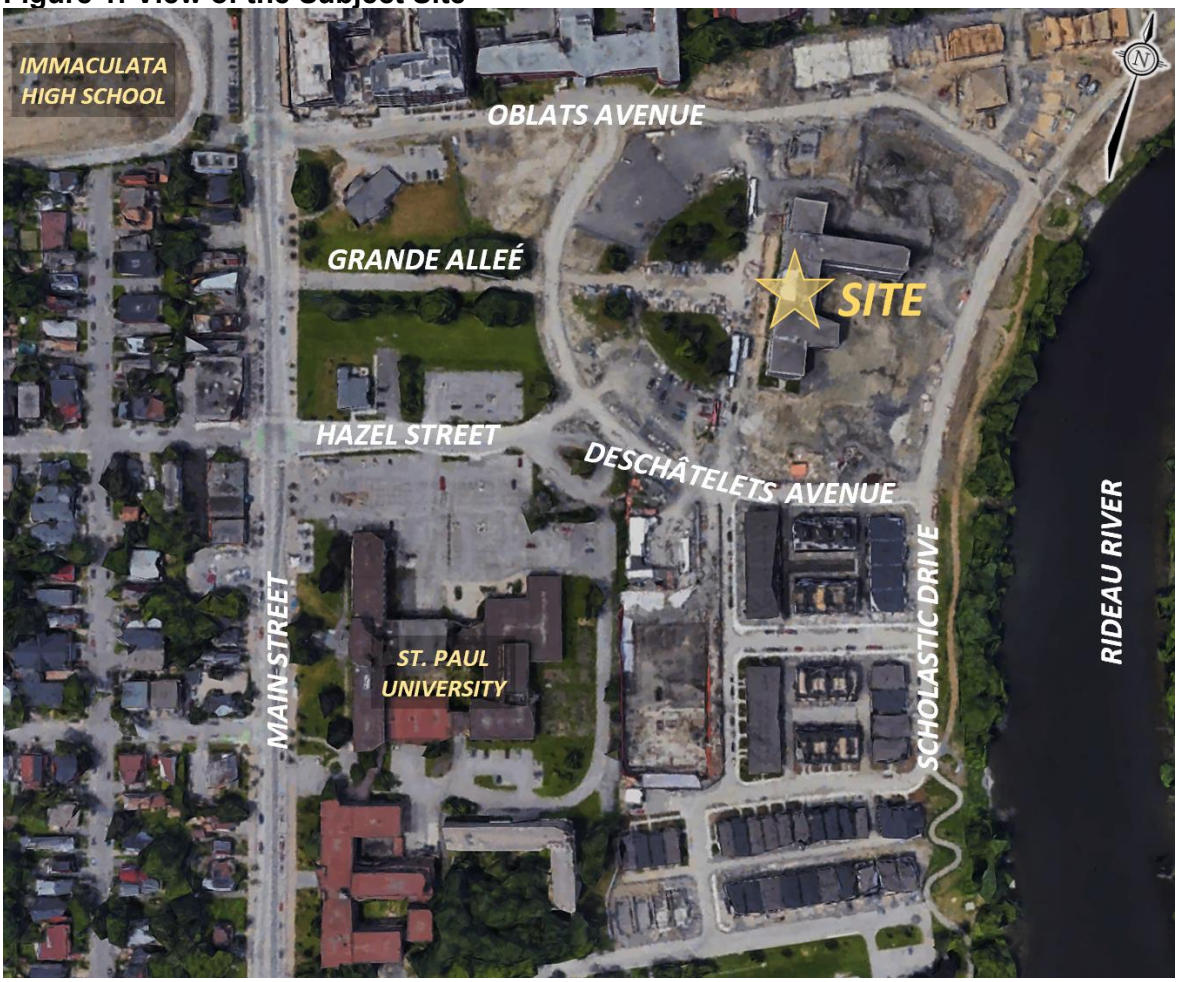
This Transportation Impact Assessment (TIA) has been prepared in support of a Zoning By-Law Amendment application for the property located at 205 Scholastic Drive. The proponent (Conseil des école catholiques du Centre-Est, or CECCE) is seeking to renovate the existing historic Deschâtelets Building, and repurpose it to include a school containing 17 classrooms and two daycare rooms for up to 351 students. The catchment area of the school is not anticipated to increase when relocating to the subject site, as the proponent is projecting enrollment to increase within the same catchment area.

The subject site forms part of the Greystone Village subdivision, and surrounded by the following.

- Oblats Avenue, followed by residences to the north;
- Scholastic Drive, followed by parkland and Rideau River to the east;
- Deschâtelets Avenue, followed by residences to the south;
- The Grande Alleé and Forecourt to the west.

The most recent aerial view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site



The Greystone Village subdivision area is approximately 10.3 hectares in area, east of Main Street, south of Springhurst Avenue, and north of Clegg Street. The original Community Transportation Study (CTS), prepared by Novatech in January 2015, reviewed an overall development of approximately 40 single-detached dwellings, 779 condominium/townhouse dwellings, 150 retirement home dwellings, and 36,539 ft^2 of retail space. An addendum dated May 2017 reviewed the changes to Phase 3 of the subdivision which resulted in 110 additional condominium/townhouse dwellings and 10 fewer retirement dwellings. Based on the Addendum, a total of 140 retirement units were planned for the renovated Deschâtelets Building.

2.0 PROPOSED DEVELOPMENT

The proposed development seeks to repurpose a portion of the existing five-storey Deschâtelets Building to serve as the new location for the existing Au Coeur Elementary School. The repurposing of the remainder of the Deschâtelets Building will be subject to a future application.

The existing Au Coeur Elementary School is located in the southwest corner of the Main Street/Graham Street intersection and contains approximately 127 students from kindergarten to grade 8. The proposed Deschâtelets school will expand enrollment of the existing school to approximately 351 students and will provide a daycare for approximately 45 children/staff. Sixteen parking spaces will be reserved for the school in the underground parking garage for 175 Main Street, which is currently under construction. Initial occupancy of the school is anticipated in 2021, however enrollment is anticipated to increase to a maximum of 351 students over several years.

The subject site is located within the Old Ottawa East Community Design and Secondary Plans. The location of the subject site is designated as 'General Urban Area' in Schedule B of the City of Ottawa's Official Plan. The implemented zoning for the subject site is 'General Mixed-Use Zone' (GM). The application seeks to amend the zoning such that the proposed land use is permitted.

A copy of the Greystone Village subdivision plan, and a preliminary concept plan is included in **Appendix A**.

3.0 SCREENING

The City's 2017 TIA Guidelines identify three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form, which is included in **Appendix B**. The trigger results are as follows.

- Trip Generation Trigger – The development is anticipated to generate over 60 peak hour person trips; further assessment is required based on this trigger.

- Location Triggers – The development is not located within a Design Priority Area or Transit-Oriented Development zone, and does not propose a new driveway to a boundary street designated as part of the City's Rapid Transit, Transit Priority, or Spine Cycling networks; further assessment is not required based on this trigger.

- Safety Triggers – No safety triggers outlined in the TIA Screening Form are met; further assessment is not required based on this trigger.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

All roadways within the study area fall under the jurisdiction of the City of Ottawa.

Main Street is an arterial roadway that generally runs on a north-south alignment within the study area, running between Colonel By Drive and Rideau River Drive. South of Rideau River Drive, the roadway continues as Smyth Road. Within the study area, Main Street has a two-lane undivided urban cross-section, a posted speed limit of 50 km/h, and sidewalks and cycle tracks on both sides of the roadway. Main Street is classified as a truck route, allowing full loads. On-street parking is permitted in select lay-by areas.

The following roadways are all located within the Greystone Village subdivision. At the time of writing, the base course for these roadways have been constructed. Descriptions of the roadways below discuss the ultimate design, including sidewalk locations and posted speed limits.

Oblats Avenue is a local roadway that generally runs on an east-west alignment, running between Main Street and Scholastic Drive. Within the study area, Oblats Avenue has a two-lane undivided urban cross-section, a posted speed limit of 30 km/h, and sidewalks on both sides of the roadway. Oblats Avenue is not classified as a truck route. On-street parking is permitted in select lay-by areas.

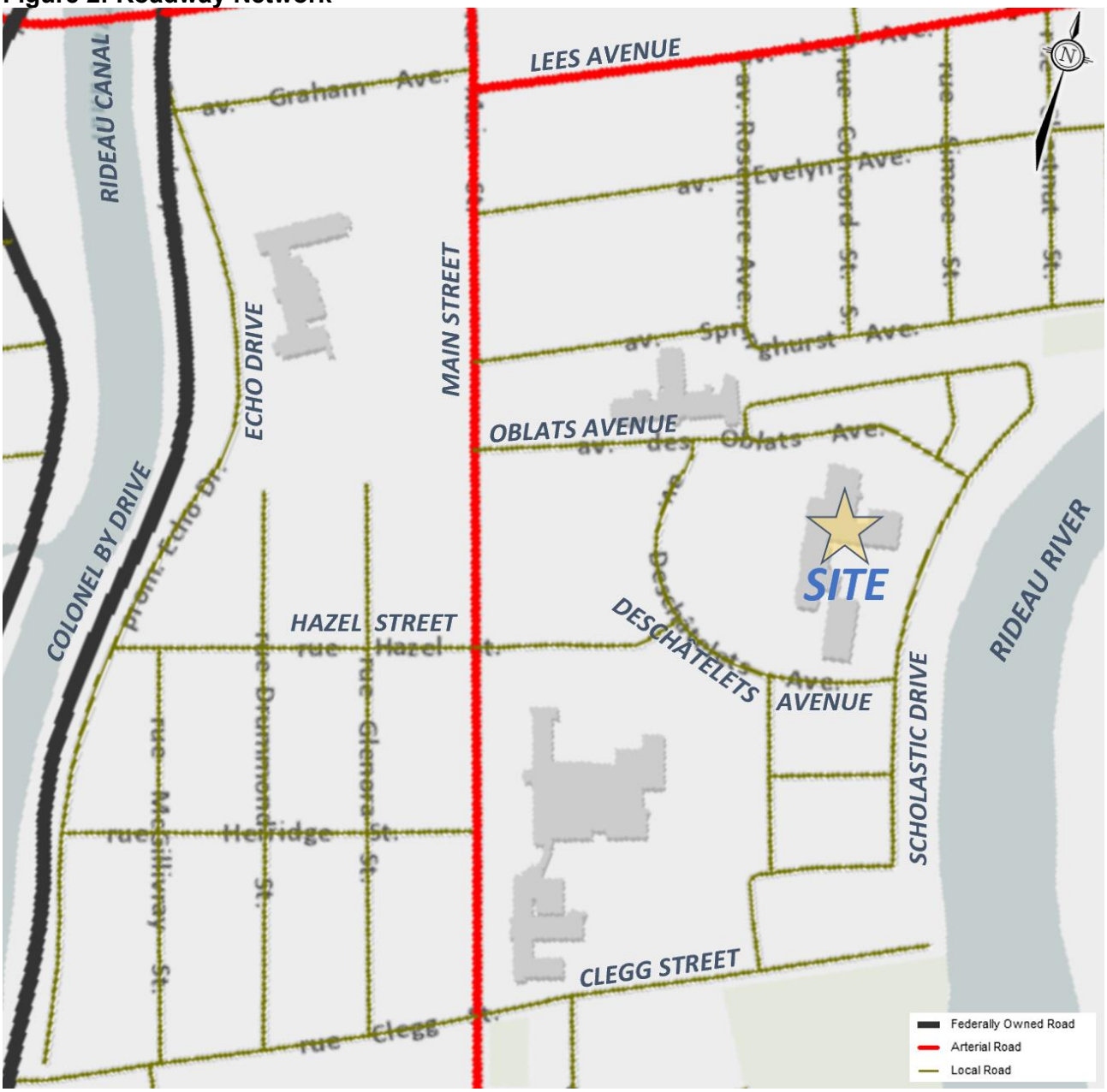
Hazel Street is a local roadway that generally runs on an east-west alignment, running between Echo Drive and Deschâtelets Avenue. Within the study area, Hazel Street has a two-lane undivided urban cross-section, a posted speed limit of 30 km/h, and sidewalks on both sides of the roadway. Hazel Street is not classified as a truck route. On-street parking is not permitted.

Deschâtelets Avenue is a local roadway that generally runs on a north-south alignment between Oblats Avenue and Hazel Street, transitioning to an east-west alignment between Hazel Street and Scholastic Drive. Within the study area, Deschâtelets Avenue has a two-lane undivided urban cross-section, a posted speed limit of 30 km/h, and sidewalks on both sides of the roadway. Deschâtelets Avenue is not classified as a truck route. On-street parking is permitted in select lay-by areas.

Scholastic Drive is a local roadway that generally runs on a north-south alignment between Oblats Avenue and Telmon Street. North of Oblats Avenue, the roadway continues as Sanctuary Private. North of Hazel Street, Scholastic Drive has a two-lane undivided urban cross-section, a posted speed limit of 30 km/h, a sidewalk on the western side of the roadway between Hazel Street and Oblats Avenue, and a multi-use pathway on the eastern side of the roadway. South of Hazel Street, Scholastic Drive has a single-lane urban cross-section for northbound traffic only. Scholastic Drive is not classified as a truck route. On-street parking is not permitted.

The roadway network of the greater area surrounding the subject site is illustrated in **Figure 2**.

Figure 2: Roadway Network



4.1.2 Pedestrian and Cycling Facilities

Concrete sidewalks are provided on both sides of Main Street, Oblats Avenue, Hazel Street, Deschâtelets Avenue, and the west side of Scholastic Drive. Midblock pedestrian crossovers are provided along Hazel Street between Main Street and Deschâtelets Avenue, Scholastic Drive between Oblats Avenue and Deschâtelets Avenue, Oblats Avenue between Deschâtelets Avenue and Scholastic Drive, Deschâtelets Avenue between Oblats Avenue and Hazel Street, as well as between Hazel Street and Scholastic Drive (opposite De Mazenod Avenue). These pedestrian crossovers provide connectivity from the area pedestrian network to the Forecourt and Grand Allée.

Cycle tracks are provided in both directions on Main Street, and an asphalt multi-use pathway is provided on the east side of Scholastic Drive. Bike boxes are provided behind the crosswalks on Oblats Avenue and Hazel Street at the Main Street signalized intersections.

In the City of Ottawa's primary cycling network, Main Street is classified as a Spine Route, and the multi-use pathway east of Scholastic Drive is classified as a Major Pathway. Oblats Avenue, Hazel Street, Deschâtelets Avenue, and Scholastic Drive have no cycling route classification.

The pedestrian and cycling network of the greater area surrounding the subject site is illustrated in **Figure 3**.

4.1.3 Intersections

Main Street/Oblats Avenue

- Signalized four-legged intersection
- North/South Approaches (Main Street):
  one left turn lane and one shared through/right turn lane
- East Approach (Oblats Avenue):
  one left turn lane and one shared through/right turn lane
- West Approach (Immaculata High School):
  one shared left turn/through/right turn lane

Main Street/Hazel Street

- Signalized four-legged intersection
- North/South Approaches (Main Street):
  one left turn lane and one shared through/right turn lane
- East Approach (Hazel Street):
  one shared left turn/through lane and one right turn lane
- West Approach (Hazel Street):
  one shared left turn/through/right turn lane

Figure 3: Pedestrian and Cycling Network

Note: Ultimate design of the Greystone Village subdivision roadways are not yet shown.

4.1.4 Driveways

The City of Ottawa's 2017 TIA Guidelines requires a review of driveways on the boundary streets within 200m of any proposed access, which can be described as follows.

Oblats Avenue, North Side:
- One driveway to residences at 141 Main Street
- Off-street parking serving the residences at 15 Oblats Avenue

Deschâtelets Avenue, South Side:
- One driveway to residences at 370-384 Deschâtelets Avenue, 537-555 De Mazenod Avenue, and 201-217 Jeremiah Kealey Street
- One driveway to residences at 117-119 Scholastic Drive, 390 Deschâtelets Avenue, and 223 Jeremiah Kealey Street

4.1.5 Area Traffic Management

There are no Area Traffic Management (ATM) studies within the study area that have been completed, or are currently in progress. The Main Street Renewal was completed in 2017, which included road narrowings, curb extensions and bulb-outs, off-road cycling facilities, and improved pedestrians facilities. The posted speed limit of Main Street remains at 50 km/h, however some features such as bulb-outs serve as traffic management measures on Main Street. All roadways within the Greystone Village subdivision have been designed to include narrow lane widths ranging between 3.0m-3.5m, with curb extensions and bulb-outs at select intersections. All roadways within this subdivision will have a posted speed limit of 30 km/h.

4.1.6 Transit

The nearest bus stops to the subject site are as follows:

<u>Main/Oblats</u>
- Stop #6809 – for routes 5, 16, 55, and 613
  (located at the northwest corner)
- Stop #7636 – for routes 5, 16, 55, and 56
  (located at the southeast corner)

<u>Main/Hazel</u>
- Stop #7639 – for routes 5, 55, and 613
  (located at the southwest corner)

<u>Main/Herridge</u>
- Stop #7638 – for routes 5 and 55
  (located on the east side of Main Street, approximately 30m north of Herridge Street)

<u>St. Paul University (U St. Paul U)</u>
- Stop #1141 – for routes 16 and 56
  (located adjacent to the southwest corner of Hazel Street/Deschâtelets Avenue)

OC Transpo Route 5 is a local route which travels between Billings Bridge and Waller/Laurier. The route generally operates on 30-minute headways, seven days a week.

OC Transpo Route 16 is a local route which travels between St. Paul University and Tunney's Pasture Station or Westboro Station. Within the study area, the route generally operates on 30-minute headways, seven days a week.

OC Transpo Route 55 is a local route which travels between Elmvale Acres Shopping Centre and the Ottawa Hospital General Campus or Bayshore Station. Within the study area, the route operates on 15 to 30-minute headways on weekdays and 30-minute headways on Saturdays. The route does not serve the study area on Sundays.

OC Transpo Route 56 is a local route which travels between Tunney's Pasture Station and King Edward/Union. Within the study area, the route is scheduled to arrive at St. Paul University at 11:35am and 1:35pm on weekdays. Outside of these times, this route does not serve the study area.

The 600-series of OC Transpo Routes provide service to schools throughout the City of Ottawa. The following route provides service to several stops within the study area. OC Transpo Route 613 travels between Hurdman Station and Immaculata High School. Within the study area, the route is scheduled to arrive at stop #6809 at 2:42pm on school days.

Locations of the bus stops described above are shown in **Figure 4**. OC Transpo maps for the routes outlined above and a copy of the OC Transpo System Map is included in **Appendix C**.

Figure 4: OC Transpo Bus Stop Locations

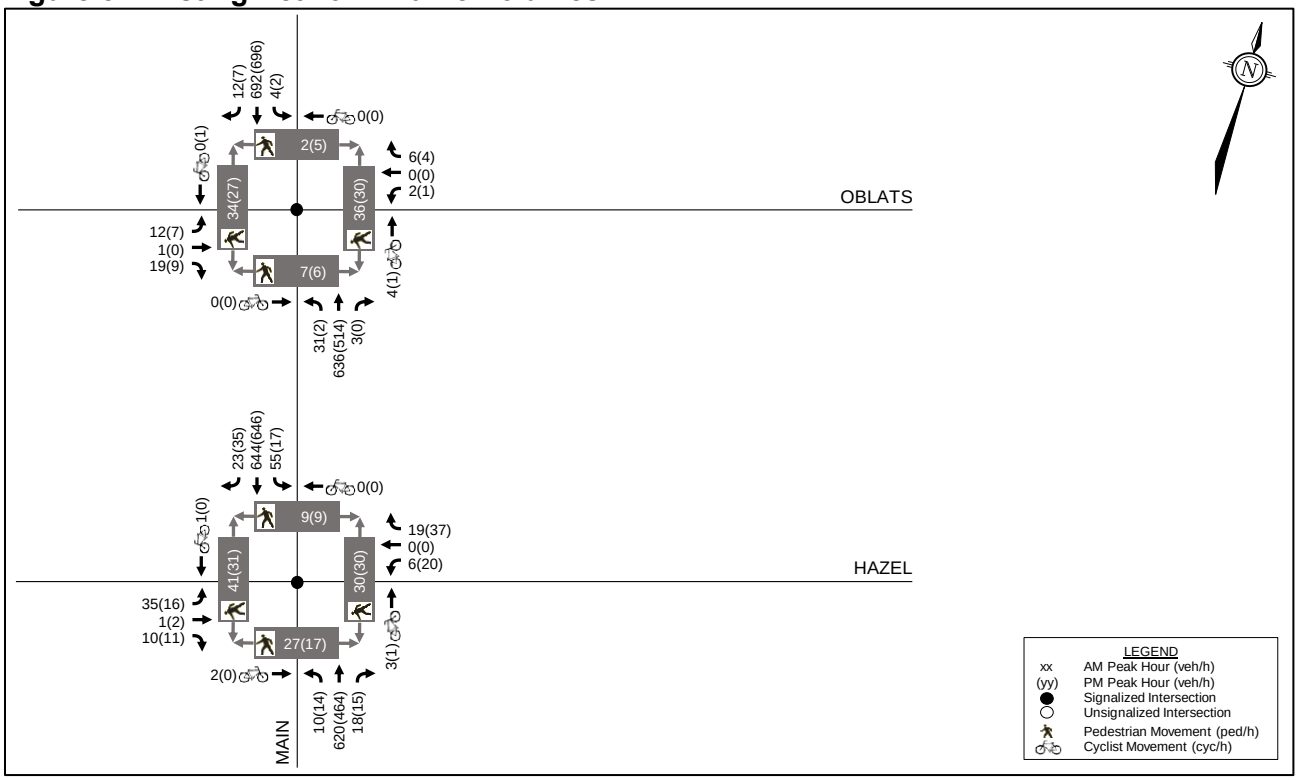
4.1.7 Existing Traffic Volumes

Weekday traffic counts completed by the City of Ottawa have been used to determine the existing pedestrian, cyclist, and vehicular traffic volumes at the study area intersections. The most recent traffic counts at Main Street/Oblats Avenue and Main Street/Hazel Street were both conducted March 7, 2017. Traffic counts at Main Street/Lees Avenue/Graham Avenue (dated July 2017) and Main Street/Hawthorne Avenue (dated March 2020) were used to compare the north-south volumes on Main Street between the two intersections, which was then used to calibrate the north-south volumes within the study area. This approach can be justified given the short distance between the two intersections, as they are approximately 70m apart, measuring centre to centre. Further, the 2020 count at Main Street/Hawthorne Avenue was considered to account for the reopening of the eastbound Highway 417 on-ramp at Lees Avenue, which opened in October 2019.

Comparing the two-way volumes on Main Street at Lees Avenue/Graham Avenue and Hawthorne Avenue during the AM and PM peak hours indicate that volumes are approximately 10% higher during the AM peak hour and approximately 5% lower during the PM peak hour. To maintain a conservative analysis, all AM peak hour volumes within the study area have been increased by 10% and all PM peak hour volumes have not been adjusted. As stated in Section 4.3, the AM and PM peak hours refer to the peak hours of the proposed school, as the combination of adjacent street traffic and site-generated traffic is highest in this scenario.

Traffic, pedestrian, and cyclist volumes within the study area are shown in **Figure 5**. Traffic count data is included in **Appendix D**.

Figure 5: Existing Network Traffic Volumes



4.1.8 Collision Records

Historical collision data from the last five years was obtained from the City's Public Works and Service Department at the study area intersection. Copies of the collision summary reports are included in **Appendix E**.

The collision data has been evaluated to determine if there are any identifiable collision patterns, defined in the 2017 TIA Guidelines as 'more than six collisions in five years' for any one movement. The number of collisions at each intersection from January 1, 2014 to December 31, 2018 is summarized in **Table 1**.

Table 1: Reported Collisions

Intersection	Angle	Rear End	Sideswipe	Single/ Other	Turning	Total
Main Street/Oblats Avenue	1	2	2	1	0	**6**
Main Street/Hazel Street	2	5	0	3	1	**11**

Main Street/Oblats Avenue
A total of six collisions were reported at this intersection over the last five years, of which there was one angle impact, two rear-end impacts, two sideswipe impacts, and one single vehicle/other impact. Two of the collisions caused injuries, but none caused fatalities. Two of the six collisions occurred in poor driving conditions.

Main Street/Hazel Street
A total of 11 collisions were reported at this intersection over the last five years, of which there were two angle impacts, five rear-end impacts, three single vehicle/other impacts (two involving pedestrians), and one turning movement impact. Four of the collisions caused injuries, including both collisions involving pedestrians, but none caused fatalities. Five of the 11 collisions occurred in poor driving conditions.

4.2 Planned Conditions

The City of Ottawa's 2013 Transportation Master Plan (TMP) does not identify any projects within the study area in its Rapid Transit and Transit Priority (RTTP) or Affordable Road Networks.

The City's 2013 Cycling Plan and 2013 Pedestrian Plan do not identify any upcoming cycling or pedestrian infrastructure projects within the study area.

A review of the City's Development Application search tool identifies that, outside of the Greystone Village subdivision, there is one nearby development that is being constructed and is significant enough to warrant consideration in the traffic analysis. In addition, relevant traffic studies related to the Greystone Village subdivision are also considered. A description of the relevant other area developments are included below.

141 Main Street
The development is currently under construction. At full buildout, the development will include 144 condominium dwellings and 13,283 ft^2 of ground floor commercial space. Full buildout of this development is anticipated by 2021.

Greystone Village Community Transportation Study (CTS)
The Greystone Village subdivision area is approximately 10.3 hectares in area, east of Main Street, south of Springhurst Avenue, and north of Clegg Street. The original CTS, prepared by Novatech in January 2015, includes approximately 40 single-detached dwellings, 779 condominium/townhouse dwellings, 150 retirement home dwellings, and 36,539 ft^2 of retail space. An addendum dated May 2017 included 110 additional condominium/townhouse dwellings and 10 fewer retirement dwellings.

The developments listed below form parts of the Greystone Village subdivision, and were supported by site-specific traffic studies, which further adjusted the number of dwellings and commercial floor area. Full buildout of the subdivision is anticipated to occur in 2021.

530 de Mazenod Avenue (Formerly 175 Main Street)
The development is currently under construction. At full buildout, the development will include two nine-storey condominium buildings, containing a total of 212 condominium dwellings.

175 Main Street (10 Oblats Avenue)
The development is approved. At full buildout, the development will include a six-storey mixed-use building and a nine-storey mixed-use building, containing a total of 244 apartment dwellings and 20,000 ft^2 of ground floor commercial space.

Part of 375 Deschâtelets Avenue
The development is currently in the approval process. At full buildout, the development will include a three-storey stacked townhouse block, containing 18 dwellings.

225 Scholastic Drive (Retirement Residence)
The development is currently under construction. At full buildout, the development will include an eight-storey retirement home, containing 146 dwellings.

4.3 Study Area and Time Periods

The study area for this report includes the roadways Main Street, Oblats Avenue, and Hazel Street, and the signalized intersections at Main Street/Oblats Avenue and Main Street/Hazel Street.

The selected time periods for the analysis are the weekday AM and PM peak hours of the proposed school, as they represent the 'worst case' combination of site generated traffic and adjacent street traffic. For the purposes of this TIA, full enrollment of 351 students is assumed for the 2021 buildout year. Analysis will be completed for the weekday AM and PM peak periods in the buildout year 2021 and the horizon year 2026.

4.4 Exemptions Review

This module reviews possible exemptions from the final Transportation Impact Assessment, as outlined in the TIA guidelines. The applicable exemptions for this site are shown in **Table 2**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Status
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	Exempt
	4.1.3 New Street Networks	• Only required for plans of subdivision	Exempt
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	Exempt
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Exempt
Network Impact Component			
4.5 Transportation Demand Management	*All elements*	• Not required for non-residential site plans expected to have fewer than 60 employees and/or students on location at any given time	Not Exempt
4.6 Neighbourhood Traffic Management	*4.6.1* Adjacent Neighbourhoods	• Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds	Exempt
4.8 Network Concept	*All elements*	• Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning	Exempt

Although Module 4.2: Parking is exempt, a review of the parking requirements identified in the Zoning By-law will be conducted in this report. Based on the foregoing, the following modules are included in the TIA report:

- Module 4.1: Development Design
- Module 4.2: Parking
- Module 4.3: Boundary Streets
- Module 4.4: Access Design
- Module 4.5: Transportation Demand Management
- Module 4.7: Transit
- Module 4.9: Intersection Design

5.0 FORECASTING

5.1 Development-Generated Traffic

5.1.1 Trip Generation

Trips generated by the proposed school have been estimated based on information provided by the school board relating to operations at the existing Au Coeur School at 88 Main Street. As the existing school is located approximately 350m from the Deschâtelets Building, it is anticipated that trips

generated by the proposed school will be proportionate to the existing school. Traffic surveys were not conducted at the existing school due to school closures at the time of writing this report.

The existing school has a total of 127 students and 17 staff members. Arrivals to the school generally occur between 7:00 and 9:00am, while departures generally occur between 3:30 and 6:00pm. In the morning, 87 of the 127 students arrive via three school buses, with the remainder arriving by walking from home or via a parent drop-off (walking or driving). Based on discussions with the school board, it is understood that approximately 17 parents facilitate the drop-offs before school where the number of parents walking versus driving is approximately equal. After school, 75 students attend daycare activities, while the other 52 students depart immediately via three school buses. The 75 students depart by walking home or via a parent pick-up (walking or driving). It is assumed that an equal number of parents walk for pick-ups as drop-offs. Based on discussions with the school board, an average of 1.5 students per parent have been assumed for the parent pick-up trips. All staff arrive and depart the school by driving individual personal vehicles.

A description of how students, staff, and parents are assumed to arrive and depart the existing school can be described as follows. Departures after the PM peak hour are assumed to occur at an average rate (i.e. two-thirds of departures occur between 4:30pm and 5:30 pm, and one-third of departures occur between 5:30pm and 6:00pm).

<u>Arrival Period (7:00-9:00am)</u>

- 127 students arrive
    - 87 of 127 students (70%) arrive via three school buses at 8:45am
    - 40 of 127 students (30%) arrive by walking or via drop-offs by 17 parents
        - 20 of 40 students (50%) arrive between 7:00-8:00am
        - 20 of 40 students (50%) arrive between 8:00-9:00am
        - Assumed 9 of 17 parents (50%) walk
        - Assumed 8 of 17 parents (50%) drive
- 17 staff arrive
    - 6 of 17 staff (35%) arrive in individual vehicles between 7:00-8:00am
    - 11 of 17 staff (65%) arrive in individual vehicles between 8:00-9:00am

<u>Departure Period (3:30-6:00pm)</u>

- 127 students depart
    - 52 of 127 students (40%) depart via three school buses at 3:40pm
    - 75 of 127 students (60%) attend daycare, before departing by walking (10%) or via parent pick-ups (90%)
        - 23 of 75 students (30%) depart between 3:45-4:30pm (2 students walk without parents, 22 students picked up by 15 parents)
        - 52 of 75 students (70%) depart between 4:30-6:00pm (5 students walk without parents, 47 students picked up by 32 parents)
- 17 staff depart
    - 9 of 17 staff (50%) depart in individual vehicles between 3:45-4:30pm
    - 8 of 17 staff (50%) depart in individual vehicles between 4:30-6:00pm

A summary of the estimated traffic generated by the existing school is shown in the following tables, with person trips displayed in **Table 3** and vehicle trips displayed in **Table 4**.

Table 3: Existing School Person Trip Generation

Traffic Generator	Person Trips				
	7:00 – 8:00 am	8:00 – 9:00 am	3:30 – 4:30 pm	4:30 – 5:30 pm	5:30 – 6:00 pm
	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT
Students	20 / 0	107 / 0	0 / 75	0 / 35	0 / 17
Bus Drivers	0 / 0	3 / 3	3 / 3	0 / 0	0 / 0
Parents (drive)	4 / 4	4 / 4	12 / 12	17 / 17	9 / 9
Parents (walk)	4 / 4	5 / 5	3 / 3	4 / 4	2 / 2
School Staff	6 / 0	11 / 0	0 / 9	0 / 5	0 / 3
Total	**34 / 8**	**130 / 12**	**18 / 102**	**21 / 61**	**11 / 31**
Total 2-way	**42 persons**	**142 persons**	**120 persons**	**82 persons**	**42 persons**

Table 4: Existing School Vehicle Trip Generation

Traffic Generator	Vehicle Trips				
	7:00 – 8:00 am	8:00 – 9:00 am	3:30 – 4:30 pm	4:30 – 5:30 pm	5:30 – 6:00 pm
	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT
Bus Drivers	0 / 0	3 / 3	3 / 3	0 / 0	0 / 0
Parents (drive)	4 / 4	4 / 4	12 / 12	18 / 18	9 / 9
School Staff	6 / 0	11 / 0	0 / 9	0 / 5	0 / 3
Total	**10 / 4**	**18 / 7**	**15 / 24**	**17 / 22**	**9 / 12**
Total 2-way	**14 vehicles**	**25 vehicles**	**39 vehicles**	**39 vehicles**	**21 vehicles**

From the previous tables, the existing school is estimated to generate peak hour volumes of 142 person trips (including 25 vehicle trips) during the AM peak hour. The school is anticipated to 120 person trips (including 39 vehicle trips) between 3:30-4:30pm and 82 person trips (including 39 vehicle trips) between 4:30-5:30pm.

For the school's first year at the Deschâtelets building, the proposed school is anticipated to include the 127 existing students and 40 new students. For the purposes of this study however, analysis of the proposed school assumes the school is at maximum capacity. The proposed school is anticipated to include a maximum of 351 students and 35 staff members, as well as 39 children and six staff that are daycare-exclusive. The daycare will be open to the public, however a portion of the children are anticipated to be siblings of students at the school. For the purposes of this analysis, it has been assumed that 23 children of the 39 children using the daycare (60%) are anticipated to be siblings of students at the school. It is assumed that the remaining daycare children will be dropped off and picked up by parents in individual vehicles. Daycare arrivals are anticipated to occur evenly between 7:00 and 8:40am, while all departures are assumed to occur evenly between 3:45 and 6:00pm.

It is assumed that the mode share of students travelling by bus is approximately equal for the proposed school compared to the existing school. The student to parent drop-off trips before school have been prorated based on the existing school. These assumptions are based on the anticipation that the catchment area for enrollment will not increase when the school relocates. The CECCE is projecting enrollment to increase within the same catchment area.

For students being picked up by a parent, a conservative ratio of 1.5 children per parent has been assumed. It is also assumed that the proportion of students arriving and departing during the peak hours is equal, as well as the proportion of students that attend daycare after school (outside of the children who attend daycare exclusively).

A total of 16 off-site parking spaces will be provided for staff. As the school will have 41 staff at full buildout (35 school staff and six daycare staff), a maximum of 16 staff vehicles can be accommodated, equating to an auto driver share of approximately 40% among staff. Therefore, transportation demand management (TDM) measures such as carpooling and use of transit will be encouraged and required by the proponent. Further discussion of parking and TDM measures are included in Sections 6.2 and 6.5.

The modal share data shown in the *2011 TRANS O-D Survey* for the Ottawa Inner Area region has been reviewed to determine if this assumption is appropriate and consistent with the existing observed modal shares of the region. For all trips to/within Ottawa Inner Area during the AM peak hour and all trips from/within Ottawa Inner Area during the PM peak hour, the modal shares are split to approximately 35% auto driver, 30% transit, 25% non-auto, and 10% auto passenger. Therefore, assuming a maximum of 16 staff members driving to/from the proposed school is appropriate and consistent with the existing modal shares of the Ottawa Inner Area. In accordance with the shares outlined above, it is assumed that among the 41 staff, 16 staff will drive, 13 staff will take transit, and 12 staff will carpool or walk.

A description of how students, staff, and parents are assumed to arrive and depart the proposed school can be described as follows:

<u>Arrival Period (7:00-9:00am)</u>

- 351 students attending school and 39 children attending daycare arrive
    - 246 of 351 students (70%) arrive via five school buses at 8:40am
    - 105 of 351 students (30%) and 23 of 39 daycare children (60% siblings) arrive by walking or via drop-offs by 44 parents
        - 53 of 105 students (50%) and 11 daycare children arrive between 7:00-8:00am
        - 52 of 105 students (50%) and 12 daycare children arrive between 8:00-9:00am
        - Assumed 22 of 44 parents (50%) walk
        - Assumed 22 of 44 parents (50%) drive
    - 16 of 39 daycare children (40%) arrive via 16 parent drop-offs
        - 8 parents assumed to arrive in individual vehicles between 7:00-8:00am
        - 8 parents assumed to arrive in individual vehicles between 8:00-9:00am
- 35 school staff and 6 daycare staff arrive
    - 12 of 35 school staff and 2 of 6 daycare staff (35%) arrive between 7:00-8:00am
    - 23 of 35 school staff and 4 of 6 daycare staff (65%) arrive between 8:00-9:00am

<u>Departure Period (3:30-6:00pm)</u>

- 351 students attending school and 39 children attending daycare depart
    - 140 of 351 students (40%) depart via five school buses at 3:40pm
    - 211 of 351 students (60%) attend daycare with the 39 daycare children (including 23 siblings of students), before departing by walking (10%) or via parent pick-ups (90%)
        - 63 of 211 students (30%) and 7 daycare children depart between 3:45-4:30pm (6 students walk; 57 students and 7 daycare children picked up by 42 parents)
        - 148 of 211 students (70%) and 16 daycare children between 4:30-6:00pm (15 students walk, 133 students and 16 daycare children picked up by 99 parents)
    - 16 of 39 daycare children (non-siblings of students) depart via 16 parent pick-ups between 4:30-6:00pm

- 35 school staff and 6 daycare staff depart
  - 18 of 35 school staff (50%) depart between 3:45-4:30pm
  - 17 of 35 school staff (50%) and all 6 daycare staff depart between 4:30-6:00pm

A summary of the estimated traffic generated by the existing school is shown in the following tables, with person trips displayed in **Table 5** and vehicle trips displayed in **Table 6**.

Table 5: Proposed School Person Trip Generation

Traffic Generator	Person Trips				
	7:00 – 8:00 am	8:00 – 9:00 am	3:30 – 4:30 pm	4:30 – 5:30 pm	5:30 – 6:00 pm
	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT
Students	53 / 0	298 / 0	0 / 203	0 / 99	0 / 49
Daycare Only	19 / 0	20 / 0	0 / 7	0 / 19	0 / 13
Bus Drivers	0 / 0	5 / 5	5 / 5	0 / 0	0 / 0
Parents (drive)	19 / 19	19 / 19	35 / 35	67 / 67	33 / 33
Parents (walk)	11 / 11	11 / 11	7 / 7	9 / 9	6 / 6
Staff (drive)	6 / 0	9 / 0	0 / 6	0 / 6	0 / 4
Staff (transit)	4 / 0	9 / 0	0 / 6	0 / 5	0 / 2
Staff (other)	4 / 0	9 / 0	0 / 6	0 / 5	0 / 1
Total	**116 / 30**	**380 / 35**	**47 / 275**	**76 / 210**	**39 / 108**
Total 2-way	**146 persons**	**415 persons**	**322 persons**	**286 persons**	**147 persons**

Table 6: Proposed School Vehicle Trip Generation

Traffic Generator	Vehicle Trips				
	7:00 – 8:00 am	8:00 – 9:00 am	3:30 – 4:30 pm	4:30 – 5:30 pm	5:30 – 6:00 pm
	IN / OUT	IN / OUT	IN / OUT	IN / OUT	IN / OUT
Bus Drivers	0 / 0	5 / 5	5 / 5	0 / 0	0 / 0
Parents (drive)	19 / 19	19 / 19	35 / 35	67 / 67	33 / 33
Staff (drive)	6 / 0	9 / 0	0 / 6	0 / 6	0 / 4
Total	**25 / 19**	**33 / 24**	**40 / 46**	**67 / 73**	**33 / 37**
Total 2-way	**44 vehicles**	**57 vehicles**	**86 vehicles**	**140 vehicles**	**70 vehicles**

Based on the previous table, the AM peak hour for the school is 8:00am to 9:00am, and the PM peak hour for the school is 4:30pm to 5:30pm. The proposed school is estimated to generate peak hour volumes of 415 person trips (including 57 vehicle trips) during the AM peak hour, and 286 person trips (including 140 vehicle trips) during the PM peak hour.

Per City request, a factor of safety of 1.2 has also been applied to the above vehicular traffic generation, should the proposed school not meet target parent pick-up/drop-off shares. Therefore, the proposed school is estimated to generate 68 vehicle trips (38 inbound, 30 outbound) during the AM peak hour and 168 vehicle trips (80 inbound, 88 outbound) during the PM peak hour.

The Addendum to the Greystone Village Community Transportation Study (CTS), dated May 2017, assumed a development of 85 dwelling units within the Deschâtelets Building. Based on the methodology presented in the Addendum, trips generated by the Deschâtelets Building resulted in 53 person trips (including 21 vehicle trips) during the AM peak hour and 62 person trips (including 25 vehicle trips) during the PM peak hour.

The proposed school is anticipated to generate approximately 47 additional vehicle trips during the AM peak hour and 143 additional vehicle trips during the PM peak hour, compared to the development assumed in the Addendum to the Greystone Village CTS.

5.1.2 Trip Distribution and Assignment

The distribution of traffic generated by the proposed uses to the road network is assumed to follow the existing traffic patterns entering the study area during the AM peak hour and exiting the study area during the PM peak hour.

The trip distribution and assignment can be described as follows:

- 50% to/from the north, equally assigned to Oblats Avenue and Hazel Street;
- 45% to/from the south, equally assigned to Oblats Avenue and Hazel Street.
- 5% to/from the west, assigned to Hazel Street.

5.2 Background Traffic

5.2.1 General Background Growth Rate

In the original Greystone Village CTS, it was noted that the now-completed Main Street Renewal was anticipated to significantly affect traffic volumes on Main Street. Therefore, historic traffic counts were not considered to estimate a growth rate for traffic within the area.

The Greystone Village CTS established a growth rate of -2% per annum based on AM peak hour volume snapshots from the City's Strategic Long-Range Model for the 2011 and 2031 years, and applied it to all through movements on Main Streets for the buildout year 2021 and horizon year 2026. The traffic counts conducted on March 7, 2017 at the study area intersections indicate that through volumes on Main Street are significantly lower than the volumes projected in the CTS for 2021 or 2026. For the purposes of this TIA and to maintain a conservative analysis, rather than continue the assumption of a negative growth rate, no background growth rate has been applied to the 2017 traffic counts.

5.2.2 Other Area Developments

A review of the City's Development Application search tool identifies that, outside of the Greystone Village subdivision, there is one nearby development that is being constructed and is significant enough to warrant consideration in the traffic analysis. The following developments have been considered, and relevant excerpts of their respective studies are included in **Appendix F**.

141 Main Street
A Transportation Brief and addendum were prepared by Delcan/Parsons in November 2013 and June 2014, respectively. The development will include 144 condominium dwellings and 13,283 ft^2 of ground floor commercial space. Traffic generated by this development has been added to the 2021 and 2026 background traffic volumes.

Greystone Village Community Transportation Study (CTS)
The Greystone Village subdivision area is approximately 10.3 hectares in area, east of Main Street, south of Springhurst Avenue, and north of Clegg Street. The original CTS, prepared by Novatech in

January 2015, includes approximately 40 single-detached dwellings, 779 condominium/townhouse dwellings, 150 retirement home dwellings, and 36,539 ft^2 of retail space. Traffic generated by this subdivision has been added to the 2021 and 2026 background traffic volumes.

An addendum dated May 2017 included 110 additional condominium/townhouse dwellings and 10 fewer retirement dwellings. This Addendum assumed a development of 85 residential units within the renovated Deschâtelets Building. Additional traffic outlined in the addendum has been added to the 2021 and 2026 background traffic volumes, consistent with the trip distribution assumptions outlined in the original CTS. Traffic generated by the previously proposed 85 residential units within the renovated Deschâtelets Building has been deducted from the area intersections.

The developments listed below form parts of the Greystone Village subdivision, and were supported by site-specific traffic studies.

530 de Mazenod Avenue (Formerly 175 Main Street)
A Transportation Overview, dated August 2015, and Addendum, dated March 2017, were prepared by Novatech for this development, which will include two nine-storey condominium buildings containing a total of 212 dwellings. Compared to the Greystone Village CTS, this equates to 18 additional dwellings. Traffic generated by the additional dwellings has been added to the 2021 and 2026 background traffic volumes.

175 Main Street (10 Oblats Avenue)
A TIA was prepared by Novatech in March 2018 and revised in December 2018 for this development, which will include a six-storey mixed-use building and a nine-storey mixed-use building, containing a total of 244 apartment dwellings and 20,000 ft^2 of ground floor commercial space. Compared to the Greystone Village CTS, this equates to 29 additional dwellings and a reduction of 17,000 ft^2 of commercial space. Additional traffic generated by this development has been added to the 2021 and 2026 background traffic volumes.

Part of 375 Deschâtelets Avenue
A TIA was prepared by Novatech in April 2018 for this development, which will include a three-storey stacked townhouse block containing 18 dwellings. Traffic generated by this development has already been accounted for in the Addendum to the Greystone Village CTS.

225 Scholastic Drive (Retirement Residence)
A Transportation Overview was prepared by Novatech in October 2017 for this development, which will include an eight-storey retirement home containing 146 dwellings. Compared to the Greystone Village CTS, this equates to an additional six units. Traffic generated by this development has already been accounted for in the Addendum to the Greystone Village CTS.

Trips generated by the proposed development are shown in **Figure 6** and trips generated by other area developments are shown in **Figure 7**. Background and total traffic volumes in 2021/2026 are shown in **Figure 8** and **Figure 9**, respectively.

5.3 Demand Rationalization

No capacity constraints are identified for any movement in the study area, based on the total traffic volumes shown in **Figure 9**. Analysis of the study area intersections are included in Section 6.7.

Figure 6: Proposed Site-Generated Volumes

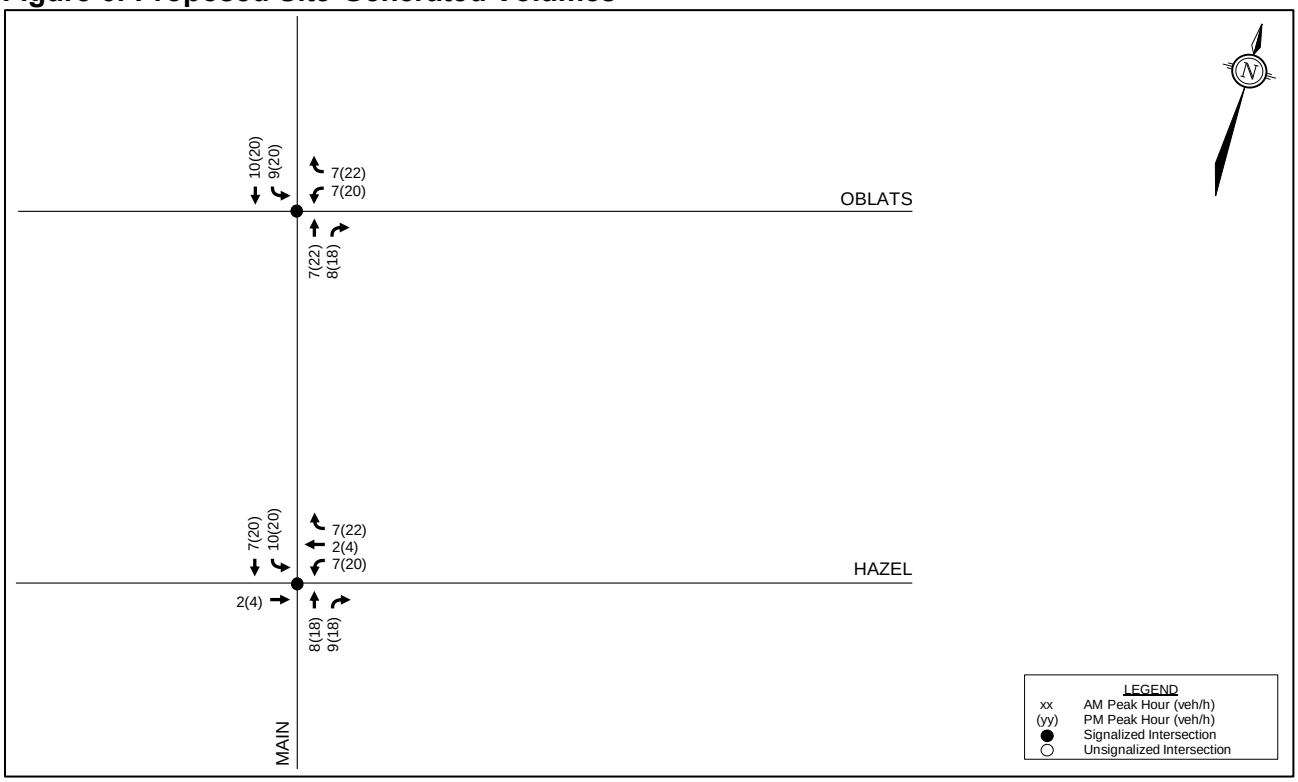


Figure 7: Other Area Development-Generated Volumes

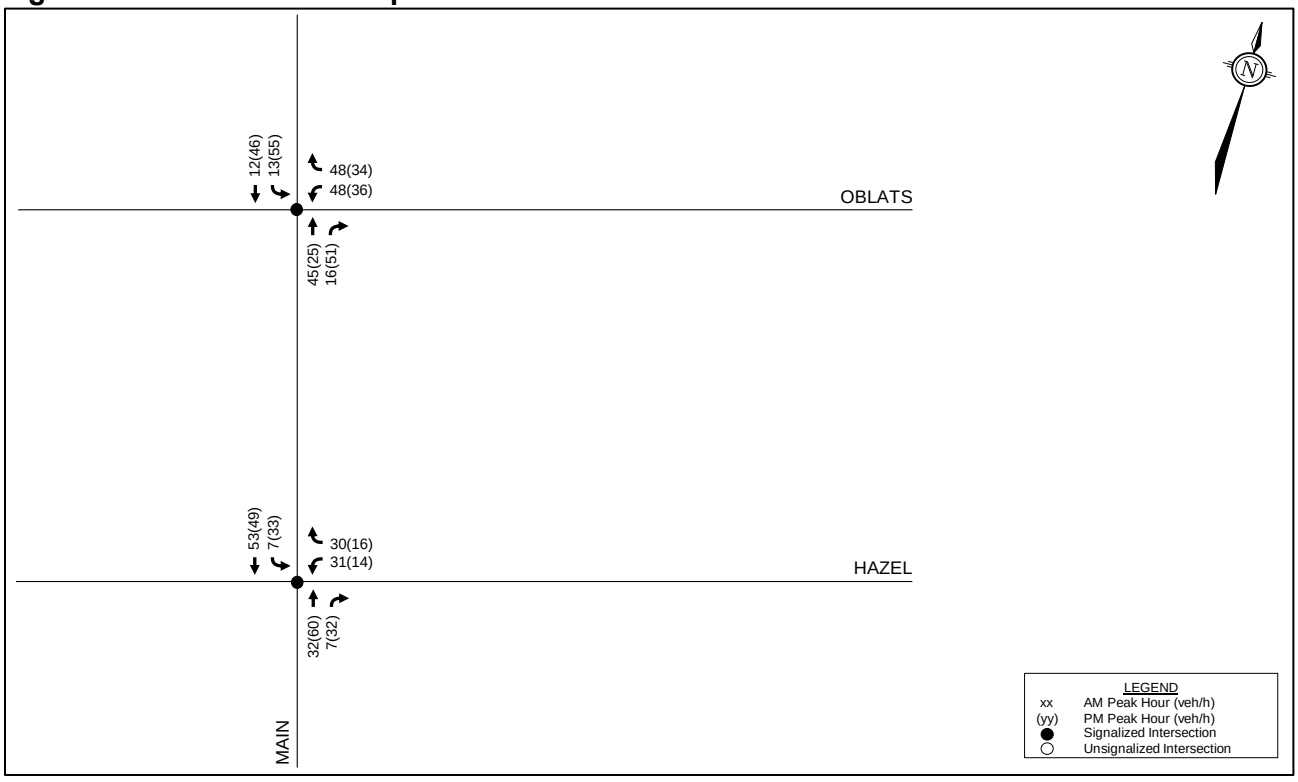


Figure 8: 2021/2026 Background Traffic Volumes

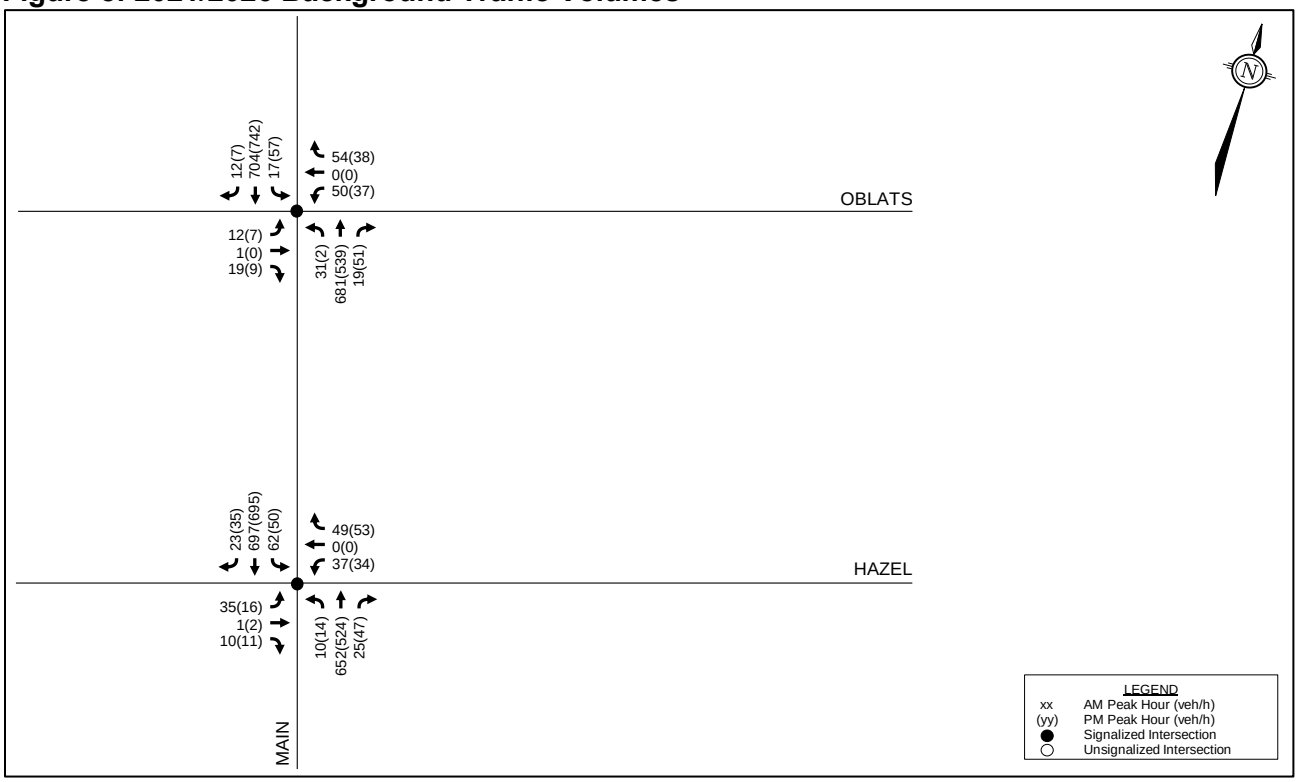
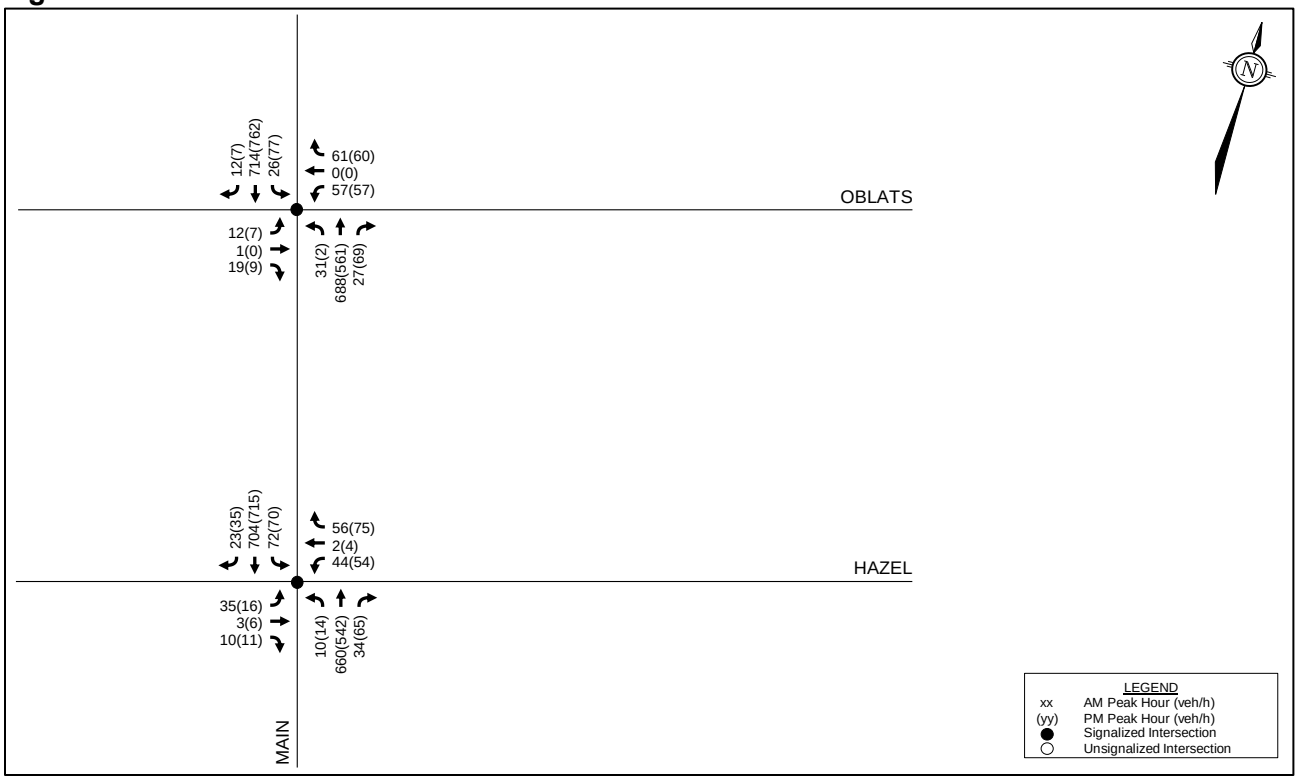


Figure 9: 2021/2026 Total Traffic Volumes



6.0 ANALYSIS

6.1 Development Design

6.1.1 Design for Sustainable Modes

Pedestrian facilities in the form of sidewalks or pathways are provided along both sides of all study area roadways within the Greystone Village subdivision. In addition, the Grande Alleé will be dedicated as City parkland, and repurposed to become a broad pedestrian promenade with restricted vehicular access. The semi-circular Forecourt immediately west of the Deschâtelets Building will be similarly repurposed as a public space, but will also serve as a fire route with access on Oblats Avenue and Deschâtelets Avenue.

The school board intends to use the fire route adjacent to the frontage of the building to facilitate bus loading/unloading procedures as well as a 'kiss and ride' zone during morning drop-offs. Pedestrians crossing the fire route will be provided with a painted crossing opposite the main entrance to the Deschâtelets Building. Attendants (school staff or parent volunteers) will control bus loading, kiss and ride activities, and pedestrian crossing of the fire route during peak times when students are entering and exiting the school. As vehicles and buses are now anticipated to enter the fire route, the previously planned pedestrians crossovers (PXOs) on either end of the fire route will require relocation. This is noted on the conceptual community plan included in **Appendix A**.

The bus stops nearest to the subject site are reviewed in Section 4.1.6 and shown in **Figure 4**. Measuring walking distance from the stops to the main entrance, stop #1141 is approximately 180m away, stop #7636 is approximately 270m away, and stop #6809 is approximately 330m away. These stops represent the closest stops to the Deschâtelets Building. Stops #7638 and #7639 are also located within 400m walking distance of the main entrance to the Deschâtelets Building.

Within the subdivision, cyclists will be accommodated on the internal roadways or the multi-use pathway between Scholastic Drive and the Rideau River. All internal roadways have a posted speed limit of 30 km/h. As shown in Section 6.3, the low posted speed adequately accommodates cyclists without providing dedicated cycling facilities. On either side of the main entrance, 22 bicycle parking spaces are proposed, for a total of 44 bicycle spaces on-site. Cyclists entering and exiting the bicycle parking area in front of the Deschâtelets Building will be encouraged to dismount and cross the fire route at the same location as the crossing for pedestrians opposite the main entrance. As discussed previously, this pedestrian crossing area will be controlled by an attendant during peak times when students are entering and exiting the school.

A review of the Transportation Demand Management (TDM) – *Development Design and Infrastructure Checklist* has been conducted, and is included in **Appendix G**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

6.1.2 Circulation and Access

Sixteen parking spaces will be reserved for school staff on parking level one of the underground parking garage to 175 Main Street. A letter from Regional outlining this parking arrangement is provided in **Appendix H**. Parking for parents or visitors will be provided on-street on Oblats Avenue and Deschâtelets Avenue (approximately 45-50 on-street parking spaces), and off-street using the surface parking lot provided for the mixed-use buildings at 175 Main Street (labeled as Buildings 2A and 2B on the plan included in **Appendix A**).

Based on the parking letter from Regional, the development at 175 Main Street will contain 117 parking spaces in excess of the Zoning requirement for that site. Regional, the landowner of 175 Main Street, has confirmed that any excess parking spaces in this surface lot will be open to the public (i.e. including parents and visitors) on a first come first serve basis. Although the surface parking spaces at 175 Main Street will not be reserved for school, the excess spaces above the ZBL can be utilized by parents and visitors of the school.

As enrollment increases within the school, it is anticipated that the school board will file a Site Plan Control application to construct a new gymnasium and a new parking lot containing approximately 26 parking spaces near the northeast corner of the Deschâtelets Building. The new parking lot can be used as additional parking for parent pick-up/drop-off activities.

A north-south fire route will be provided within the Forecourt, immediately west of the Deschâtelets Building. Garbage collection will take place near the northwestern corner of the building. A loading zone will also be provided at the northwestern corner of the building, immediately south of the garbage collection area. As described previously, a bus pick-up/drop-off zone and a kiss and ride zone will be provided within the proposed fire route in front of the main building entrance. The bus loading zone and the kiss and ride zone can be located in the fire route, as drivers are not permitted to leave their vehicles. It should be noted that the kiss and ride only operates for drop-offs in the morning.

Drivers utilizing the kiss and ride zone, as well as school buses, will enter the fire route from the southern end via Deschâtelets Avenue and exit from the northern end via Oblats Avenue. One-way signage will be provided at the entrance and exit of the fire route. Adjustments to the approved subdivision curb design for Deschâtelets Avenue and Oblats Avenue will be required to accommodate the turning movements of school buses at the fire route. To facilitate loading procedures in front of the building, a new 2.0m-wide depressed concrete sidewalk at grade with the fire route will be constructed.

A conceptual plan of the fire route has been developed to illustrate the crossing location for students, parents, and visitors, the intersections with Oblats Avenue and Deschâtelets Avenue, the locations for pick-ups and drop-offs, and the location of attendants facilitating loading/unloading and pedestrian activity. Turning movements for school buses are also included, as they represent the largest design vehicle. The conceptual plan is included in **Appendix I**.

6.2 Parking

The subject site is located in Area B on Schedule 1 and Area X on Schedule 1A of the City's Zoning By-law (ZBL). Minimum vehicular and bicycle parking rates for the existing and proposed uses are identified in the ZBL and are summarized in **Table 7**.

Table 7: Parking Requirements Per Zoning By-Law

Land Use	Rate	GFA/Units	Required	Proposed
Vehicle Parking				
School	0.75 per classroom	17 classrooms	13	16 (off-site)
Daycare	1 per 100m^2 of GFA	344 m^2	3	
		Total	**16**	**16 (off-site)**

Land Use	Rate	GFA/Units	Required	Proposed
Bicycle Parking				
School	1 per 100m^2 of GFA	2,345 m^2	23	44 (on-site)
Daycare	1 per 250m^2 of GFA	344 m^2	1	
		Total	**24**	**44 (on-site)**

A total of 16 parking spaces will be reserved for staff off-site at 175 Main Street, adhering to the requirements of the ZBL. These spaces will be provided on parking level one of the underground parking garage at 175 Main Street. The proposed bicycle parking exceeds the requirements of the ZBL. Per the City's 2017 TIA Guidelines, review of spillover parking is not required, as the minimum parking requirements are met.

It is acknowledged that the existing school has sufficient parking for all staff members to drive in individual vehicles to/from the school, and no TDM measures were provided by the school to mitigate this traffic, since none were required. However, given the constraints on parking for the proposed relocation, a suite of TDM measures have been proposed by the CECCE to ensure more parking will not be required. These measures are discussed in Section 6.5.

Based on the trip generation estimates shown in **Table 6**, it is estimated that approximately 67 vehicles will arrive between 4:30pm and 5:30pm to pick up students. Assuming an average dwell time of 20 minutes for parents before departing from the school, approximately 23 parking spaces would be utilized for parent pick-ups, distributed between on-street spaces on Oblats Avenue and Deschâtelets Avenue and surface parking spaces at 175 Main Street.

Section 113 of the ZBL identifies a minimum requirement of one loading space for schools with a GFA of 2,000 to 4,999 m^2. A loading area is provided at the northwestern corner of the building.

6.3 Boundary Streets

This section provides a review of the boundary streets Oblats Avenue, Deschâtelets Avenue, and Scholastic Drive using complete streets principles. The *Multi-Modal Level of Service (MMLOS) Guidelines* produced by IBI Group in October 2015 were used to evaluate the levels of service for the boundary roadways for pedestrians and cyclists. As none of the boundary streets are designated as Transit Priority Corridors or Truck Routes, the levels of service for transit and trucks have not been evaluated. Evaluation of the boundary streets for MMLOS is based on the approved cross-sections of the Greystone Village subdivision, as construction of the subdivision is not complete at the time of writing. The cross-sections are shown on the plan included in **Appendix A**.

Exhibit 4 of the MMLOS guidelines has been used to evaluate the existing segment PLOS of the boundary streets. Exhibit 22 of the MMLOS guidelines suggests a target PLOS A for all roadways within 300m of a school (Oblats Avenue, Deschâtelets Avenue, Scholastic Drive). The results of the segment PLOS analysis are summarized in **Table 8**.

Exhibit 12 of the MMLOS guidelines has been used to evaluate the existing segment BLOS of the boundary streets. Exhibit 22 of the MMLOS guidelines suggests a target BLOS D for roadways with no cycling designations within 300m of a school (Oblats Avenue, Deschâtelets Avenue, Scholastic Drive). The results of the segment BLOS analysis are summarized in **Table 9**.

Table 8: PLOS Segment Analysis

Sidewalk Width	Boulevard Width	Avg. Daily Curb Lane Traffic Volume	Presence of On-Street Parking	Operating Speed	PLOS
Oblats Avenue (north side)					
1.8m	0m	≤ 3,000 vpd	Yes	30 km/h	A
Oblats Avenue (south side)					
1.8m	0m	≤ 3,000 vpd	Yes	30 km/h	A
Deschâtelets Avenue (north/east side)					
1.8m	0m	≤ 3,000 vpd	No	30 km/h	A
Deschâtelets Avenue (south/west side)					
1.8m	0m	≤ 3,000 vpd	Yes	30 km/h	A
Scholastic Drive (east side)					
≥ 2.0m	0.5 to 2.0m	≤ 3,000 vpd	No	30 km/h	A
Scholastic Drive (west side)					
1.8m	0m	≤ 3,000 vpd	No	30 km/h	A

Table 9: BLOS Segment Analysis

Road Class	Bike Route	Type of Bikeway	Travel Lanes	Operating Speed	BLOS
Oblats Avenue (Deschâtelets Avenue to Scholastic Drive)					
Local	No Class	Mixed Traffic	2	30 km/h	A
Deschâtelets Avenue (Oblats Avenue to Scholastic Drive)					
Local	No Class	Mixed Traffic	2	30 km/h	A
Scholastic Drive (Oblats Avenue to Deschâtelets Avenue)					
Local	No Class	Mixed Traffic	2	30 km/h	A

From the previous tables, all boundary streets meet the target PLOS A and BLOS D.

6.4 Access Design

There are no existing driveways to the subject site, nor are there any driveways proposed. The proposed fire route will include a kiss and ride zone in the mornings, and will be used by school buses to pick up and drop off students. A main crossing directly across from the main entrance will be supervised by school staff to ensure safe crossings for pedestrians and cyclists who are not arriving or departing via school bus. Operations of the fire route is included in Section 6.1.

6.5 Transportation Demand Management

A review of the TDM – *Measures Checklist* has been conducted, and is included in **Appendix G**. The following TDM measures will be implemented by the proponent.

- Display local area maps with walking/cycling access routes and key destinations (will be displayed in staff room);
- Offer on-site cycling courses for commuters or subsidize off-site courses (course registration will be displayed in staff room);
- Display relevant transit schedules and route maps (will be displayed in staff room);
- Provide online links to OC Transpo and STO information;

- Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (school buses for students are coordinated through CECCE's transportation department);
- Provide a dedicated matchmaking portal at OttawaRideMatch.com;
- Provide a multimodal travel option information package to new/relocating employees and students;
- Offer personalized trip planning to new/relocating employees.

The provision of the measures included above seek to incentivize school staff and parents of students to carpool, take transit, or walk to the proposed school. Only 16 off-site parking spaces will be reserved for the 41 staff members anticipated at full buildout. Additionally, there may be limited areas for parents to pick up and drop off students in vehicles.

6.6 Transit

Based on the trip generation presented in Section 5.1.1, the proposed school at full buildout is projected to generate 13 inbound transit trips during the AM peak hour and 13 outbound transit trips during the PM peak hour. Transit trips to/from the north are assumed to use OC Transpo routes 16 and 55, while transit trips to/from the south are assumed to use OC Transpo routes 5 and 55.

Using the same trip distribution assumptions described in Section 5.1.2, the site-generated transit trips have been distributed as follows:

AM Peak Hour
- Stop #6809: 7 passengers alighting OC Routes 16 and 55
- Stop #7636: 6 passengers alighting OC Routes 5 and 55

PM Peak Hour
- Stop #6809: 6 passengers boarding OC Routes 5 and 55
- Stop #7636: 7 passengers boarding OC Routes 16 and 55

Based on the projected passenger volumes, no capacity problems are anticipated on the bus routes or at the bus stops listed above.

6.7 Intersection Design

6.7.1 Intersection MMLOS

This section provides a review of the study area intersections using complete streets principles. The MMLOS Guidelines were used to evaluate the MMLOS for each signalized intersection in the study area. The MMLOS targets applied to Main Street/Oblats Avenue and Main Street/Hazel Street are based on the assigned targets for roadways within 300m of a school.

A summary of the results is shown in **Table 10**. Detailed review of the MMLOS at both study area intersections is included in **Appendix J**.

Table 10: Intersection MMLOS Summary

Intersection	PLOS		BLOS		Auto LOS	
	Actual	Target	Actual	Target	Actual	Target
Main Street/Oblats Avenue	**D**	A	C	C	C	E
Main Street/Hazel Street	**D**		**D**		C	

The results of the intersection MMLOS analysis can be summarized as follows:

- Neither study area intersection meets the target PLOS A;
- Main Street/Oblats Avenue meets the target BLOS C, while Main Street/Hazel Street does not;
- Both study area intersections meet the target Auto LOS E.

Discussion for each intersection is provided below.

Main Street/Oblats Avenue
The intersection does not meet the target PLOS A.

All approaches do not meet the target PLOS, and cannot achieve the target PLOS without significantly reducing the number of lanes and restricting turning movements. Leading pedestrian intervals and textured crosswalks have been implemented at all approaches, which improves the level of comfort for pedestrians. No other modifications are recommended.

Main Street/Hazel Street
The intersection does not meet the target PLOS A or BLOS C.

All approaches do not meet the target PLOS, and cannot achieve the target PLOS without significantly reducing the number of lanes and restricting turning movements. Leading pedestrian intervals and textured crosswalks have been implemented at all approaches, which improves the level of comfort for pedestrians. No other modifications are recommended.

The east approach does not meet the target BLOS, based on right turn lane characteristics. For roadways with an AADT less than 4,000 vehicles/day and a speed limit of 30 km/h, the *Ontario Traffic Manual – Book 18* states that a 'shared roadway' is appropriate (per the selection tool included in OTM Book 18). Therefore, no further modifications are recommended.

The selection tool used in OTM Book 18 to describe the desirable cycling facility is shown in **Figure 10**.

6.7.2 2021/2026 Background Intersection Operations

Intersection capacity analysis has been conducted for the background traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1,800 vphpl, Peak Hour Factor: 1.0 for future conditions). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 11**. Signal timing plans are included in **Appendix K**, and detailed Synchro reports are included in **Appendix L**.

Figure 10: Desirable Cycling Facility Pre-Selection Nomograph

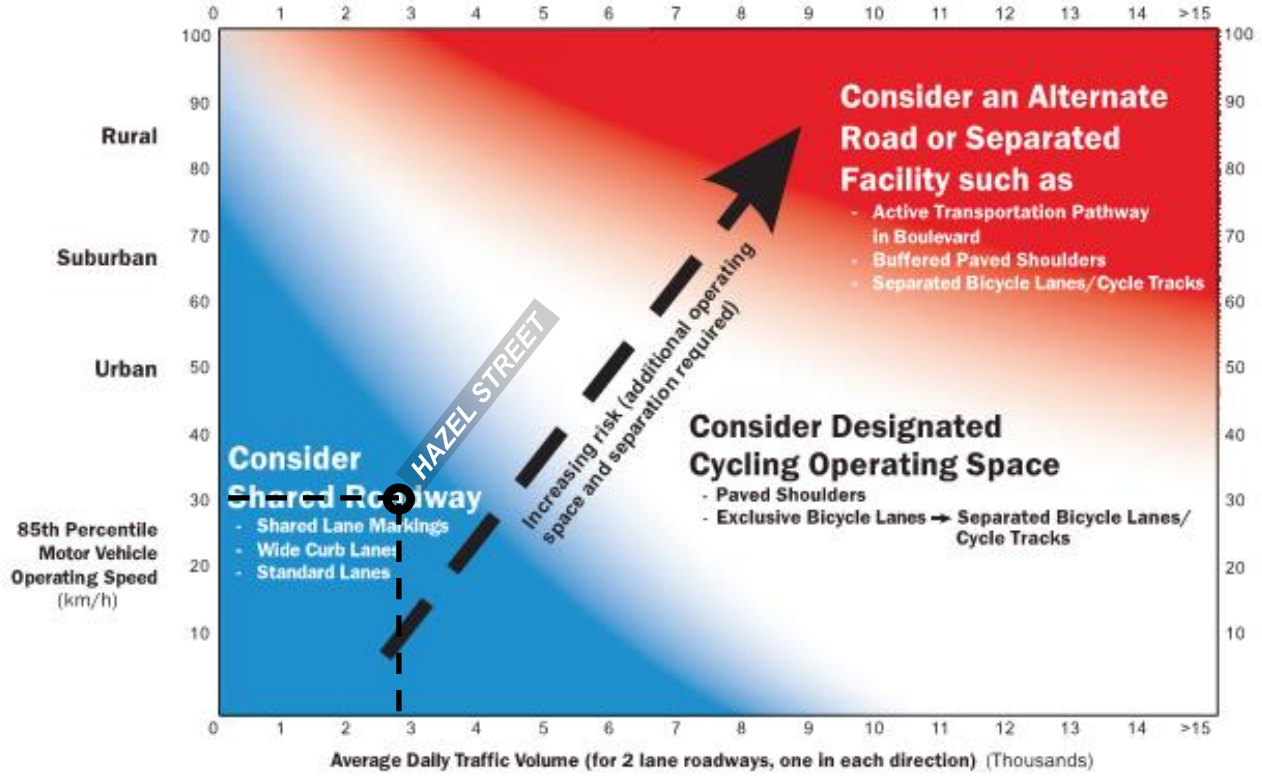


Table 11: 2021/2026 Background Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Main Street/Oblats Avenue	0.66	B	SBT	0.63	B	SBT
Main Street/Hazel Street	0.70	B	NBT	0.64	B	SBT

From the previous table, no operational concerns are identified as a result of buildout of the Greystone Village subdivision. The v/c ratios of the critical movements appear to improve when compared to the existing conditions, as a result of changing the Peak Hour Factor parameter from 0.9 to 1.0, per the 2017 TIA Guidelines.

6.7.3 2021/2026 Total Intersection Operations

Intersection capacity analysis has been conducted for the total traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1,800 vphpl, Peak Hour Factor: 1.0 for future conditions). The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 12**. Signal timing plans are included in **Appendix K**, and detailed Synchro reports are included in **Appendix L**.

Table 12: 2021/2026 Total Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Main Street/Oblats Avenue	0.67	B	SBT	0.65	B	SBT
Main Street/Hazel Street	0.72	C	NBT	0.66	B	SBT

From the previous table, no operational concerns are identified as a result of the traffic generated by the proposed school.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations of this TIA can be summarized as follows:

Forecasting

- At full occupancy, the proposed school is estimated to generate 68 vehicle trips (38 inbound, 30 outbound) during the AM peak hour and 168 vehicle trips (80 inbound, 88 outbound) during the PM peak hour.

- Compared to the development assumed for the Deschâtelets Building in the Greystone Village CTS, the proposed school is anticipated to generate approximately 47 additional vehicle trips during the AM peak hour and 143 additional vehicle trips during the PM peak hour.

Development Design and Parking

- Pedestrian facilities in the form of sidewalks or pathways are provided along both sides of all study area roadways within the Greystone Village subdivision. In addition, the Grande Alleé will be repurposed to become a broad pedestrian promenade with restricted vehicular access. The semi-circular Forecourt immediately west of the Deschâtelets Building will be similarly repurposed as a public space, but will also serve as a fire route. Within the subdivision, cyclists will be accommodated on the internal roadways or the multi-use pathway between Scholastic Drive and the Rideau River.

- Measuring walking distance from the stops to the main entrance, stop #1141 is approximately 180m away, stop #7636 is approximately 270m away, and stop #6809 is approximately 330m away. These stops represent the closest stops to the Deschâtelets Building. Stops #7638 and #7639 are also located within 400m walking distance of the main entrance to the Deschâtelets Building.

- Garbage collection and loading will take place at the northwestern corner of the building. The fire route will be a north-south lane within the Forecourt, immediately west of the Deschâtelets Building.

- A bus pick-up/drop-off zone and a kiss and ride zone will be provided within the proposed fire route in front of the main entrance. The bus loading zone and the kiss and ride zone can be located in the fire route, as drivers are not permitted to leave their vehicles.

- Drivers utilizing the kiss and ride zone, as well as school buses, will enter the fire route from the southern end via Deschâtelets Avenue and exit from the northern end via Oblats Avenue. One-way signage will be provided at the entrance and exit of the fire route. Adjustments to the approved subdivision curb design for Deschâtelets Avenue and Oblats Avenue will be required to accommodate the turning movements of school buses at the fire route. To facilitate loading procedures in front of the building, a new 2.0m-wide depressed concrete sidewalk at grade with the fire route will be constructed. Attendants (school staff or parent volunteers) will control bus loading, kiss and ride activities, and pedestrian crossing of the fire route during peak times when students are entering and exiting the school.

- Parking for parents or visitors who need to enter the school will be provided on-street on Oblats Avenue and Deschâtelets Avenue, and off-street using the surface parking lot provided for the mixed-use buildings at 175 Main Street. Although the surface parking spaces at 175 Main Street will not be reserved for school, the excess spaces above the ZBL can be utilized by parents and visitors of the school.

- As enrollment increases within the school, it is anticipated that the school board will file a Site Plan Control application to construct a new gymnasium and a new parking lot containing approximately 26 parking spaces near the northeast corner of the Deschâtelets Building. The new parking lot can be used as additional parking for parent pick-up/drop-off activities.

- A total of 16 parking spaces will be reserved for school staff off-site, on parking level one of the underground parking garage at 175 Main Street. This adheres to the requirements of the ZBL. The proposed bicycle parking exceeds the requirements of the ZBL.

- It is acknowledged that the existing school has sufficient parking for all staff members to drive in individual vehicles to/from the school, and no TDM measures were provided by the school to mitigate this traffic, since none were required. However, given the constraints on parking for the proposed relocation, a suite of TDM measures have been proposed by the CECCE to ensure more parking will not be required.

- Assuming an average dwell time of 20 minutes for parents before departing from the school, approximately 23 parking spaces would be utilized for parent pick-ups, distributed between on-street spaces on Oblats Avenue and Deschâtelets Avenue and surface parking spaces at 175 Main Street.

Boundary Streets

- The boundary streets Oblats Avenue, Deschâtelets Avenue, and Scholastic Drive meet the target PLOS A and BLOS D.

Transportation Demand Management

- The proponent will implement the following TDM measures upon opening of the proposed school:
    - Display local area maps with walking/cycling access routes and key destinations (will be displayed in staff room);
    - Offer on-site cycling courses for commuters or subsidize off-site courses (course registration will be displayed in staff room);
    - Display relevant transit schedules and route maps (will be displayed in staff room);
    - Provide online links to OC Transpo and STO information;

- Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (school buses coordinated through CECCE's transportation department);
- Provide a dedicated matchmaking portal at OttawaRideMatch.com;
- Provide a multimodal travel option information package to new/relocating employees and students;
- Offer personalized trip planning to new/relocating employees.

Transit

- At full occupancy, the proposed school is anticipated to generate 13 inbound transit trips during the AM peak hour and 13 outbound transit trips during the PM peak hour. No capacity problems are anticipated on the routes and at the stops within the study area as a result of these transit trips.

Intersection Design

- The intersection MMLOS analysis can be summarized as follows:
  - Neither study area intersection meets the target PLOS A;
  - Main Street/Oblats Avenue meets the target BLOS C, but Main Street/Hazel Street does not;
  - Both study area intersections meet the target Auto LOS E.

- Pedestrian Level of Service
  - All approaches of Main Street/Oblats Avenue and Main Street/Hazel Street do not meet the target PLOS, and cannot achieve the target PLOS without significantly reducing the number of lanes and restricting turning movements. Leading pedestrian intervals and textured crosswalks have been implemented at all approaches, which improves the level of comfort for pedestrians. No other modifications are recommended.

- Bicycle Level of Service
  - The east approach of Main Street/Hazel Street does not meet the target BLOS, based on right turn lane characteristics. For roadways with an AADT less than 4,000 vehicles/day and a speed limit of 30 km/h, the *Ontario Traffic Manual – Book 18* states that a 'shared roadway' is appropriate (per the selection tool included in OTM Book 18). Therefore, no further modifications are recommended.

- The study area intersections are anticipated to operate at an acceptable vehicular level of service in existing traffic conditions, background traffic conditions, and total traffic conditions.

Based on the foregoing, the proposed development is recommended from a transportation perspective.

NOVATECH

Prepared by:

Joshua Audia, B.Sc.
E.I.T.,
Transportation/Traffic

Reviewed by:

Brad Byvelds, P.Eng.
Project Coordinator,
Transportation/Traffic

APPENDIX A

Greystone Village Subdivision Plan and
Preliminary Concept Plan

Reviewed By Development Review Branch

Signed: ____________

Date: ____________, 2016

Plan Number: ____________

D07-16-15-0001 PHASE 2 AND 3

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
7.	ISSUED FOR INFORMATION	OCT 30/17	JAG
6.	ISSUED FOR CONSTRUCTION	JUL 6/17	JAG
5.	FOR INFORMATION PURPOSES ONLY	JUN 8/17	MSP
4.	REVISED AS PER CITY COMMENTS AND ISSUED FOR E.C.A.	MAY 26/17	JAG
3.	ISSUED FOR TENDER	APR 19/17	JAG
2.	RE-ISSUED AS PER CITY COMMENTS	MAR 8/17	JAG
1.	ISSUED FOR CITY OF OTTAWA REVIEW	NOV 21/16	JAG

SCALE 1:1000

DESIGN / CHECKED / DRAWN / CHECKED / APPROVED

FOR REVIEW ONLY

REGISTERED PROFESSIONAL ENGINEER J.G. RIDDELL PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

CITY of OTTAWA
GREYSTONE VILLAGE
OLD OTTAWA EAST - 175 MAIN STREET

DRAWING NAME
CONCEPT PLAN WITH ROAD CROSS SECTIONS PHASE 2 AND 3

PROJECT No. 114025-00
REV # 7
DRAWING No. 114025-BP-B

RETIREMENT HOME
7 STORY

FUTURE
DEVELOPMENT
AREA

FUTURE
DEVELOPMENT
AREA

FUTURE
DEVELOPMENT
AREA

DESCHATELETS BLDG
EXISTING
1598 m² Footprint / 4538.5 m² GFA ZBL
82589

EARLY CHILDHOOD ED.
PLAY YARD

BELOW GRADE
HYDRO VAULT

FIRE ROUTE

FIRE ROUTE

FUTURE PARK

SSIB(AOG)

IB(AOG)

PROPERTY LINE

NORTH

DESCHATELETS BUILDING

PROPOSED SCHOOL - OPTION 1A

HOBIN
ARCHITECTURE

SITEPLAN

SCALE 1:500

April 15, 2020

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	**225 Scholastic Drive (Deschâtelets Building)**
Description of Location	**South of Oblats Avenue, east of public open space (Forecourt)**
Land Use Classification	**School**
Development Size (units)	**351 students**
Development Size (m^2)	**-**
Number of Accesses and Locations	**One access to Oblats Avenue, between Deschâtelets Avenue and Scholastic Drive**
Phase of Development	**1**
Buildout Year	**2021**

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development's Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m^2
Industrial	5,000 m^2
Fast-food restaurant or coffee shop	100 m^2
Destination retail	1,000 m^2
Gas station or convenience market	75 m^2

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

	Yes	No
Does the development propose a new driveway to a boundary street that is designated as part of the City's Transit Priority, Rapid Transit or Spine Bicycle Networks?		✓
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*		✓

**DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).*

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?		✓
Are there any horizontal/vertical curvatures on a boundary street limiting sight lines at a proposed driveway?		✓
Is the proposed driveway within the area of influence of an adjacent traffic signal or roundabout (i.e. within 300 m of intersection in rural conditions, or within 150 m of intersection in urban/suburban conditions)?		✓
Is the proposed driveway within auxiliary lanes of an intersection?		✓
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		✓
Does the development include a drive-thru facility?		✓

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	✓	
Does the development satisfy the Location Trigger?		✓
Does the development satisfy the Safety Trigger?		✓

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

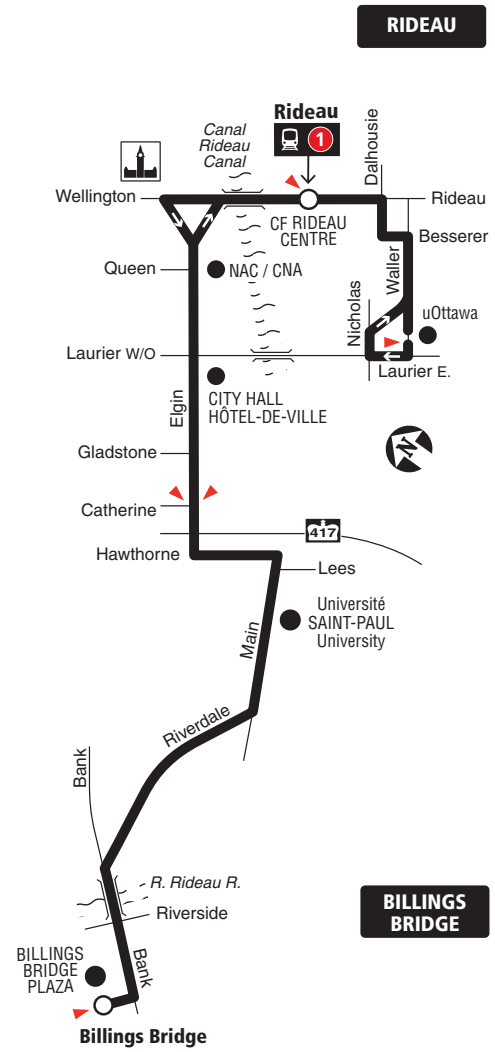
APPENDIX C

OC Transpo Route Maps

5 BILLINGS BRIDGE / RIDEAU

Local

7 days a week / 7 jours par semaine
All day service
Service toute la journée

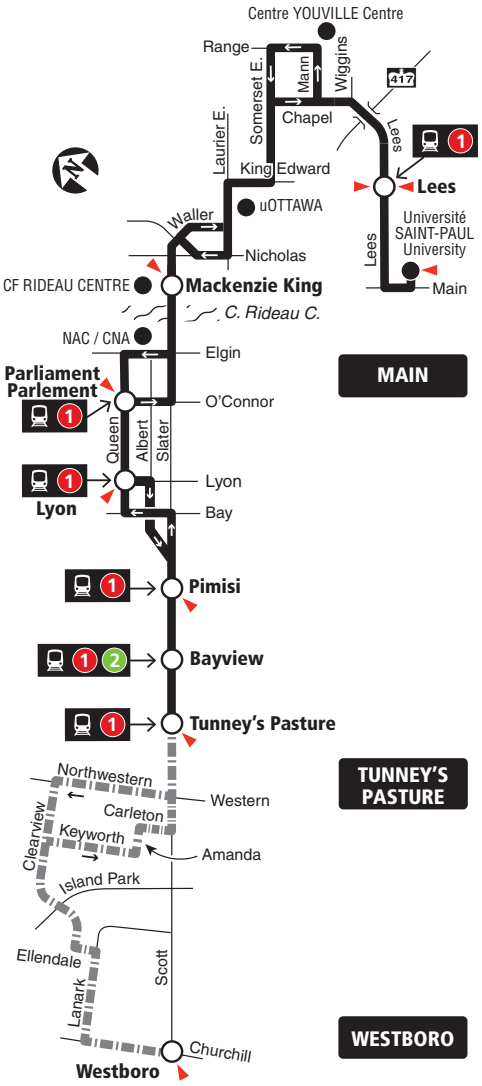


2019.07

16 MAIN
TUNNEY'S PASTURE
WESTBORO

Local

7 days a week / 7 jours par semaine
All day service
Service toute la journée



Station
No Sunday service / Aucun service le dimanche
Timepoint / Heures de passage

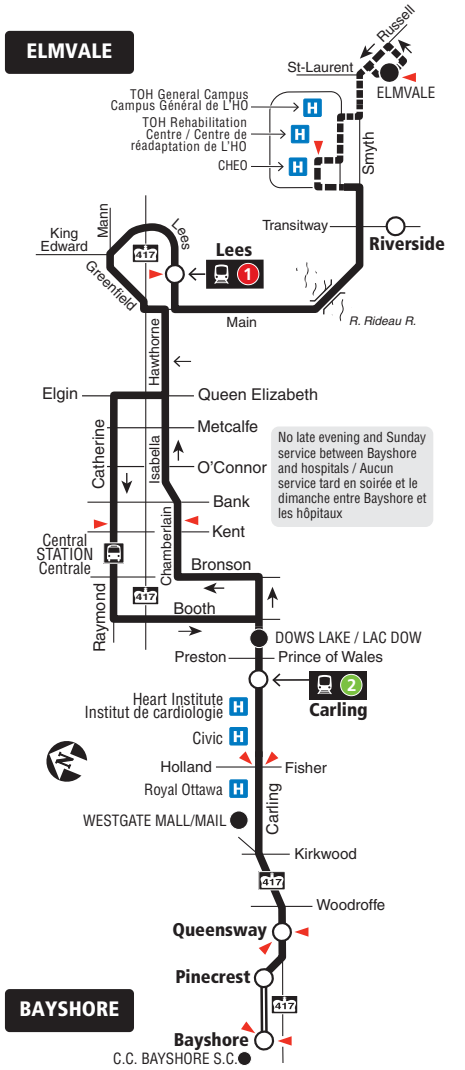
2019.07

55 ELMVALE / BAYSHORE

Local

7 days a week / 7 jours par semaine

On Sundays and evenings, service only between Elmvale and General campus of the Ottawa Hospital /
Service le dimanche et en soirée seulement entre Elmvale et le campus Général de l'Hôpital d'Ottawa



Transitway & Station

Late evenings and Sundays: service only between Elmvale and the Ottawa Hospital, General Campus

Service tard en soirée et le dimanche: seulement entre Elmvale et le campus Général de l'Hôpital d'Ottawa

Timepoint / Heures de passage

2020.01

Schedule / Horaire.....613-560-1000
Text / Texto 560560

plus your four digit bus stop number / *plus* votre numéro d'arrêt à quatre chiffres

Customer Service
Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité..... **613-741-2478**

Effective January 5, 2020
En vigueur 5 janvier 2020

OC Transpo

INFO 613-741-4390
octranspo.com

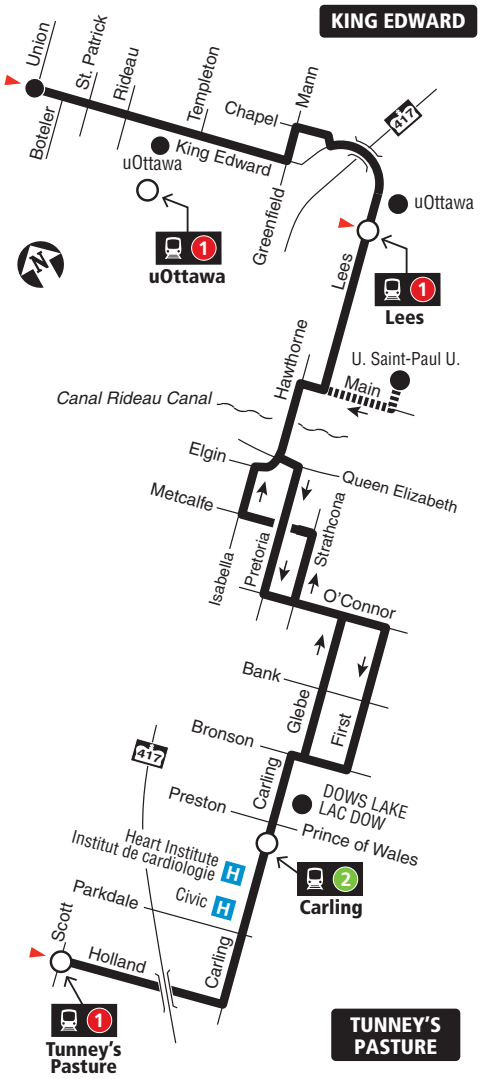
56 KING EDWARD / TUNNEY'S PASTURE

Local

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



Station

Some trips / Certains trajets

Timepoint / Heures de passage

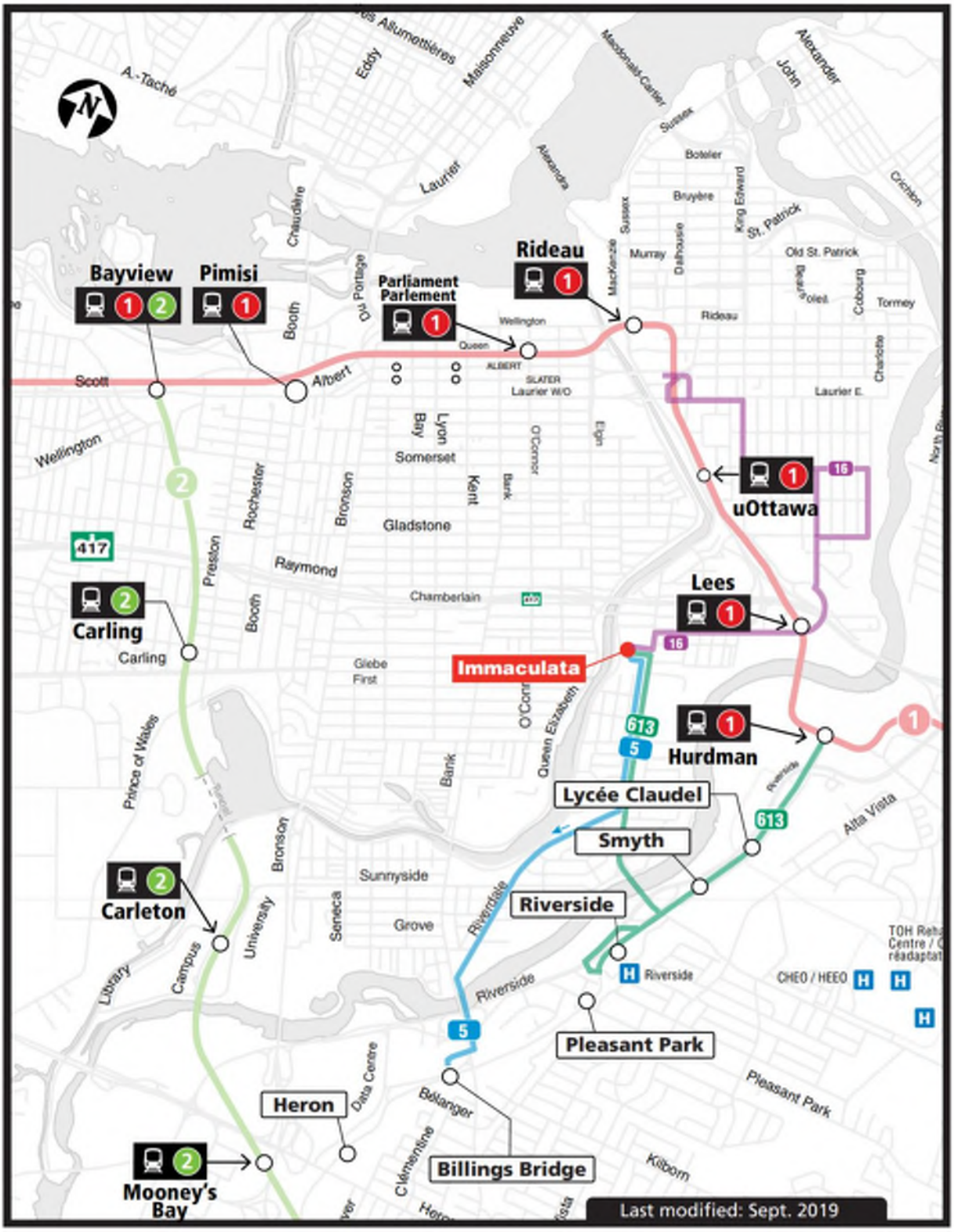
2019.07

Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture de la Ligne 1 de l'O-Train

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité..... **613-741-2478**

OC Transpo **INFO 613-741-4390**
octranspo.com


Bayview
Pimisi
Parliament
Parlement
Rideau
uOttawa
Lees
Immaculata
Hurdman
Lycée Claudel
Smyth
Riverside
Pleasant Park
Billings Bridge
Heron
Mooney's Bay
Carleton
Carling
Scott
Albert
Wellington
Somerset
Gladstone
Bronson
Rochester
Preston
Booth
Bank
Kent
Lyon
Bay
Elgin
O'Connor
Laurier
Chamberlain
Glebe
First
Sunnyside
Grove
Seneca
University
Campus
Library
Prince of Wales
Riverdale
Queen Elizabeth
Alta Vista
Pleasant Park
Kilborn
Clémentine
Data Centre
Bélanger
Riverside
CHEO / HEEO
Last modified: Sept. 2019


uOttawa
56
16
Range
Mann
Lees
Greenfield
14
O'Connor
Metcalfe
Canadian Museum of Nature
Musée canadien de la nature
5
Queen Elizabeth
Rideau Canal
Main
55
1
Catherine
QUEENSWAY
Isabella
Pretoria
56
Hawthorne
Lees
16
55
56
Lees
Immaculata
SITE
University of Ottawa
Université d'Ottawa
Strathcona
5
55
Saint-Paul University
Université Saint-Paul
Hurdman
O'Connor
Metcalfe
Reine-Élizabeth
Colonel By
Main
16
Lycée Claudel
TD Place
Place TD
Lansdowne Park
Parc Lansdowne
Riverside
Transitway
Lycée Claudel
Alta Vista
Lansdowne
5
55
Smyth
44
Corona
Canal Rideau
Riverdale
Windsor
Riverside
45
49
Riverside
CHEO
Smyth
Pleasant Park
97
98
99
10
40
88
90
Billings Estate
Domaine Billings
48
49
92
93
Billings
Lynda Lane
96
190
199
Billings Bridge
290
291
294
299
Kilborn

APPENDIX D

Traffic Count Data

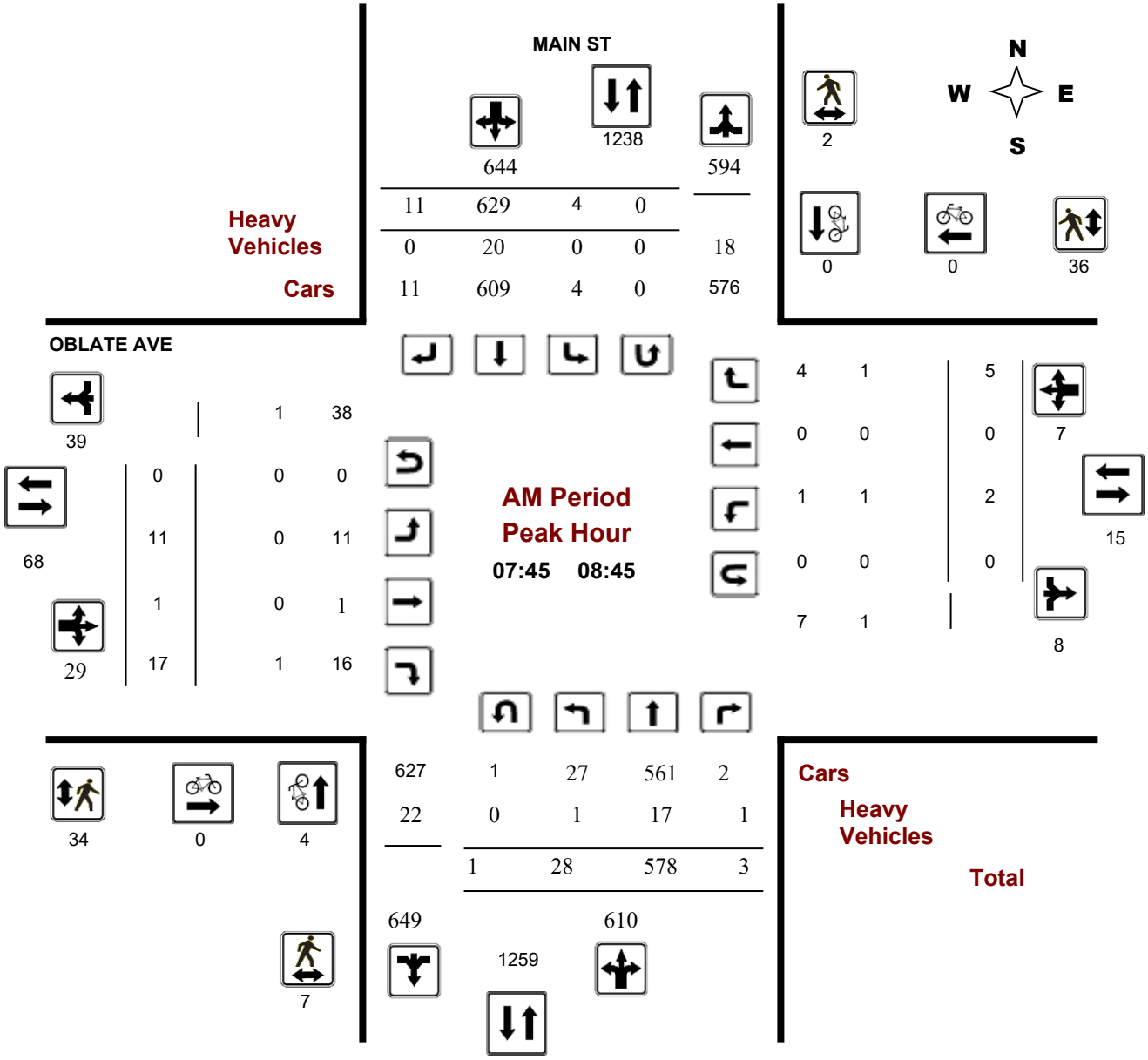
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MAIN ST @ OBLATE AVE

Survey Date: Tuesday, March 07, 2017
Start Time: 07:00

WO No: 36739
Device: Miovision



Comments

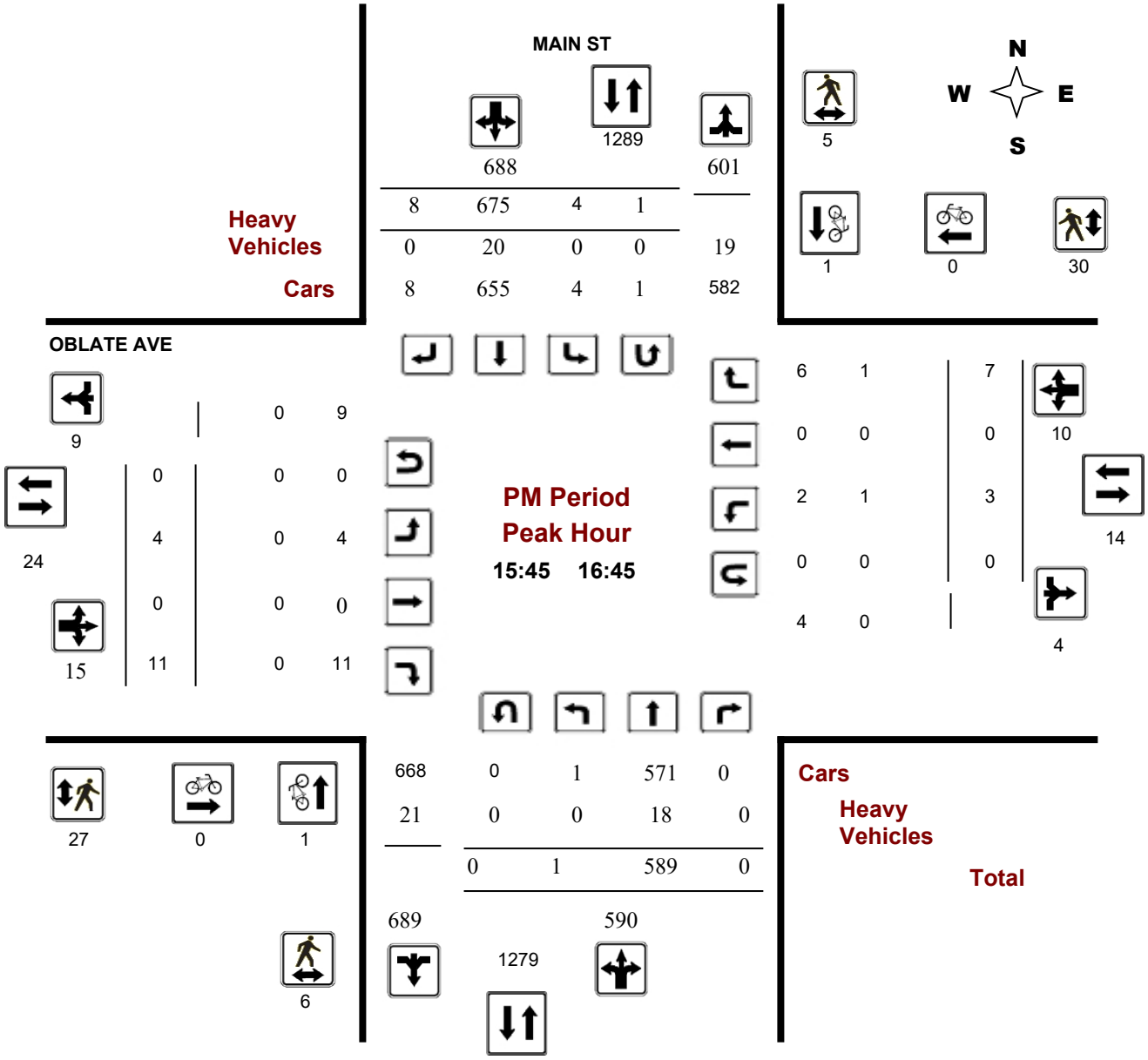
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

MAIN ST @ OBLATE AVE

Survey Date: Tuesday, March 07, 2017
Start Time: 07:00

WO No: 36739
Device: Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

MAIN ST @ OBLATE AVE

Survey Date: Tuesday, March 07, 2017 **WO No:** 36739

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MAIN ST									OBLATE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	2	61	2	65	4	153	0	157	7	1	0	2	3	2	0	2	4	7	229
07:15	07:30	0	95	1	96	2	146	1	149	11	0	0	0	0	1	0	0	1	11	246
07:30	07:45	2	101	0	103	1	180	3	184	9	0	0	4	4	0	0	0	0	9	291
07:45	08:00	10	145	1	156	3	145	4	152	8	4	1	4	9	2	0	3	5	8	322
08:00	08:15	8	128	2	138	1	153	5	159	13	3	0	8	11	0	0	1	1	13	309
08:15	08:30	7	141	0	148	0	166	1	167	7	4	0	2	6	0	0	0	0	7	321
08:30	08:45	3	164	0	168	0	165	1	166	11	0	0	3	3	0	0	1	1	11	338
08:45	09:00	1	126	0	127	1	162	3	166	7	1	0	1	2	1	0	2	3	7	298
09:00	09:15	1	130	0	132	1	109	0	110	10	1	0	3	4	2	0	2	4	10	250
09:15	09:30	1	104	2	107	1	126	2	129	10	1	0	2	3	0	0	1	1	10	240
09:30	09:45	1	98	0	99	1	107	1	109	11	0	0	1	1	1	0	4	5	11	214
09:45	10:00	0	95	0	95	0	106	3	109	11	1	0	2	3	1	0	1	2	11	209
11:30	11:45	2	87	1	90	2	107	2	111	10	2	1	2	5	1	0	9	10	10	216
11:45	12:00	1	91	0	92	3	99	0	102	13	1	0	2	3	2	0	3	5	13	202
12:00	12:15	0	92	1	93	2	106	4	112	11	2	0	5	7	3	0	0	3	11	215
12:15	12:30	1	80	0	81	2	126	0	128	8	0	0	3	3	0	0	1	1	8	213
12:30	12:45	0	86	0	86	2	124	0	126	8	0	0	4	4	1	0	1	2	8	218
12:45	13:00	0	107	4	111	1	115	3	119	10	1	0	1	2	1	0	2	3	10	235
13:00	13:15	3	66	0	69	2	115	1	118	5	2	0	4	6	1	0	0	1	5	194
13:15	13:30	3	78	0	81	2	104	3	109	9	1	0	5	6	0	0	1	1	9	197
15:00	15:15	1	133	1	135	0	129	2	131	14	4	0	1	5	0	0	1	1	14	272
15:15	15:30	0	131	0	131	0	130	0	130	7	3	0	5	8	7	1	10	18	7	287
15:30	15:45	0	126	0	126	2	158	0	160	9	1	0	0	1	0	0	3	3	9	290
15:45	16:00	0	173	0	173	2	151	3	156	9	2	0	1	3	0	0	4	4	9	336
16:00	16:15	0	147	0	147	2	173	1	177	12	0	0	4	4	2	0	1	3	12	331
16:15	16:30	1	145	0	146	0	157	2	159	6	0	0	3	3	1	0	2	3	6	311
16:30	16:45	0	124	0	124	0	194	2	196	11	2	0	3	5	0	0	0	0	11	325
16:45	17:00	2	120	0	122	0	169	3	172	8	2	0	3	5	0	0	0	0	8	299
17:00	17:15	0	140	0	140	1	177	2	180	8	0	0	2	2	0	0	3	3	8	325
17:15	17:30	0	130	0	130	1	156	0	157	4	3	0	1	4	0	0	1	1	4	292
17:30	17:45	1	99	0	101	1	200	2	203	6	0	0	2	2	1	0	2	3	6	309
17:45	18:00	1	101	0	102	1	140	1	142	5	0	0	2	2	0	0	1	1	5	247
Total:		52	3644	15	3714	41	4548	55	4645	288	42	2	85	129	30	1	62	93	288	8,581

Note: U-Turns are included in Totals.

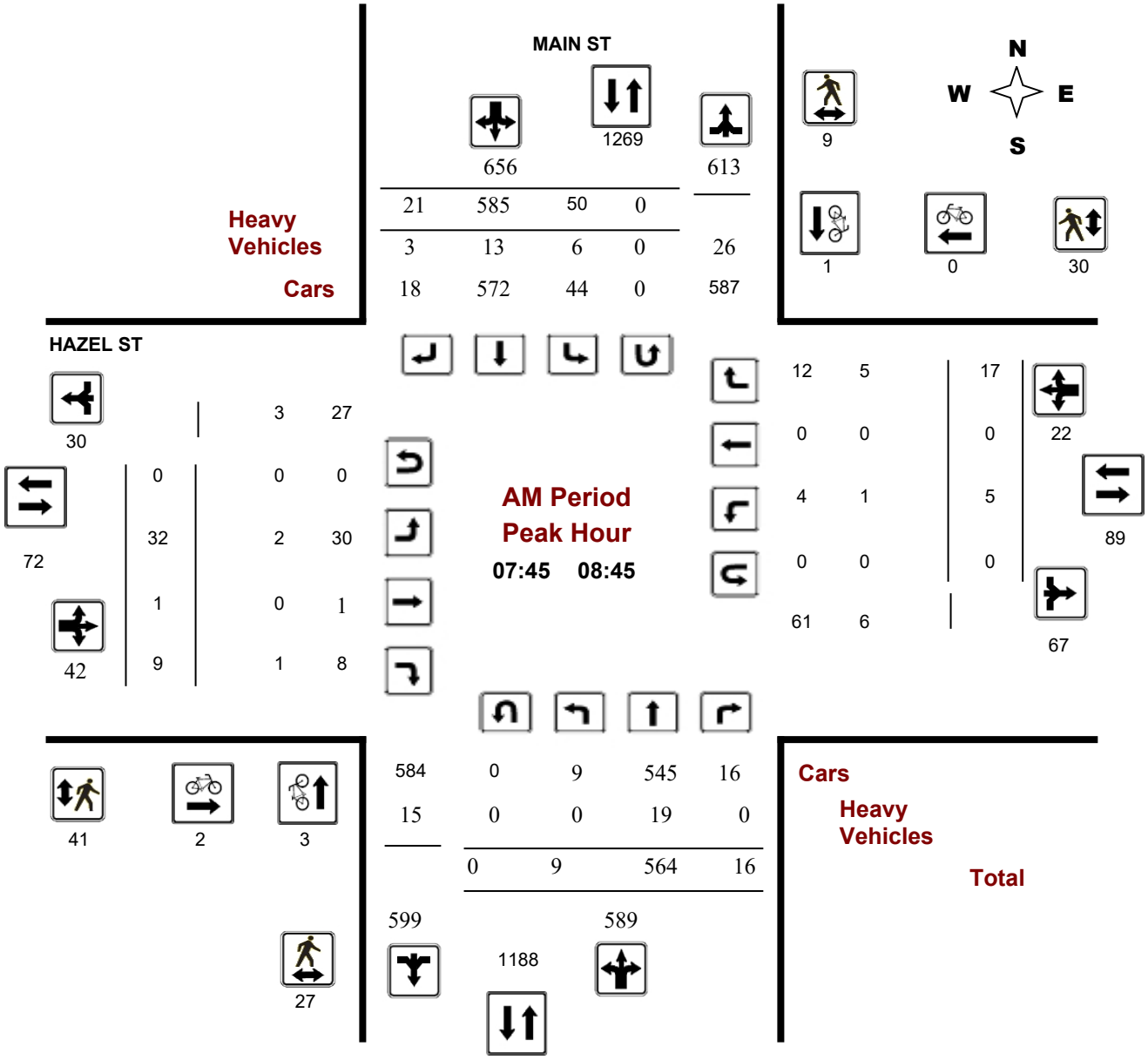
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HAZEL ST @ MAIN ST

Survey Date: Tuesday, March 07, 2017
Start Time: 07:00

WO No: 36733
Device: Miovision



Comments

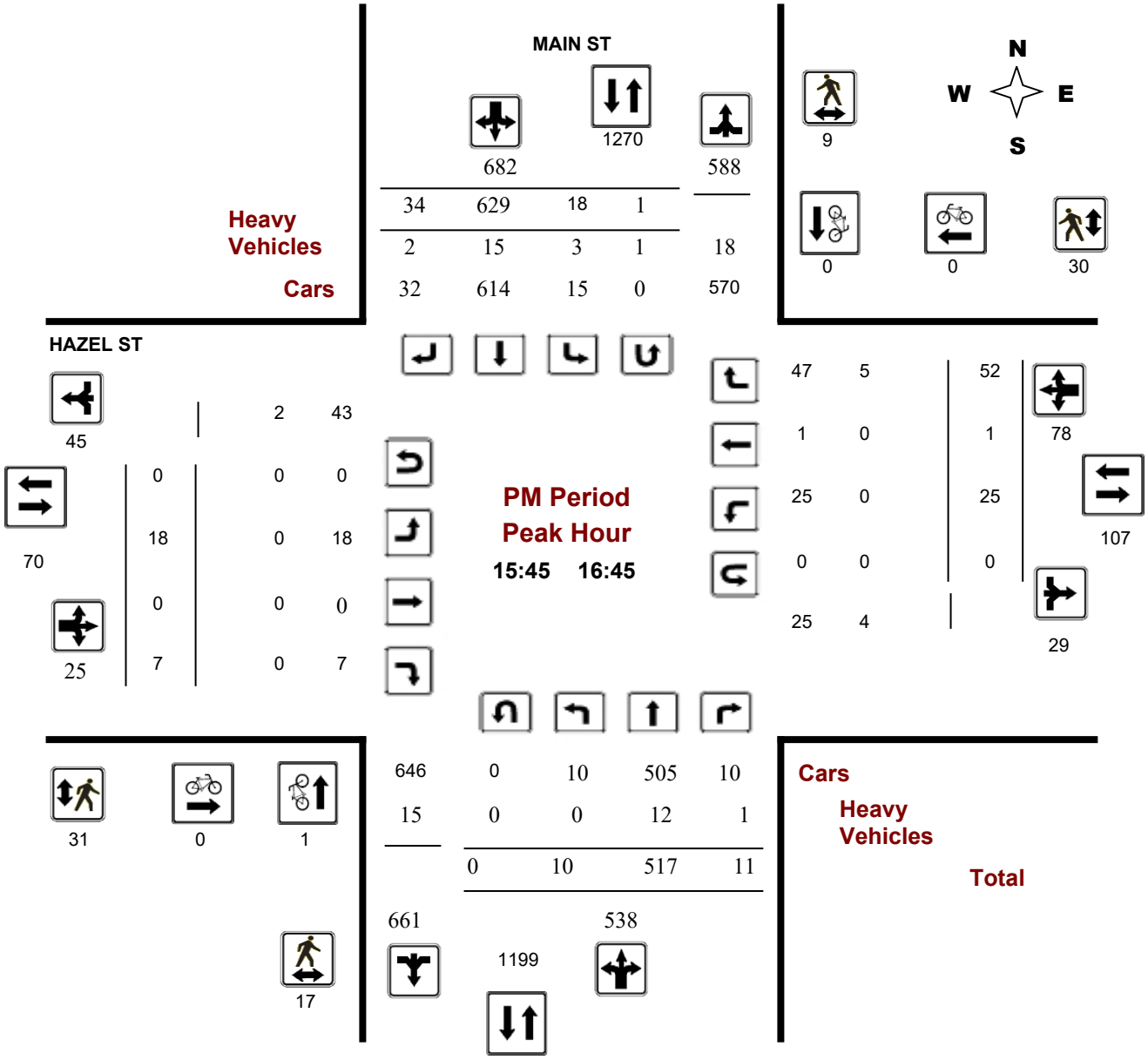
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HAZEL ST @ MAIN ST

Survey Date: Tuesday, March 07, 2017
Start Time: 07:00

WO No: 36733
Device: Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HAZEL ST @ MAIN ST

Survey Date: Tuesday, March 07, 2017 **WO No:** 36733

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MAIN ST									HAZEL ST									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	0	64	1	65	10	140	2	152	5	0	0	0	0	0	0	4	4	5	221
07:15	07:30	1	89	4	94	5	134	2	141	10	3	0	0	3	2	0	2	4	10	242
07:30	07:45	1	108	2	111	12	160	6	178	10	3	1	2	6	0	0	0	0	10	295
07:45	08:00	1	139	3	143	5	145	3	153	11	10	0	1	11	0	0	3	3	11	310
08:00	08:15	5	138	4	147	9	142	6	157	13	7	0	4	11	0	0	1	1	13	316
08:15	08:30	0	144	3	147	13	154	5	172	8	7	1	1	9	1	0	3	4	8	332
08:30	08:45	3	143	6	152	23	144	7	174	9	8	0	3	11	4	0	10	14	9	351
08:45	09:00	4	127	7	138	24	127	9	160	4	1	0	1	2	5	0	3	8	4	308
09:00	09:15	4	113	2	119	14	89	7	112	9	6	1	1	8	1	0	6	7	9	246
09:15	09:30	2	102	5	109	13	117	10	140	8	4	0	2	6	4	0	5	9	8	264
09:30	09:45	4	89	2	95	6	94	5	105	13	5	1	3	9	1	0	2	3	13	212
09:45	10:00	2	86	3	91	6	100	4	110	10	5	1	2	8	2	0	7	9	10	218
11:30	11:45	7	78	0	85	0	99	6	105	6	1	0	6	7	1	0	8	9	6	206
11:45	12:00	13	82	1	96	4	88	6	98	12	4	0	4	8	2	0	5	7	12	209
12:00	12:15	10	72	3	85	5	113	7	125	12	6	0	6	12	4	0	5	9	12	231
12:15	12:30	1	70	2	73	13	105	8	127	7	4	0	2	6	9	0	9	18	7	224
12:30	12:45	3	72	3	78	5	113	11	129	6	9	1	3	13	1	0	5	6	6	226
12:45	13:00	3	99	4	106	7	98	6	111	8	4	0	3	7	1	0	6	7	8	231
13:00	13:15	4	61	4	72	5	109	4	118	2	3	0	3	6	0	0	2	2	2	198
13:15	13:30	3	80	1	84	6	107	5	118	9	5	1	4	10	4	1	1	6	9	218
15:00	15:15	4	120	0	124	2	130	7	139	11	2	0	2	4	4	1	8	13	11	280
15:15	15:30	1	120	3	124	3	133	5	141	7	4	0	4	8	5	0	7	12	7	285
15:30	15:45	4	112	4	120	6	138	11	155	10	6	0	5	11	4	0	8	12	10	298
15:45	16:00	2	150	1	153	4	134	11	150	8	10	0	2	12	6	0	6	12	8	327
16:00	16:15	2	119	1	122	6	164	9	179	12	3	0	2	5	8	1	19	28	12	334
16:15	16:30	2	138	2	142	3	164	7	174	6	1	0	1	2	5	0	14	19	6	337
16:30	16:45	4	110	7	121	5	167	7	179	8	4	0	2	6	6	0	13	19	8	325
16:45	17:00	4	106	0	110	6	164	8	178	4	3	1	3	7	5	0	6	11	4	306
17:00	17:15	2	118	3	123	3	161	11	175	11	6	0	5	11	4	0	13	17	11	326
17:15	17:30	4	130	5	139	3	154	9	166	3	3	0	1	4	5	0	5	10	3	319
17:30	17:45	3	91	3	97	7	191	6	204	6	0	1	6	7	3	0	7	10	6	318
17:45	18:00	3	97	4	104	7	129	10	146	6	4	0	3	7	7	0	4	11	6	268
Total:		106	3367	93	3569	240	4207	220	4671	264	141	9	87	237	104	3	197	304	264	8,781

Note: U-Turns are included in Totals.

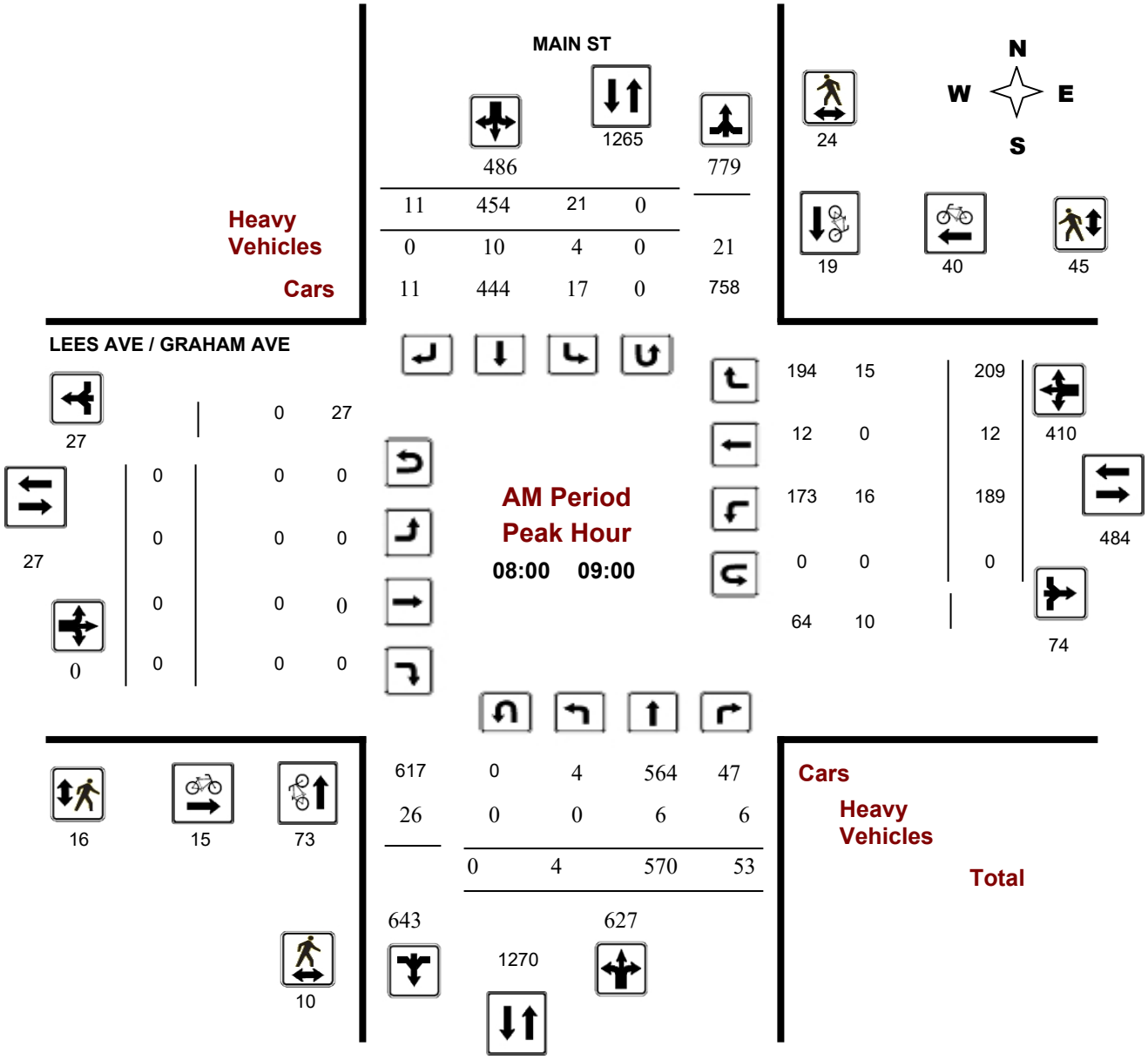
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LEES AVE / GRAHAM AVE @ MAIN ST

Survey Date: Thursday, July 06, 2017
Start Time: 07:00

WO No: 37154
Device: Miovision



Comments

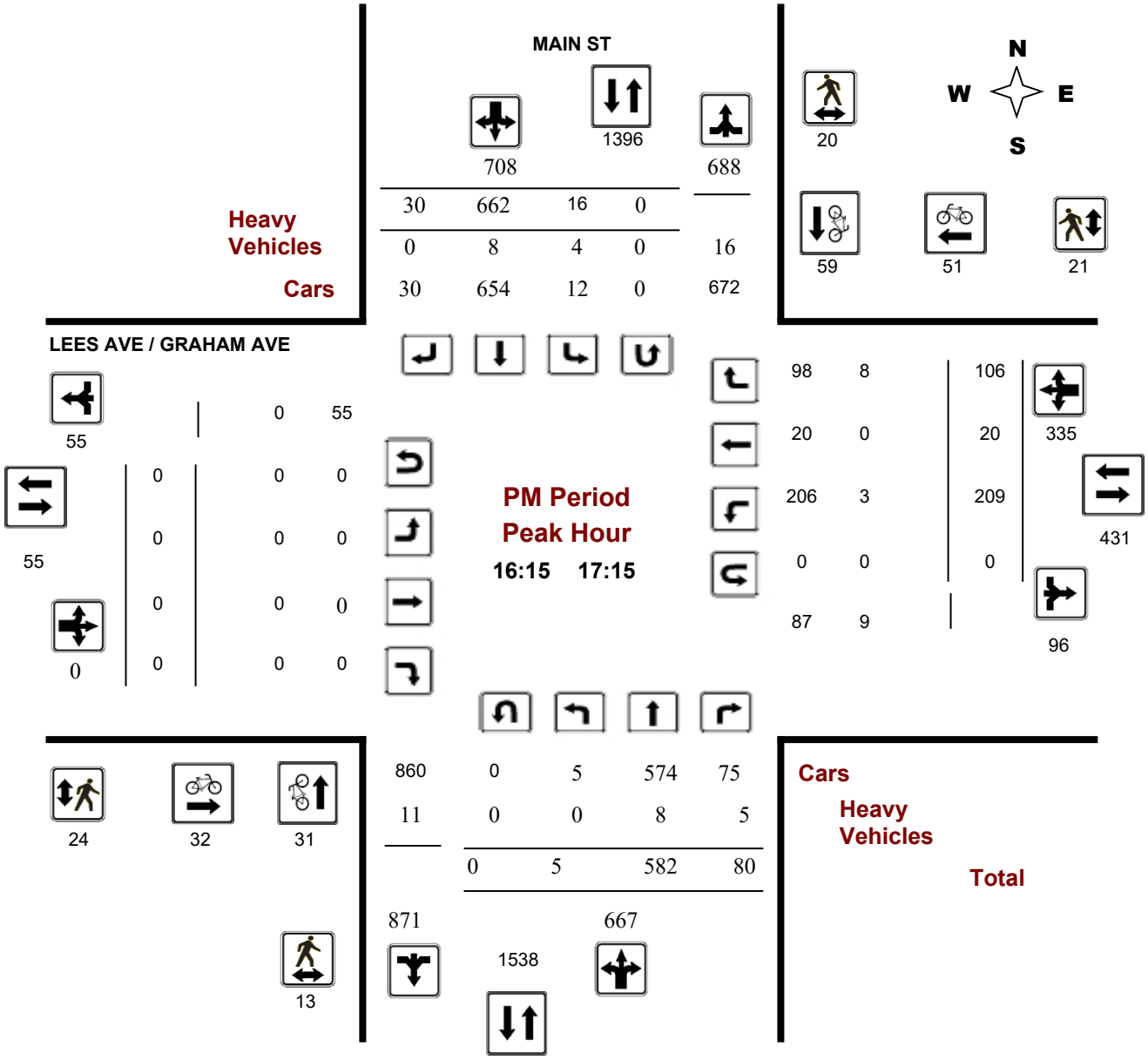
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

LEES AVE / GRAHAM AVE @ MAIN ST

Survey Date: Thursday, July 06, 2017
Start Time: 07:00

WO No: 37154
Device: Miovision



Comments

Transportation Services - Traffic Services

Turning Movement Count - Study Results

LEES AVE / GRAHAM AVE @ MAIN ST

Survey Date: Thursday, July 06, 2017 **WO No:** 37154

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MAIN ST									LEES AVE / GRAHAM AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	1	66	5	72	5	118	5	128	5	0	0	0	0	64	4	20	88	5	288
07:15	07:30	0	83	7	90	5	119	5	129	8	0	0	0	0	48	5	25	78	8	297
07:30	07:45	0	93	11	105	7	117	5	129	9	0	0	0	0	64	1	40	105	9	339
07:45	08:00	0	127	15	142	3	106	7	116	9	0	1	0	1	50	2	44	96	9	355
08:00	08:15	0	123	18	141	3	118	2	123	7	0	0	0	0	53	2	46	101	7	365
08:15	08:30	2	145	11	158	6	115	7	128	8	0	0	0	0	42	3	51	96	8	382
08:30	08:45	1	150	15	166	7	108	1	116	6	0	0	0	0	41	0	50	91	6	373
08:45	09:00	1	152	9	162	5	113	1	119	5	0	0	0	0	53	7	62	122	5	403
09:00	09:15	1	136	13	150	3	101	7	111	7	0	0	0	0	51	3	36	90	7	351
09:15	09:30	1	109	4	114	5	90	2	97	10	0	0	0	0	36	2	36	74	10	285
09:30	09:45	0	108	8	116	11	76	4	91	9	0	0	0	0	47	7	35	89	9	296
09:45	10:00	1	91	9	101	9	88	6	103	9	0	0	0	0	42	1	37	80	9	284
11:30	11:45	0	113	5	118	5	79	2	86	9	0	0	0	0	47	0	38	85	9	289
11:45	12:00	0	110	13	123	5	96	6	107	6	0	0	0	0	46	1	34	81	6	311
12:00	12:15	2	129	15	146	7	96	3	106	16	0	0	0	0	48	1	28	77	16	329
12:15	12:30	1	127	6	134	4	102	3	109	5	0	0	0	0	45	2	28	75	5	318
12:30	12:45	0	102	6	108	5	113	3	121	6	0	0	0	0	52	1	22	75	6	304
12:45	13:00	0	105	9	114	5	94	3	102	12	0	0	0	0	50	1	29	80	12	296
13:00	13:15	0	102	14	116	3	86	3	92	12	0	0	0	0	39	0	29	68	12	276
13:15	13:30	0	95	14	109	5	86	2	93	9	0	0	0	0	32	1	36	69	9	271
15:00	15:15	0	139	16	155	11	105	2	118	9	0	0	0	0	34	5	28	67	9	340
15:15	15:30	2	155	20	177	4	109	4	117	8	0	1	0	1	39	1	38	78	8	373
15:30	15:45	2	151	16	169	4	138	3	145	9	0	0	0	0	54	2	40	96	9	410
15:45	16:00	1	153	15	169	6	143	2	151	8	0	0	0	0	46	1	33	80	8	400
16:00	16:15	1	110	27	138	8	149	4	161	5	0	0	0	0	48	2	33	83	5	382
16:15	16:30	1	164	16	181	5	170	7	182	6	0	0	0	0	63	5	18	86	6	449
16:30	16:45	1	150	23	174	2	165	7	174	3	0	0	0	0	54	5	30	89	3	437
16:45	17:00	2	135	20	157	3	178	10	191	8	0	0	0	0	46	6	32	84	8	432
17:00	17:15	1	133	21	155	6	149	6	161	8	0	0	0	0	46	4	26	76	8	392
17:15	17:30	0	140	22	162	11	165	5	181	5	0	1	0	1	55	0	28	83	5	427
17:30	17:45	1	131	12	144	10	134	6	150	4	0	0	0	0	45	8	48	101	4	395
17:45	18:00	1	115	11	127	13	105	4	122	5	0	0	0	0	54	1	52	107	5	356
Total:		24	3942	426	4393	191	3731	137	4059	245	0	3	0	3	1534	84	1132	2750	245	11,205

Note: U-Turns are included in Totals.

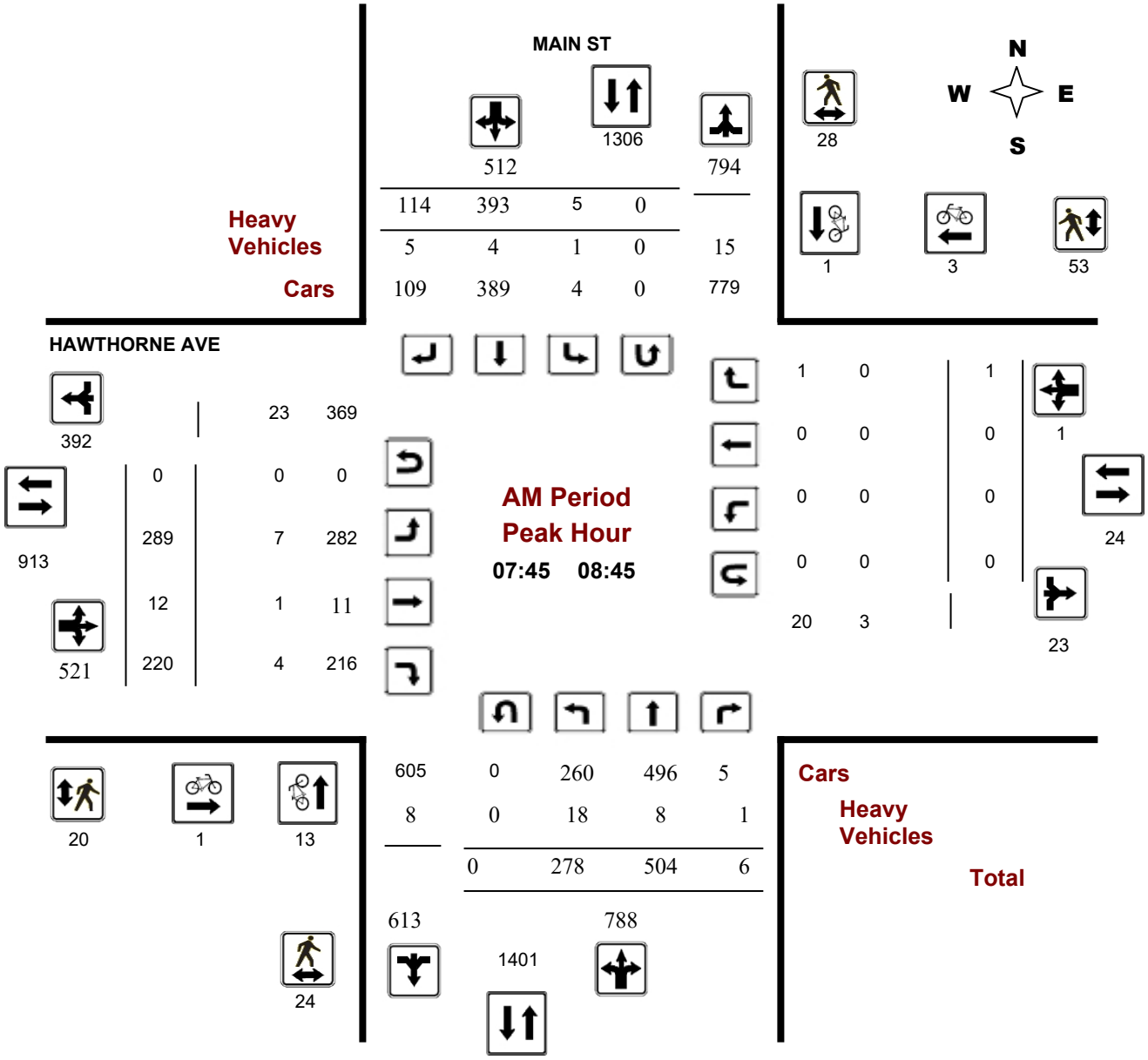
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HAWTHORNE AVE @ MAIN ST

Survey Date: Tuesday, March 03, 2020 **WO No:** 39570

Start Time: 07:00 **Device:** Miovision



Comments 5478558 - MAR 3, 2020 - 8HRS - VANESSA BLACK

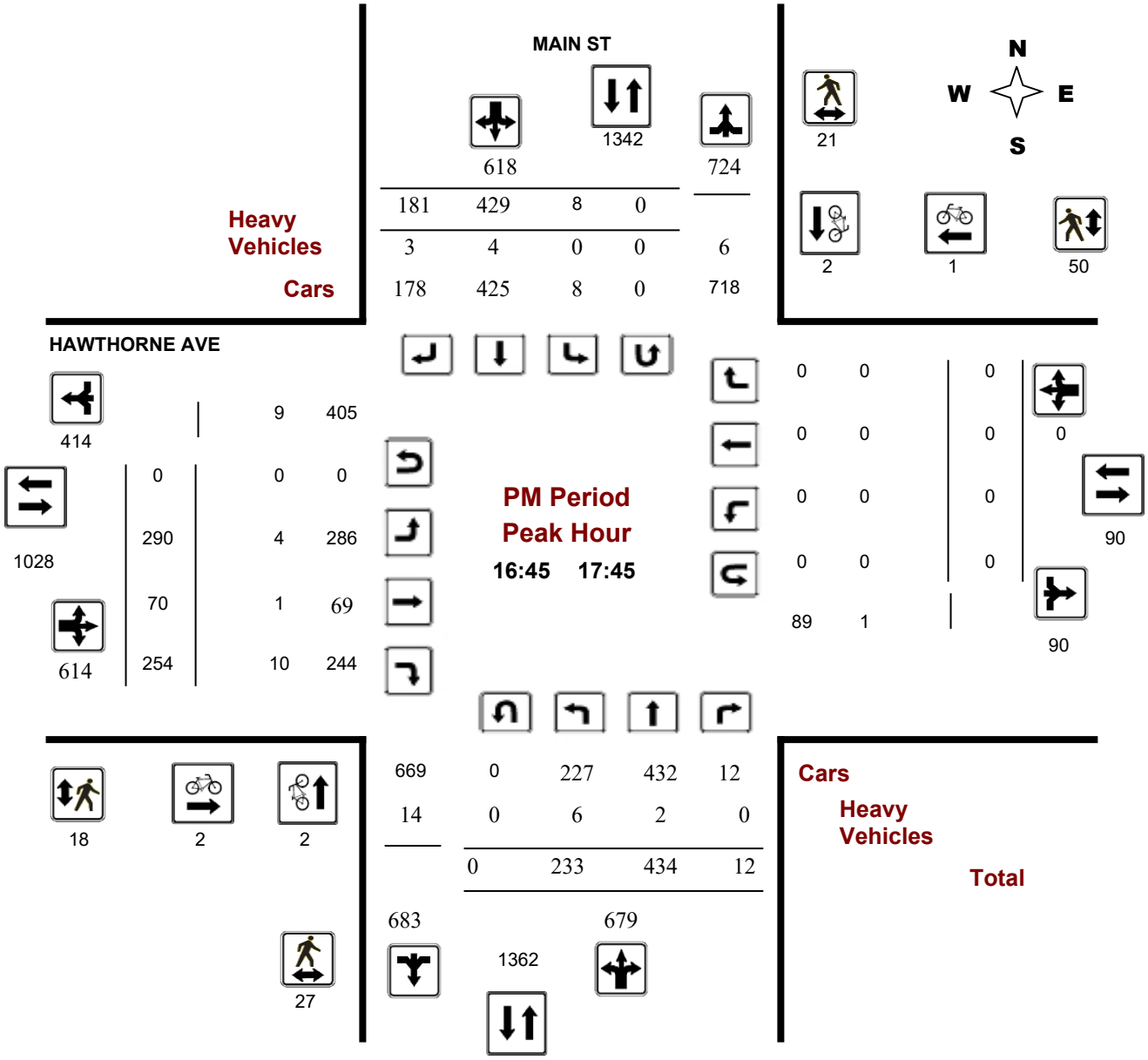
Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

HAWTHORNE AVE @ MAIN ST

Survey Date: Tuesday, March 03, 2020 **WO No:** 39570

Start Time: 07:00 **Device:** Miovision



Comments 5478558 - MAR 3, 2020 - 8HRS - VANESSA BLACK

Transportation Services - Traffic Services

Turning Movement Count - Study Results

HAWTHORNE AVE @ MAIN ST

Survey Date: Tuesday, March 03, 2020 **WO No:** 39570

Start Time: 07:00 **Device:** Miovision

Full Study 15 Minute Increments

		MAIN ST									HAWTHORNE AVE									
		Northbound				Southbound					Eastbound				Westbound					
Time Period		LT	ST	RT	N TOT	LT	ST	RT	S TOT	STR TOT	LT	ST	RT	E TOT	LT	ST	RT	W TOT	STR TOT	Grand Total
07:00	07:15	41	97	0	138	0	104	11	115	521	31	2	36	69	0	0	0	0	521	322
07:15	07:30	60	107	1	168	0	86	10	96	524	29	1	38	68	0	0	0	0	524	332
07:30	07:45	54	126	1	181	2	96	13	111	629	54	0	61	115	0	0	0	0	629	407
07:45	08:00	62	132	3	197	1	94	30	125	667	60	1	59	120	0	0	0	0	667	442
08:00	08:15	66	114	2	182	2	103	30	135	673	83	5	55	143	0	0	1	1	673	461
08:15	08:30	78	134	0	212	0	112	27	139	723	75	3	51	129	0	0	0	0	723	480
08:30	08:45	72	124	1	197	2	84	27	113	644	71	3	55	129	0	0	0	0	644	439
08:45	09:00	57	115	2	174	0	100	42	142	652	70	2	51	123	0	0	0	0	652	439
09:00	09:15	59	128	3	190	0	68	32	100	572	45	2	41	88	0	0	0	0	572	378
09:15	09:30	62	106	4	172	1	66	20	87	516	42	4	43	89	0	0	0	0	516	348
09:30	09:45	53	103	2	158	2	77	26	105	529	37	2	49	88	0	0	0	0	529	351
09:45	10:00	55	105	5	165	1	74	31	106	527	40	3	37	80	0	0	0	0	527	351
11:30	11:45	61	76	1	138	1	70	24	95	449	25	5	45	75	0	0	0	0	449	308
11:45	12:00	56	82	1	139	0	63	36	99	475	45	6	47	98	0	0	0	0	475	336
12:00	12:15	54	86	3	143	1	66	23	90	475	35	2	55	92	0	0	0	0	475	325
12:15	12:30	58	119	1	178	0	69	26	95	537	24	2	52	78	0	0	0	0	537	351
12:30	12:45	42	85	3	130	0	74	22	96	464	36	1	43	80	0	0	0	0	464	306
12:45	13:00	35	91	2	128	1	61	29	91	462	39	3	52	94	0	0	0	0	462	313
13:00	13:15	26	99	2	127	0	80	31	111	504	36	2	51	89	0	0	0	0	504	327
13:15	13:30	34	88	4	126	0	82	23	105	471	27	1	43	71	0	0	0	0	471	302
15:00	15:15	40	131	2	173	2	73	20	95	558	31	4	55	90	0	0	0	0	558	358
15:15	15:30	57	130	2	189	2	97	32	131	663	44	3	72	119	0	0	0	0	663	439
15:30	15:45	66	110	2	178	1	75	49	125	619	60	7	71	138	0	0	0	0	619	441
15:45	16:00	66	121	5	192	2	86	48	136	674	70	6	69	145	0	0	0	0	674	473
16:00	16:15	52	111	1	164	1	93	42	136	642	85	8	53	146	0	0	0	0	642	446
16:15	16:30	56	103	4	163	2	114	40	156	677	72	11	69	152	0	0	0	0	677	471
16:30	16:45	65	106	4	175	2	110	41	153	674	71	19	59	149	0	0	0	0	674	477
16:45	17:00	64	100	4	168	1	99	66	166	677	79	18	65	162	0	0	0	0	677	496
17:00	17:15	47	114	1	162	5	99	32	136	653	74	17	68	159	0	0	0	0	653	457
17:15	17:30	65	109	5	179	1	95	33	129	640	76	20	52	148	0	0	0	0	640	456
17:30	17:45	57	111	2	170	1	136	50	187	734	61	15	69	145	0	0	0	0	734	502
17:45	18:00	76	99	2	177	1	100	58	159	658	69	11	53	133	0	0	1	1	658	470
Total:		1796	3462	75	5333	35	2806	1024	3865	18883	1696	189	1719	3604	0	0	2	2	18883	12,804

Note: U-Turns are included in Totals.

APPENDIX E

Collision Records

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: MAIN ST @ OBLATE AVE

Traffic Control: Traffic signal

Total Collisions: 6

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Feb-10, Mon,14:44	Clear	SMV other	Non-fatal injury	Dry	South	Going ahead	Municipal transit bus	Skidding/sliding	
2014-May-20, Tue,15:56	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Pick-up truck	Other motor vehicle	
2015-Jan-13, Tue,18:02	Snow	Sideswipe	P.D. only	Ice	South	Changing lanes	Unknown	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-May-09, Sat,18:44	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-16, Fri,13:09	Clear	Rear end	Non-fatal injury	Loose snow	North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	

2018-Dec-04, Tue,11:00	Clear	Angle	P.D. only	Dry	West	Turning left	Automobile, station wagon	Other motor vehicle
					North	Turning left	Pick-up truck	Other motor vehicle

City Operations - Transportation Services

Collision Details Report - Public Version

From: January 1, 2014 **To:** December 31, 2018

Location: HAZEL ST @ MAIN ST

Traffic Control: Traffic signal

Total Collisions: 11

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2014-Mar-22, Sat,11:48	Clear	Other	P.D. only	Dry	North	Reversing	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Jul-30, Wed,11:55	Clear	Rear end	P.D. only	Dry	South	Going ahead	Truck - dump	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2014-Oct-08, Wed,16:27	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2015-Apr-15, Wed,19:55	Clear	Rear end	P.D. only	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	
					East	Slowing or stopping	Pick-up truck	Other motor vehicle	
2016-Mar-31, Thu,13:59	Rain	Angle	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle	

					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Oct-25, Wed,15:20	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Bicycle	Other motor vehicle	
					East	Stopped	Municipal transit bus	Cyclist	
2017-Dec-23, Sat,16:51	Clear	Rear end	P.D. only	Loose snow	North	Unknown	Automobile, station wagon	Other motor vehicle	
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	
2018-Feb-09, Fri,12:20	Clear	SMV other	Non-fatal injury	Dry	West	Turning left	Automobile, station wagon	Pedestrian	1
2018-Feb-13, Tue,15:52	Clear	Rear end	P.D. only	Wet	North	Turning right	Truck - dump	Other motor vehicle	
					North	Stopped	Passenger van	Other motor vehicle	
2018-Oct-05, Fri,12:02	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Cyclist	
					North	Going ahead	Bicycle	Other motor vehicle	
2018-Nov-09, Fri,14:25	Snow	SMV other	Non-fatal injury	Wet	West	Turning left	Automobile, station wagon	Pedestrian	1

APPENDIX F

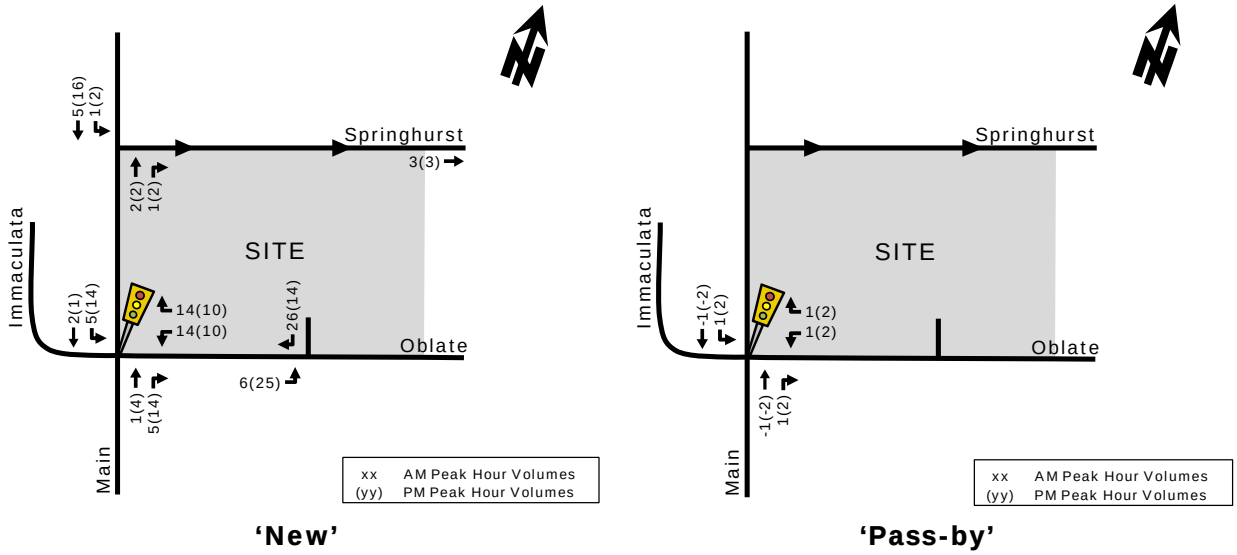
Other Area Developments

OTHER AREA DEVELOPMENTS

141 Main Street
Transportation Brief

Based on the foregoing assumptions, 'New' and 'Pass-by' site-generated trips are illustrated as Figure 5.

Figure 5: Site-Generated Traffic Volumes

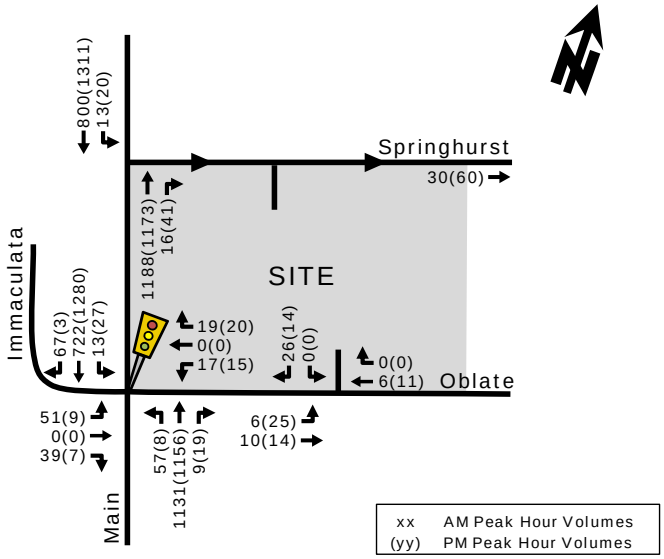


It should be noted that the imbalances in site-generated traffic depicted in Figure 5 are attributed to the use of on-street parking by site patrons.

4. FUTURE TRAFFIC OPERATIONS

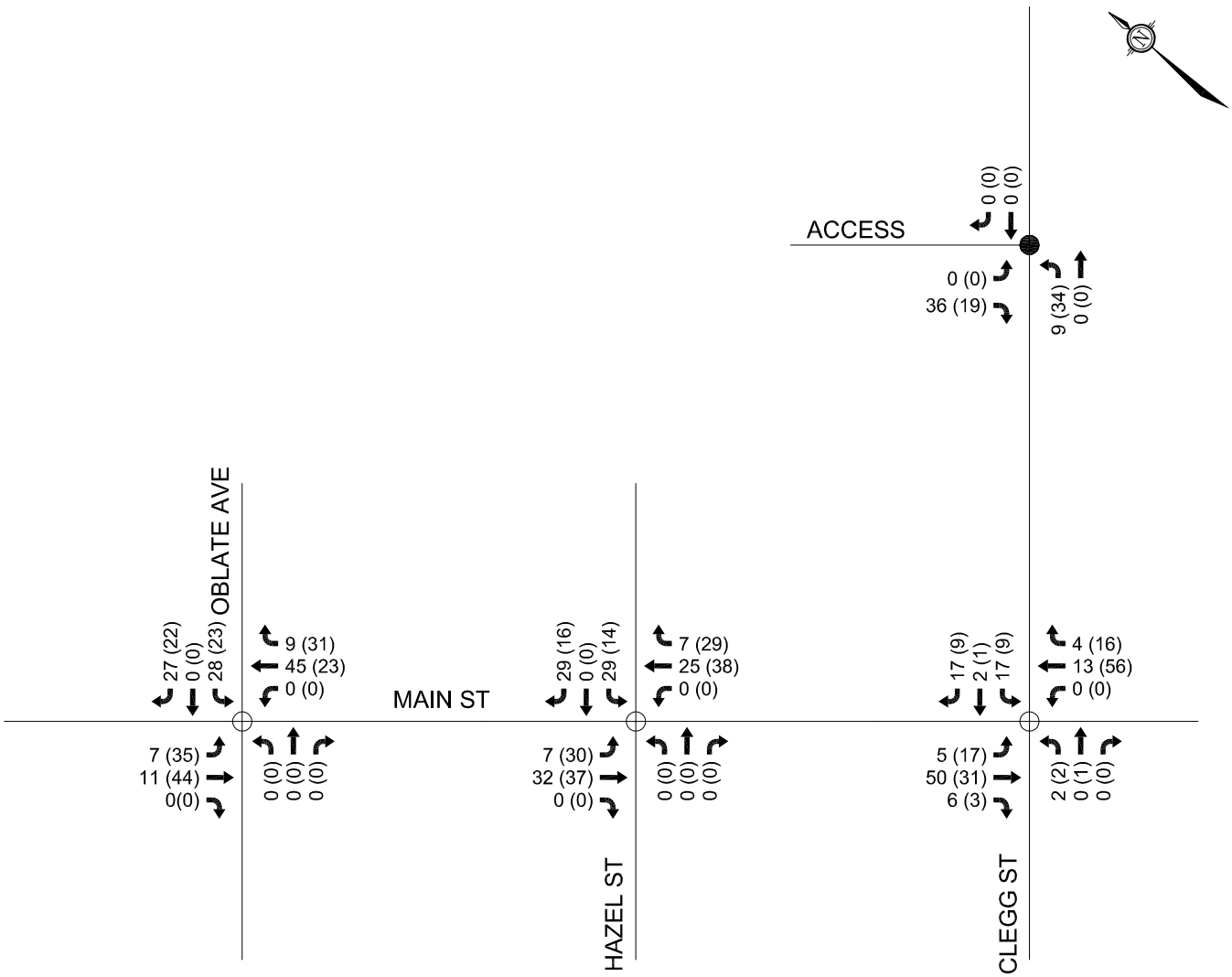
For the purpose of this study, total projected traffic volumes were derived by superimposing 'new' and 'pass-by' site-generated traffic (Figure 5) onto existing volumes (Figure 3). The resulting total projected traffic volumes used in the subsequent analysis are illustrated as Figure 6.

Figure 6: Projected Traffic Volumes



OTHER AREA DEVELOPMENTS

Greystone Village Subdivision
Community Transportation Study



LEGEND

- Unsignalized Intersection
- Signalized Intersection

xx VPH AM Peak Hour

(xx) VPH PM Peak Hour

NOVATECH

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CITY OF OTTAWA
GREYSTONE VILLAGE
(175 MAIN STREET)

SITE GENERATED TRAFFIC VOLUMES

JAN 2015 114025 FIGURE 6

This addendum has been prepared in support of Phase 2 and 3 registration. It will provide an update of the estimated Phase 3 site traffic and review the proposed widening of Scholastic Drive between Oblates Avenue and Deschâtelets Avenue.

1.0 REVISED DEVELOPMENT

The revised Phase 3 development now includes three five-storey condo buildings and a retirement home along Scholastic Drive, in addition to the previously proposed Deschâtelets Building expansion and two four-storey apartment buildings.

Access to the Deschâtelets Building was previously proposed on Scholastic Drive. Access to the four-storey apartment buildings and town house blocks was previously proposed on Oblates Avenue and Deschâtelets Avenue. A shared underground parking garage is now proposed for the three condo buildings and the southerly apartment building, with an access to Scholastic Drive. Limited surface parking and a shared underground parking garage is proposed for the northerly apartment building and the Deschâtelets Building, with an access to Oblates Avenue. The retirement building will have an at-grade visitor pick-up/drop-off area and an underground parking garage, with an access to Scholastic Drive.

The proposed right-of-way (ROW) width of Scholastic Drive between Oblates Avenue and Deschâtelets Avenue has been widened from 10.5m to 13m, with a road width of 6m to accommodate two-way traffic versus the previous proposal of 4m for one-way traffic. The ROW has been widened to the west, away from the 3m multi-use pathway and the Rideau River. The revised cross section is shown in the Phase 2 and 3 Concept Plan included in **Appendix A**.

The revised Phase 3 concept consists of approximately 230 condo/apartment units and 140 retirement units, which represents an increase of 100 units from the previous proposal. On-site parking will be accommodated in accordance with the requirements of the Zoning By-Law. The proposed on-site parking will be reviewed in detail as part of future site plan applications for each block.

2.0 TRIP GENERATION

Trips generated by the revised Phase 3 development have been estimated using the methodology presented in the original CTS.

Weekday peak hour trip generation for the previous concept and the revised concept is outlined in the following table.

Table 1: ITE Trip Generation

Land Use	ITE Code	GFA / Units	AM Peak (vph)			PM Peak (vph)		
			In	Out	Total	In	Out	Total
Previous Phase 3 Concept								
Condominium/Townhouse	230	120	10	50	60	47	23	70

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Land Use	ITE Code	GFA / Units	AM Peak (vph)			PM Peak (vph)		
			In	Out	Total	In	Out	Total
Congregate Care Facility[1]	253	150	5	4	9	14	12	26
Previous Total			15	54	69	61	35	96
Revised Phase 3 Concept								
Condominium/Townhouse	230	230	17	84	101	80	39	119
Congregate Care Facility[1]	253	140	5	3	8	13	11	24
Revised Total			22	87	109	93	50	143
Net Difference			**+7**	**+33**	**+40**	**+32**	**+15**	**+47**

1. Independent living developments that provide centralized amenities such as dining, housekeeping, transportation and organized social/recreational activities

An overall vehicle trip to person trip adjustment factor of approximately 1.42 was applied to the vehicle trips projected using the ITE rates. The projected person trips were then categorized by modal share using observed percentages from the 2011 TRANS O-D Survey Report for the Ottawa Inner Area. A breakdown of the projected person trips by modal share is shown in the following table.

Table 2: Phase 3 Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		In	Out	Total	In	Out	Total
Previous Person Trips		*21*	*77*	*98*	*87*	*49*	*136*
Auto Driver	**40%**	**9**	**31**	**40**	**34**	**20**	**54**
Auto Passenger	10%	2	8	10	9	5	14
Transit	25%	5	19	24	22	12	34
Non-Motorized	25%	5	19	24	22	12	34
Revised Person Trips		*31*	*124*	*155*	*132*	*71*	*203*
Auto Driver	**40%**	**12**	**50**	**62**	**53**	**28**	**81**
Auto Passenger	10%	3	12	15	13	7	20
Transit	25%	8	31	39	33	18	51
Non-Motorized	25%	8	31	39	33	18	51

The revised Phase 3 development is anticipated to generate approximately 60 vehicle trips during the weekday AM peak hour and approximately 80 vehicle trips during the weekday PM peak hour. This is an increase of 20 to 30 trips during the weekday peak hours compared to the previous Phase 3 concept.

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OTHER AREA DEVELOPMENTS

530 de Mazenod Avenue (formerly 175 Main Street)
Transportation Overview

March 23rd, 2017

City of Ottawa
Planning and Growth Management Branch
110 Laurier Ave. W., 4th Floor
Ottawa, ON K1P 1J1

Attention: **Mr. Wally Dubyk**
Project Manager, Infrastructure Approvals

Dear Sir:

Reference: **175 Main Street – Greystone Village Condo Development**
Transportation Overview – Addendum
Our File No.: 114025

A Transportation Overview was submitted to the City of Ottawa in August 2015, in support of a Site Plan Control application for the development of two nine-storey condominium buildings within the Greystone Village subdivision. Following the submission, the site plan has been revised, increasing the number of dwelling units and altering the layout of the underground parking garage and access locations.

The following addendum will assess the impact of the revised development on the area road network.

1.0 REVISED DEVELOPMENT

Since the original Site Plan Control application, the layout of the underground parking garage has been revisited. The underground parking garages for both phase one and phase two will now be accessed through a shared driveway on De Mazenod Avenue, across from Jeremiah Kealey Street.

The previously proposed access on Telmon Street will remain, and will be used for surface visitor parking and delivery/moving activities for the proposed development as well as the single detached dwellings to the south. The previously proposed access on Deschâtelets Avenue will now primarily serve the future building to the north/west of the subject site. This future driveway will straddle the northern property line, and the adjacent sidewalk will provide pedestrian connectivity to the northern pedestrian entrance of the proposed development. The driveway connecting to the future building will be constructed as part of a future Site Plan Control application, while the adjacent sidewalk will be constructed as part of this development to provide pedestrian connectivity during the interim.

The revised development consists of a total of 212 dwelling units (106 dwelling units per phase), which is an increase of 18 units from the previous proposal. The revised underground parking garage will contain a total of 205 parking spaces (113 spaces for Phase One and 92 spaces for Phase 2). A total of 152 bicycle parking spaces (76 spaces per phase) will be provided for the proposed development.

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A revised site plan is shown in **Figure 1**. A Greystone Village subdivision plan is provided in **Appendix A**.

2.0 TRIP GENERATION AND DISTRIBUTION

Trips generated by the revised development have been estimated using the methodology presented in the original Transportation Overview. Based on the foregoing, the revised development is anticipated to generate a total of 53 vehicle trips during the weekday AM peak hour and 63 vehicle trips during the weekday PM peak hour. This is an increase of two trips during the AM peak hour and five trips during the PM peak hour compared to the previous development proposal.

As the revised site access will maintain all movements in/out, the new access location is not anticipated to alter the distribution of traffic generated by the revised development. Consistent with the previous development proposal, the revised development is not anticipated to impact the surrounding roadway network further to the results identified in the approved Greystone Village Community Transportation Study (dated January 2015).

3.0 ON-SITE DESIGN

3.1 Proposed Access

3.1.1 De Mazenod Access

The proposed shared parking garage access will contain an ingress and egress separated by a 9m wide landscaped island and a curb extension to restrict southbound through movements along De Mazenod Avenue. The northern driveway will function as the ingress and the southern driveway will function as the egress, permitting all movements in/out of the subject site.

The proposed access on De Mazenod Avenue will function as a shared space for all modes of transportation (pedestrian, cyclist, vehicle). The proposed ingress and egress will consist of a 4.5m wide asphalt vehicular driveway, and an adjacent 2.2m unit paver sidewalk at grade with the asphalt driveway. The overall 6.7m width will be depressed along the roadway edge and serve as the proposed fire route between the curbline and the ROW limit. Within the subject site, the proposed driveway width will permit vehicles to stop for drop-off/pick-up activity. Signage is recommended to indicate the one-way circulation pattern and prohibit parking within the fire route.

3.1.2 Telmon Street Access

The proposed access on Telmon Street will be 6m in width and located 3.8m from the southern property line. This access will serve six parking spaces for visitors to the proposed condominium building and the single detached dwellings to the south. This access and parking lot will also serve as a fire route for the single detached dwellings to the south. The location and width of the proposed access conforms to the minimum requirements of the City's *Private Approach By-law*.

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OTHER AREA DEVELOPMENTS

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175 Main Street (formerly 10 Oblats Avenue)
Transportation Impact Assessment

and Module 4.9 (Network Intersections) are omitted from the required analysis. As the projected traffic volumes along des Oblats Avenue will not exceed the assumed roadway capacity of 400vphpl for a local roadway (consistent with the strategic long range planning model), Module 4.6 (Neighbourhood Traffic Management) is exempt from the required analysis. As the proposed development is not anticipated to generate 200 person trips in excess of the equivalent volumes permitted by the established zoning for this site, Module 4.8 (Network Concept) is exempt from the required analysis. The following modules are included in the TIA report:

- Module 4.1 – Development Design
- Module 4.2 – Parking
- Module 4.3 – Boundary Streets
- Module 4.4 – Access Intersections
- Module 4.5 – Transportation Demand Management

4.0 FORECASTING

The Greystone Village CTS assumed a development of 215 condominium units and approximately 37,000ft^2 GFA of specialty retail for the subject site. The site plan has now been revised to include 244 rental apartment units and approximately 20,000ft^2 GFA of specialty retail. This equates to an increase of approximately 30 residential units and a decrease of approximately 17,000ft^2 GFA of commercial retail, compared to the assumed development in the Greystone Village CTS.

The person trips generated by the proposed development during peak periods is based on the number of apartment units and the retail GFA. As some residents may own a vehicle for off-peak use and choose different modes of transportation for peak hour trips, the proposed parking does not correspond to the overall peak hour vehicular travel demand by the site. The person trips generated by the proposed development, compared to the assumed trip generation for the subject site in the CTS is summarized below.

Table 1: Person Trip Generation

Land Use	ITE Code	Units/ GFA	AM Peak (PPH[1])			PM Peak (PPH)		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Greystone Village CTS								
Condo	230	215	23	112	135	107	54	161
Specialty Retail	826	37,000 ft^2	16	20	36	62	79	141
		Total	**39**	**132**	**171**	**169**	**133**	**302**
Proposed Development								
Apartment	220	244	34	141	175	139	77	216
Specialty Retail	826	20,000 ft^2	9	11	20	34	43	77
		Total	**43**	**152**	**195**	**173**	**120**	**293**
		Difference	**4**	**20**	**24**	**4**	**-13**	**-9**

1) PPH = Persons Per Hour – calculated using an ITE Trip to Person Trip factor of 1.42, consistent with the Greystone Village CTS

Based on the foregoing, the proposed development is anticipated to generate an additional 24 person trips during the AM peak hour and a reduction of 9 person trips during the PM peak hour compared to the assumed development in the Greystone Village CTS.

The modal shares for the proposed development are anticipated to be consistent with the modal shares proposed in the Greystone Village CTS. The projected person trips by modal share, compared to the assumed trip generation for the subject site in the CTS is summarized below.

Table 2: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Greystone Village CTS							
Condo Person Trips		23	112	135	107	54	161
Auto Driver	40%	9	45	54	43	22	65
Auto Passenger	10%	2	11	13	11	5	16
Transit	25%	6	28	34	27	13	40
Non-Auto	25%	6	28	34	26	14	40
Retail Person Trips		16	20	36	62	79	141
Auto Driver	20%	4	4	8	12	16	28
Auto Passenger	10%	2	2	4	6	8	14
Transit	10%	1	2	3	6	8	14
Non-Auto	60%	9	12	21	38	47	85
Auto Driver (Total)		**13**	**49**	**62**	**55**	**38**	**93**
Auto Passenger (Total)		**4**	**13**	**17**	**17**	**13**	**30**
Transit (Total)		**7**	**30**	**37**	**33**	**21**	**54**
Non-Auto (Total)		**15**	**40**	**55**	**64**	**61**	**125**
Proposed Development							
Apartment Person Trips		34	141	175	139	77	216
Auto Driver	40%	13	57	70	55	31	86
Auto Passenger	10%	3	14	17	14	8	22
Transit	25%	9	35	44	35	19	54
Non-Auto	25%	9	35	44	35	19	54
Retail Person Trips		9	11	20	34	43	77
Auto Driver	20%	2	2	4	7	8	15
Auto Passenger	10%	1	1	2	4	4	8
Transit	10%	1	1	2	3	5	8
Non-Auto	60%	5	7	12	20	26	46
Auto Driver (Total)		**15**	**59**	**74**	**62**	**39**	**101**
Auto Passenger (Total)		**4**	**15**	**19**	**18**	**12**	**30**
Transit (Total)		**10**	**36**	**46**	**38**	**24**	**62**
Non-Auto (Total)		**14**	**42**	**56**	**55**	**45**	**100**
Auto Driver (Difference)		2	10	12	7	1	8
Auto Pass. (Difference)		0	2	2	1	-1	0
Transit (Difference)		3	6	9	5	3	8
Non-Auto (Difference)		-1	2	1	-9	-16	-25

Based on the foregoing, the proposed development is anticipated to generate an additional 12 vehicle trips during the AM peak hour and 8 vehicle trips during the PM peak hour. In general, background traffic and the assignment of the additional vehicle trips generated by the proposed development will be consistent with the Greystone Village CTS. The revised 2026 total traffic

the three Ottawa Hospitals, as well as Greenfield Avenue, Mann Avenue, Lees Transit Station, Lees Avenue, and Main Street/Smyth Road to Elmvale Aces.
- Route 5 will not change.
- The Main Street section of Route 16 will not change.

Bike surface parking will be provided near the main entrance at the northwest corner of Building 2A, as shown on the site plan attached in **Appendix B**. Underground bicycle parking is described further in Section 5.2.

A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* has been conducted. A copy of the TDM checklist is included in **Appendix D**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

On-street lay-bys are proposed along des Oblats Avenue adjacent to the subject site, and will require RMA approval. The proposed lay-bys along Deschâtelets Avenue were previously approved as part of the Greystone Village CTS.

The majority of deliveries will be performed by medium single-unit trucks (MSU) and will occur on-site in the surface parking lot. Deliveries by any larger vehicles such as heavy single-unit (HSU) trucks will be performed in the on-street lay-bys.

5.2 Parking

The subject site is located in Area B of Schedule 1 and Area Y of Schedule 1A to the City of Ottawa's *Zoning By-law* (ZBL). Minimum vehicular and bicycle parking rates for the proposed development are identified in the ZBL, and are summarized in the following table. As the commercial component of the ground floor is split between eight units, where only one exceeds 500 m^2, the vehicular parking rates only apply to the larger unit.

Table 3: Parking Requirement

Land Use	Rate	Units/GFA		Requirement	
		Building 2A	Building 2B	Building 2A	Building 2B
Vehicle Parking					
Apartment	0.5 spaces per unit in excess of 12 (Resident)	125	119	57	54
	0.1 spaces per unit in excess of 12 (Visitor)			11	11
Commercial	1.25 spaces per 100m^2 of GFA	790 m^2	-	10	-
			Total	**78**	**65**
			Provided	**167**	**129**
Bicycle Parking					
Apartment	0.5 spaces per unit	125	119	63	60
Commercial	1 spaces per 250m^2 of GFA	1,680m^2	-	7	-
			Total	**70**	**60**
			Provided	**70**	**60**

OTHER AREA DEVELOPMENTS

Part of 375 Deschâtelets Drive
Transportation Impact Assessment

Table 1: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Applies
Design Review Component			
4.1 Development Design	*4.1.2* Circulation and Access	• Only required for site plans	No
	4.1.3 New Street Networks	• Only required for plans of subdivision	Yes
4.2 Parking	*4.2.1* Parking Supply	• Only required for site plans	No
	4.2.2 Spillover Parking	• Only required for site plans where parking supply is 15% below unconstrained demand	Yes

4.0 FORECASTING

The proposed development consists of 18 residential units. Trips generated by the proposed development have been estimated using the Residential Condominium/Townhouse land use (LU 230) in the Institute of Transportation Engineers (ITE) Trip Generation Manual, 9th Edition. Person trips were calculated using an ITE trip to person trip factor of 1.42, consistent with the Greystone Village CTS. The person trips generated by the proposed development are summarized in the following table.

Table 2: Person Trip Generation

Land Use	ITE Code	Units/ GFA	AM Peak (PPH)			PM Peak (PPH)		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Condominium/ Townhouse	230	18	3	16	19	14	7	21

Based on the foregoing, the proposed development is anticipated to generate 19 person trips during the AM peak hour and 21 person trips during the PM peak hour.

The modal shares for the proposed development are anticipated to be consistent with the modal shares proposed in the Greystone Village CTS. The projected person trips by modal share are summarized below.

Table 3: Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Total Person Trips		3	16	19	14	7	21
Auto Driver	40%	1	6	7	5	3	8
Auto Passenger	10%	0	2	2	1	1	2
Transit	25%	1	4	5	4	2	6
Non-Auto	25%	1	4	5	4	1	5

Based on the foregoing, the proposed development is anticipated to generate 7 vehicle trips during the AM peak hour and 8 vehicle trips during the PM peak hour. Trips generated by the proposed development were included in the overall traffic generated by the Greystone Village CTS.

5.0 ANALYSIS

5.1 Development Design

Pedestrian facilities will be provided between all residential dwelling entrances and the sidewalk along Deschâtelets Avenue as well as the parkland to the west.

OC Transpo bus stops #7638 and #7639 are currently located along Main Street south of the Hazel Street intersection. These bus stops serve OC Transpo Route 5 and Route 16. OC Transpo Route 5 is a local route that travels between the Rideau Centre and the Billings Bridge transit station. OC Transpo Route 16 is a local route that travels between St. Paul University and Britannia Park. Both OC Transpo Route 5 and Route 16 provide all day service, seven days a week. As development progresses within the Greystone Village subdivision, OC Transpo Route 16 will travel east on Hazel Street, north on Deschâtelets Avenue, and west on des Oblats Avenue. A new bus stop will be located in the southeast corner of the des Oblats Avenue/Deschâtelets Avenue intersection.

OC Transpo staff have advised the following transit service will be provided following the introduction of Light Rail Transit in the City of Ottawa.

- A new transit Route 55 will be introduced with regular service (15 to 20 minute headways), and will replace the existing Route 101. The new route will start in the west end, connect to the three Ottawa Hospitals, as well as Greenfield Avenue, Mann Avenue, Lees Transit Station, Lees Avenue, and Main Street/Smyth Road to Elmvale Aces.
- Route 5 will not change.
- The Main Street section of Route 16 will not change.

Bicycle parking for the proposed development will be provided in accordance with the City of Ottawa's Zoning By-law (ZBL), and will be located indoors. Bicycle parking requirements are described further in Section 5.2 below.

A review of the Transportation Demand Management (TDM) – *Supportive Development Design and Infrastructure Checklist* has been conducted. A copy of the TDM checklist is included in **Appendix D**. All required TDM-supportive design and infrastructure measures in the TDM checklist are met.

Fire access to the proposed development will occur along Deschâtelets Avenue as well as through the fire access route within the park adjacent to the western frontage of the site.

5.2 Parking

The subject site is located in Area B of Schedule 1 and Area X of Schedule 1A to the City of Ottawa's ZBL. Minimum vehicular and bicycle parking rates for the proposed development are identified in the ZBL, and are summarized in the following table.

OTHER AREA DEVELOPMENTS

225 Scholastic Drive (Retirement Residence)
Transportation Overview

3.0 TRANSPORTATION NETWORK

The subject site is bounded by the following:

- Oblats Avenue and future residential development to the north;
- Scholastic Drive and the Rideau River to the east;
- Future residential development to the south and west.

The roadway platform for Oblats Avenue and Scholastic Drive have recently been constructed, with pedestrian facilities to be constructed in spring 2018.

Oblats Avenue is planned to be a local roadway with two-lane undivided urban cross section with sidewalks on both sides. On-street parking will be provided in parking bays on both sides of Oblats Avenue.

Scholastic Drive is planned to be a local roadway that travels on a north-south alignment adjacent to the Rideau River. It will have a two-lane two-way undivided urban cross section with a sidewalk on the west side between Oblats Avenue and Deschâtelets Avenue. It will be a one-way northbound roadway south of Deschatelets Avenue. A multi-use pathway will be provided between the roadway and the Rideau River on the east side of Scholastic Drive. This multi-use pathway forms part of the Rideau River Western Pathway which travels between Belmont Avenue and the University of Ottawa.

4.0 TRIP GENERATION

Trips generated by the proposed development have been estimated using the congregate care land use code (LU 253) identified in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 9th Edition*. The estimated peak hour vehicle trips by the proposed development are outlined in the following table.

Table 1: Trip Generation

Land Use	ITE Code	Units	AM Peak			PM Peak		
			IN	OUT	TOTAL	IN	OUT	TOTAL
Congregate Care Facility	253	146	5	4	9	14	11	25

An overall vehicle trip to person trip adjustment factor of approximately 1.42 was applied to the vehicle trips projected in the ITE rates. The projected person trips were then categorized by modal share using observed percentages from the 2011 TRANS O-D Survey Report for the Ottawa Inner Area. A breakdown of the projected person trips by modal share is shown in the following table.

Table 2: Site-Generated Person Trips by Modal Share

Travel Mode	Modal Share	AM Peak			PM Peak		
		IN	OUT	TOTAL	IN	OUT	TOTAL
TOTAL PERSON TRIPS		*7*	*6*	*13*	*20*	*16*	*36*
Auto Driver	**40%**	**3**	**2**	**5**	**8**	**6**	**14**
Auto Passenger	10%	1	0	1	2	2	4
Transit	25%	2	2	4	5	4	9
Non-Motorized	25%	1	2	3	5	4	9

Based on the foregoing, the proposed development is anticipated to generate five vehicle trips during the weekday AM peak hour and 14 vehicle trips during the weekday PM peak hour.

The addendum to the Greystone Village CTS included trip generation for the subject site, and estimated a development of 140 units for the subject site. The additional six units proposed will have no significant impact on the operating conditions identified in the Greystone Village subdivision CTS/addendum.

5.0 PROVISIONS FOR NON-AUTO MODES

Sidewalks are provided on both sides of Oblats Avenue and the west side of Scholastic Drive. Pedestrian facilities will be provided adjacent to the south side of the building, connecting building entrances to the sidewalk on the west side of Scholastic Drive.

The proposed number of bicycle parking spaces and minimum requirements identified in the City of Ottawa's *Zoning By-law* (ZBL) are outlined in Section 6.0 below.

OC Transpo bus stops #6809 and #7636 are located in the northwest and southeast corners of the Oblats Avenue/Main Street intersection, at a walking distance of approximately 450m from the main building entrance. These bus stops serve OC Transpo Route 5 and Route 16. OC Transpo Route 5 is a local route that travels between the Rideau Centre and the Billings Bridge transit station. OC Transpo Route 16 is a local route that travels between St. Pauls University and Britannia Park. Both OC Transpo Route 5 and Route 16 provide all day service, seven days a week.

It is noteworthy that as development progresses within the Greystone Village subdivision, OC Transpo Route 16 will travel east on Hazel Street, north on on Deschatelets Avenue, and west on Oblats Avenue. This will reduce the walking distance for residents to OC Transpo Route 16 to 250m.

6.0 ON-SITE DESIGN

6.1 Proposed Access

Access to the proposed development will be provided on Scholastic Drive. The proposed access will serve an underground parking garage as well as an on-site lay-by near the main building entrance.

APPENDIX G

Transportation Demand Management

TRANSPORTATION DEMAND MANAGEMENT

TDM-Supportive Design and Infrastructure Checklist

TDM-Supportive Development Design and Infrastructure Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

REQUIRED	The Official Plan or Zoning By-law provides related guidance that must be followed
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	1.	**WALKING & CYCLING: ROUTES**	
	1.1	**Building location & access points**	
BASIC	1.1.1	Locate building close to the street, and do not locate parking areas between the street and building entrances	☐
BASIC	1.1.2	Locate building entrances in order to minimize walking distances to sidewalks and transit stops/stations	☐
BASIC	1.1.3	Locate building doors and windows to ensure visibility of pedestrians from the building, for their security and comfort	☑
	1.2	**Facilities for walking & cycling**	
REQUIRED	1.2.1	Provide convenient, direct access to stations or major stops along rapid transit routes within 600 metres; minimize walking distances from buildings to rapid transit; provide pedestrian-friendly, weather-protected (where possible) environment between rapid transit accesses and building entrances; ensure quality linkages from sidewalks through building entrances to integrated stops/stations *(see Official Plan policy 4.3.3)*	☐ - N/A, no rapid transit stations within 600m
REQUIRED	1.2.2	Provide safe, direct and attractive pedestrian access from public sidewalks to building entrances through such measures as: reducing distances between public sidewalks and major building entrances; providing walkways from public streets to major building entrances; within a site, providing walkways along the front of adjoining buildings, between adjacent buildings, and connecting areas where people may congregate, such as courtyards and transit stops; and providing weather protection through canopies, colonnades, and other design elements wherever possible *(see Official Plan policy 4.3.12)*	☑

	TDM-supportive design & infrastructure measures: *Non-residential developments*		Check if completed & add descriptions, explanations or plan/drawing references
REQUIRED	1.2.3	Provide sidewalks of smooth, well-drained walking surfaces of contrasting materials or treatments to differentiate pedestrian areas from vehicle areas, and provide marked pedestrian crosswalks at intersection sidewalks *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.4	Make sidewalks and open space areas easily accessible through features such as gradual grade transition, depressed curbs at street corners and convenient access to extra-wide parking spaces and ramps *(see Official Plan policy 4.3.10)*	☑
REQUIRED	1.2.5	Include adequately spaced inter-block/street cycling and pedestrian connections to facilitate travel by active transportation. Provide links to the existing or planned network of public sidewalks, multi-use pathways and on-road cycle routes. Where public sidewalks and multi-use pathways intersect with roads, consider providing traffic control devices to give priority to cyclists and pedestrians *(see Official Plan policy 4.3.11)*	☑
BASIC	1.2.6	Provide safe, direct and attractive walking routes from building entrances to nearby transit stops	☑
BASIC	1.2.7	Ensure that walking routes to transit stops are secure, visible, lighted, shaded and wind-protected wherever possible	☑
BASIC	1.2.8	Design roads used for access or circulation by cyclists using a target operating speed of no more than 30 km/h, or provide a separated cycling facility	☑
	1.3	**Amenities for walking & cycling**	
BASIC	1.3.1	Provide lighting, landscaping and benches along walking and cycling routes between building entrances and streets, sidewalks and trails	☑
BASIC	1.3.2	Provide wayfinding signage for site access (where required, e.g. when multiple buildings or entrances exist) and egress (where warranted, such as when directions to reach transit stops/stations, trails or other common destinations are not obvious)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	2.	**WALKING & CYCLING: END-OF-TRIP FACILITIES**	
	2.1	**Bicycle parking**	
REQUIRED	2.1.1	Provide bicycle parking in highly visible and lighted areas, sheltered from the weather wherever possible *(see Official Plan policy 4.3.6)*	☑
REQUIRED	2.1.2	Provide the number of bicycle parking spaces specified for various land uses in different parts of Ottawa; provide convenient access to main entrances or well-used areas *(see Zoning By-law Section 111)*	☑
REQUIRED	2.1.3	Ensure that bicycle parking spaces and access aisles meet minimum dimensions; that no more than 50% of spaces are vertical spaces; and that parking racks are securely anchored *(see Zoning By-law Section 111)*	☑
BASIC	2.1.4	Provide bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met), plus the expected peak number of customer/visitor cyclists	☐
BETTER	2.1.5	Provide bicycle parking spaces equivalent to the expected number of commuter and customer/visitor cyclists, plus an additional buffer (e.g. 25 percent extra) to encourage other cyclists and ensure adequate capacity in peak cycling season	☐
	2.2	**Secure bicycle parking**	
REQUIRED	2.2.1	Where more than 50 bicycle parking spaces are provided for a single office building, locate at least 25% of spaces within a building/structure, a secure area (e.g. supervised parking lot or enclosure) or bicycle lockers *(see Zoning By-law Section 111)*	☐ - N/A
BETTER	2.2.2	Provide secure bicycle parking spaces equivalent to the expected number of commuter cyclists (assuming the cycling mode share target is met)	☐
	2.3	**Shower & change facilities**	
BASIC	2.3.1	Provide shower and change facilities for the use of active commuters	☐
BETTER	2.3.2	In addition to shower and change facilities, provide dedicated lockers, grooming stations, drying racks and laundry facilities for the use of active commuters	☐
	2.4	**Bicycle repair station**	
BETTER	2.4.1	Provide a permanent bike repair station, with commonly used tools and an air pump, adjacent to the main bicycle parking area (or secure bicycle parking area, if provided)	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	3.	**TRANSIT**	
	3.1	**Customer amenities**	
BASIC	3.1.1	Provide shelters, lighting and benches at any on-site transit stops	☐
BASIC	3.1.2	Where the site abuts an off-site transit stop and insufficient space exists for a transit shelter in the public right-of-way, protect land for a shelter and/or install a shelter	☐
BETTER	3.1.3	Provide a secure and comfortable interior waiting area by integrating any on-site transit stops into the building	☐
	4.	**RIDESHARING**	
	4.1	**Pick-up & drop-off facilities**	
BASIC	4.1.1	Provide a designated area for carpool drivers (plus taxis and ride-hailing services) to drop off or pick up passengers without using fire lanes or other no-stopping zones	☐
	4.2	**Carpool parking**	
BASIC	4.2.1	Provide signed parking spaces for carpools in a priority location close to a major building entrance, sufficient in number to accommodate the mode share target for carpools	☐
BETTER	4.2.2	At large developments, provide spaces for carpools in a separate, access-controlled parking area to simplify enforcement	☐
	5.	**CARSHARING & BIKESHARING**	
	5.1	**Carshare parking spaces**	
BETTER	5.1.1	Provide carshare parking spaces in permitted non-residential zones, occupying either required or provided parking spaces *(see Zoning By-law Section 94)*	☐
	5.2	**Bikeshare station location**	
BETTER	5.2.1	Provide a designated bikeshare station area near a major building entrance, preferably lighted and sheltered with a direct walkway connection	☐

		TDM-supportive design & infrastructure measures: *Non-residential developments*	Check if completed & add descriptions, explanations or plan/drawing references
	6.	**PARKING**	
	6.1	**Number of parking spaces**	
REQUIRED	6.1.1	Do not provide more parking than permitted by zoning, nor less than required by zoning, unless a variance is being applied for	☐ - parking provided off-site
BASIC	6.1.2	Provide parking for long-term and short-term users that is consistent with mode share targets, considering the potential for visitors to use off-site public parking	☐
BASIC	6.1.3	Where a site features more than one use, provide shared parking and reduce the cumulative number of parking spaces accordingly *(see Zoning By-law Section 104)*	☐
BETTER	6.1.4	Reduce the minimum number of parking spaces required by zoning by one space for each 13 square metres of gross floor area provided as shower rooms, change rooms, locker rooms and other facilities for cyclists in conjunction with bicycle parking *(see Zoning By-law Section 111)*	☐
	6.2	**Separate long-term & short-term parking areas**	
BETTER	6.2.1	Separate short-term and long-term parking areas using signage or physical barriers, to permit access controls and simplify enforcement (i.e. to discourage employees from parking in visitor spaces, and vice versa)	☐
	7.	**OTHER**	
	7.1	**On-site amenities to minimize off-site trips**	
BETTER	7.1.1	Provide on-site amenities to minimize mid-day or mid-commute errands	☐

TRANSPORTATION DEMAND MANAGEMENT

Measures Checklist

TDM Measures Checklist:
Non-Residential Developments (office, institutional, retail or industrial)

Legend

BASIC — The measure is generally feasible and effective, and in most cases would benefit the development and its users

BETTER — The measure could maximize support for users of sustainable modes, and optimize development performance

★ — The measure is one of the most dependably effective tools to encourage the use of sustainable modes

		TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		1. TDM PROGRAM MANAGEMENT	
		1.1 Program coordinator	
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator	☐
		1.2 Travel surveys	
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress	☐
		2. WALKING AND CYCLING	
		2.1 Information on walking/cycling routes & destinations	
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances	☑ - local area maps will be shown in staff room
		2.2 Bicycle skills training *Commuter travel*	
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses	☑ - course registration will be shown in staff room
		2.3 Valet bike parking *Visitor travel*	
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		3.	**TRANSIT**	
		3.1	**Transit information**	
BASIC		3.1.1	Display relevant transit schedules and route maps at entrances	☑ - transit schedules and routes maps will be shown in staff room
BASIC		3.1.2	Provide online links to OC Transpo and STO information	☑
BETTER		3.1.3	Provide real-time arrival information display at entrances	☐
		3.2	**Transit fare incentives**	
			Commuter travel	
BETTER		3.2.1	Offer preloaded PRESTO cards to encourage commuters to use transit	☐
BETTER	★	3.2.2	Subsidize or reimburse monthly transit pass purchases by employees	☐
			Visitor travel	
BETTER		3.2.3	Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	☐
		3.3	**Enhanced public transit service**	
			Commuter travel	
BETTER		3.3.1	Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	☐
			Visitor travel	
BETTER		3.3.2	Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	☐
		3.4	**Private transit service**	
			Commuter travel	
BETTER		3.4.1	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	☐
			Visitor travel	
BETTER		3.4.2	Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	☑ - school buses for students coordinated through CECCE's transportation department

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		4.	**RIDESHARING**	
		4.1	**Ridematching service**	
			Commuter travel	
BASIC	★	4.1.1	Provide a dedicated ridematching portal at OttawaRideMatch.com	☑
		4.2	**Carpool parking price incentives**	
			Commuter travel	
BETTER		4.2.1	Provide discounts on parking costs for registered carpools	☐
		4.3	**Vanpool service**	
			Commuter travel	
BETTER		4.3.1	Provide a vanpooling service for long-distance commuters	☐
		5.	**CARSHARING & BIKESHARING**	
		5.1	**Bikeshare stations & memberships**	
BETTER		5.1.1	Contract with provider to install on-site bikeshare station for use by commuters and visitors	☐
			Commuter travel	
BETTER		5.1.2	Provide employees with bikeshare memberships for local business travel	☐
		5.2	**Carshare vehicles & memberships**	
			Commuter travel	
BETTER		5.2.1	Contract with provider to install on-site carshare vehicles and promote their use by tenants	☐
BETTER		5.2.2	Provide employees with carshare memberships for local business travel	☐
		6.	**PARKING**	
		6.1	**Priced parking**	
			Commuter travel	
BASIC	★	6.1.1	Charge for long-term parking (daily, weekly, monthly)	☐
BASIC		6.1.2	Unbundle parking cost from lease rates at multi-tenant sites	☐
			Visitor travel	
BETTER		6.1.3	Charge for short-term parking (hourly)	☐

			TDM measures: *Non-residential developments*	Check if proposed & add descriptions
		7.	**TDM MARKETING & COMMUNICATIONS**	
		7.1	**Multimodal travel information**	
			Commuter travel	
BASIC	★	7.1.1	Provide a multimodal travel option information package to new/relocating employees and students	☑ - packages will be produced for staff and parents
			Visitor travel	
BETTER	★	7.1.2	Include multimodal travel option information in invitations or advertising that attract visitors or customers (e.g. for festivals, concerts, games)	☐
		7.2	**Personalized trip planning**	
			Commuter travel	
BETTER	★	7.2.1	Offer personalized trip planning to new/relocating employees	☑
		7.3	**Promotions**	
			Commuter travel	
BETTER		7.3.1	Deliver promotions and incentives to maintain awareness, build understanding, and encourage trial of sustainable modes	☐
		8.	**OTHER INCENTIVES & AMENITIES**	
		8.1	**Emergency ride home**	
			Commuter travel	
BETTER	★	8.1.1	Provide emergency ride home service to non-driving commuters	☐
		8.2	**Alternative work arrangements**	
			Commuter travel	
BASIC	★	8.2.1	Encourage flexible work hours	☐
BETTER		8.2.2	Encourage compressed workweeks	☐
BETTER	★	8.2.3	Encourage telework	☐
		8.3	**Local business travel options**	
			Commuter travel	
BASIC	★	8.3.1	Provide local business travel options that minimize the need for employees to bring a personal car to work	☐
		8.4	**Commuter incentives**	
			Commuter travel	
BETTER		8.4.1	Offer employees a taxable, mode-neutral commuting allowance	☐
		8.5	**On-site amenities**	
			Commuter travel	
BETTER		8.5.1	Provide on-site amenities/services to minimize mid-day or mid-commute errands	☐

APPENDIX H

Parking Arrangement at 175 Main Street

July 24, 2020

Jean-Charles Renaud
Planner II, Planning and Growth Management Department
City of Ottawa 110 Laurier Avenue W. Ottawa, ON K1P 1J1

Dear Mr. Renaud,

RE: Zoning By-law Amendment - 225 Scholastic Drive
City of Ottawa File No. D02-02-20-0037
Regional Group – CECCE Parking Arrangements

In response to the Zoning Bylaw Amendment applications comments received on July 20, 2020, this letter is intended to address Comment 2 (a) and (b), which responds to the parking arrangements between the Regional Group and the Conseil des école catholiques du Centre-Est (CECCE):

Comment 2: As confirmed via email, Staff were informed that the schoolboard has entered into an agreement with Regional for the provision of the required parking spaces within the parking garages of buildings 2A and 2B. An alternate option of temporarily providing parking within the existing parking lot located on the north side of Hazel Street was also suggested.

Response:

Currently, sixteen (16) dedicated parking spaces are proposed to be leased to the CECCE in Level 1 (P1) of the shared parking garage of the "2A and 2B" development at 175 Main Street and 10 Oblats Avenue. These spots are to be for exclusive use by the CECCE.

a. *Please provide a copy of the agreement referencing specific municipal addresses.*

Response:
The CECCE and Regional are currently finalizing the agreement regarding the use of the parking spots. However, a condition exists in the current Agreement of Purchase and Sale (APS) that requires Greystone Village Inc. / Regional Group (the Vendor) to provide the CECCE (the Purchaser), to enter into a leasing arrangement for the parking spaces within Block 26 on Plan 4M-1596 (the 2A and 2B development site). The Agreement has been since amended to include the 16 required parking spaces, as per the Zoning By-law requirements. See clip from the APS and Amendment below:

> Section 5.07 **Purchaser's Condition RE: Offsite Parking.** The Vendor shall have one hundred and eighty (180) days following the Acceptance Date (the "**Parking Deadline**") to conclude with the Purchaser a leasing arrangement satisfactory to the Purchaser for parking of fifteen (15) vehicles located within either Block 26 or Block 32 on Plan 4M1596. If the Purchaser does not indicate its waiver or satisfaction in writing on or before the Parking Deadline, this Agreement shall be null and void, the Deposit and any accrued interest thereon shall be returned to the Purchaser without deduction and neither party shall have any further obligation to the other respecting this Agreement.

1737 Woodward Drive, 2nd Floor
Ottawa, Ontario K2C 0P9
T: 613.230.2100
F: 613.230.2962
info@regionalgroup.com
www.regionalgroup.com

(b) At Section 5.07 (Purchaser's Condition RE: Offsite Parking), DELETE the words "fifteen (15) vehicles" and ADD therefor the words "sixteen (16) vehicles".

b. *Please confirm how many spaces will be provided within these parking lots in order to meet the Zoning By-law's requirements. Please confirm that these parking spaces are not required parking spaces for any other development.*

Response:

As mentioned above, sixteen (16) spaces will be provided for exclusive use by the CECCE to meet the Zoning By-law requirements.

These dedicated spaces are not required to meet the Zoning By-law requirements for the 2A and 2B development site (175 Main Street and 10 Oblats) and its associated building and uses. The parking breakdown for the development is:

	175 Main St (Building 2A)	**10 Oblats Ave (Building 2B)**
Number of required parking spaces as per the Zoning By-law	125 units	110 units
Residential (0.5/unit)	63 spaces	55 spaces
Visitor (0.1/unit (-first 12 units))	11 spaces	10 spaces
Commercial/Retail Uses (Assumed Uses)	33 spaces	N/A
Total	**107 spaces**	**65 spaces**
Grand Total	**172 spaces**	
Actual number of parking spaces provided	136 spaces	153 spaces
Grand Total	**289 spaces**	
Number of parking spaces above Zoning By-law requirements	**117 spaces**	
Number of parking spaces dedicated to CECCE	**16 spaces**	

We trust that this adequately addresses the City's comments. Please do not hesitate to contact us if you have any further questions.

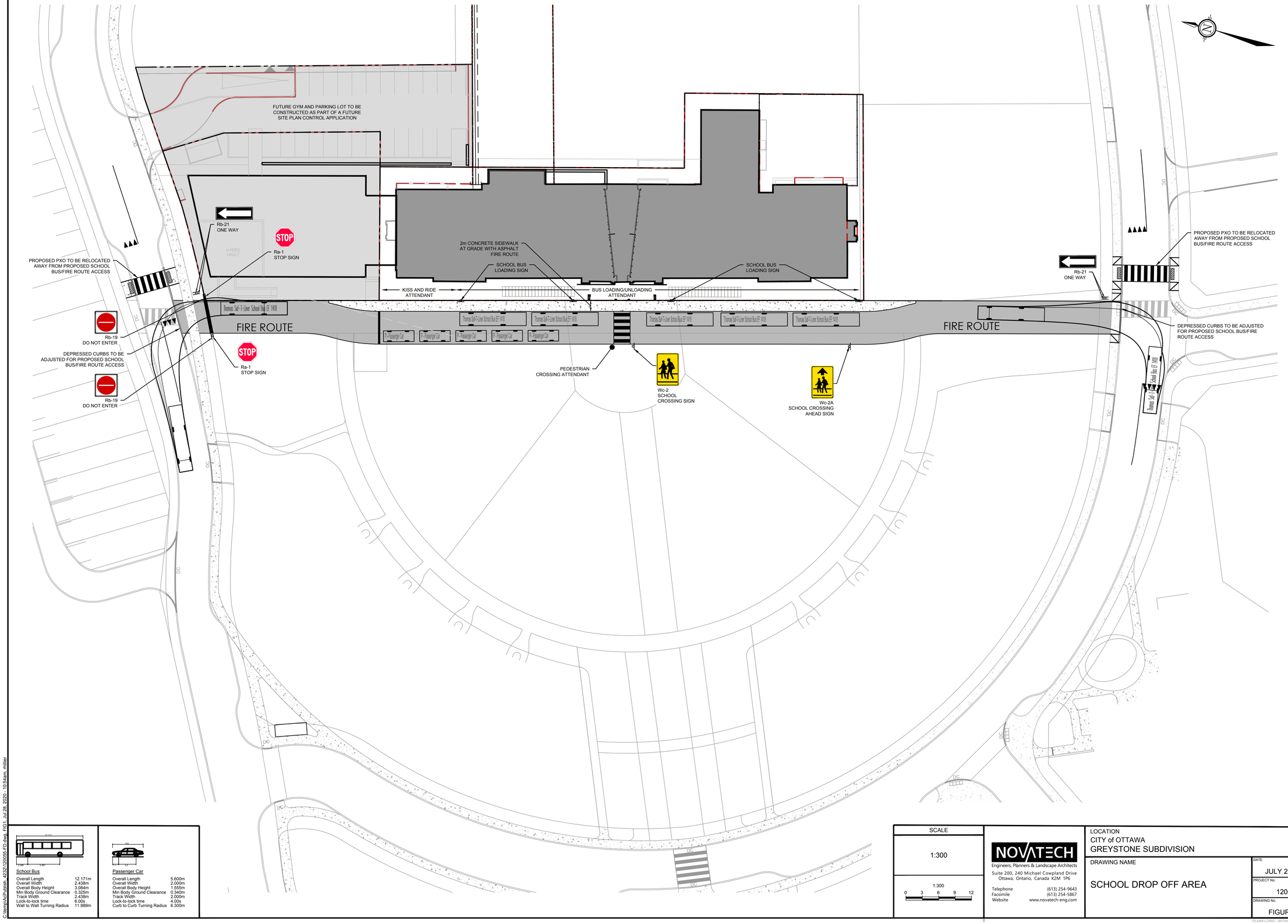
Thank you,

Taylor Marquis
Development Manager, Commercial and Multi-Family Development
Regional Group

c.c.: Daniel Paquette (Paquette Planning Associates Ltd.)
Jonathan Bruneau (Owner / CECCE)

APPENDIX I

Fire Route and School Loading Area



School Bus

Overall Length	12.171m
Overall Width	2.438m
Overall Body Height	3.084m
Min Body Ground Clearance	0.325m
Track Width	2.438m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	11.989m

Passenger Car

Overall Length	5.600m
Overall Width	2.000m
Overall Body Height	1.555m
Min Body Ground Clearance	0.340m
Track Width	2.000m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.300m

SCALE

1:300

1:300
0 3 6 9 12

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY of OTTAWA
GREYSTONE SUBDIVISION

DRAWING NAME
SCHOOL DROP OFF AREA

DATE
JULY 2020

PROJECT No.
120055

DRAWING No.
FIGURE 1

PLANNING - Services/Admin

C:\temp\AcPublish_42324\120055-FD.dwg, FIG1, Jul 28, 2020 - 10:54am, rhillier

APPENDIX J

Intersection MMLOS

Intersection MMLOS Analysis

The following is a review of the multi-modal levels of service (MMLOS) of the study area intersections, using complete streets principles. The MMLOS Guidelines were used to evaluate the MMLOS for each signalized intersection in the study area. The study area intersections Main Street/Oblats Avenue and Main Street/Hazel Street are located in the General Urban Area, based on Schedule B of the City's Official Plan. However, the MMLOS Guidelines provides more stringent targets for intersections within 300m of a school. Therefore, the MMLOS targets applied to Main Street/Oblats Avenue and Main Street/Hazel Street are based on the assigned targets for roadways within 300m of a school.

Exhibit 5 of the Addendum to the MMLOS guidelines has been used to evaluate the existing pedestrian level of service (PLOS) at all signalized intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target PLOS A for all roadways within 300m of a school (Main Street, Oblats Avenue, Hazel Street). The results of the intersection PLOS analysis are summarized in **Table 1** and **Table 2**.

Exhibit 12 of the MMLOS guidelines has been used to evaluate the existing bicycle level of service (BLOS) at all signalized intersections within the study area. Exhibit 22 of the MMLOS guidelines suggests a target BLOS C for arterial Spine Routes within 300m of a school (Main Street) and a target BLOS D for all roadways with no cycling designation within 300m of a school (Oblats Avenue, Hazel Street). The results of the intersection BLOS analysis are summarized in **Table 3**.

Since no study area roadways are included in the City's Rapid Transit or Transit Priority networks, the transit level of service (TLOS) of the study area intersections have not been evaluated.

Since Main Street is the only truck route in the study area, and review of the truck level of service (TkLOS) of an intersection involves evaluating a heavy vehicle's ability to turn, the TkLOS of the study area intersections have not been evaluated.

Intersection capacity analysis has been conducted for the existing traffic conditions. The intersection parameters used in the analysis are consistent with the 2017 TIA Guidelines (Saturation Flow Rate: 1,800 vphpl, Peak Hour Factor: 0.9 for existing conditions). For intersections within 300m of a school, the MMLOS Guidelines identifies a target Auto LOS E, which corresponds to a vehicle-to-capacity (v/c) ratio of 1.00.

The results of the Synchro analysis for the AM and PM peak hours are summarized in **Table 4**. Signal timing plans are included in **Appendix K**, and detailed Synchro reports are included in **Appendix L**.

Table 1: PLOS Intersection Analysis – Main Street/Oblats Avenue

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	88	No	105	No	105
Lanes Crossed (3.5m Lane Width)	4		4		3		3	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Perm + Prot	-8	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	Yes	0	Yes	0	Yes	0	Yes	0
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	> 5m to 10m	-5	> 5m to 10m	-5	> 5m to 10m	-5
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Textured	-4	Textured	-4	Textured	-4	Textured	-4
PETSI SCORE		**59**		**59**		**76**		**76**
LOS		**D**		**D**		**B**		**B**
DELAY SCORE								
Cycle Length		90		90		90		90
Pedestrian Walk Time		9.7		9.7		33.9		33.9
DELAY SCORE		**35.8**		**35.8**		**17.5**		**17.5**
LOS		**D**		**D**		**B**		**B**
OVERALL		**D**		**D**		**B**		**B**

Table 2: PLOS Intersection Analysis – Main Street/Hazel Street

CRITERIA	North Approach		South Approach		East Approach		West Approach	
PETSI SCORE								
CROSSING DISTANCE CONDITIONS								
Median > 2.4m in Width	No	88	No	88	No	88	No	105
Lanes Crossed (3.5m Lane Width)	4		4		4		3	
SIGNAL PHASING AND TIMING								
Left Turn Conflict	Permissive	-8	Permissive	-8	Perm + Prot	-8	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	Yes	0	Yes	0	Yes	0	Yes	0
CORNER RADIUS								
Parallel Radius	> 5m to 10m	-5	> 5m to 10m	-5	> 5m to 10m	-5	> 5m to 10m	-5
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
CROSSING TREATMENT								
Treatment	Textured	-4	Textured	-4	Textured	-4	Textured	-4
PETSI SCORE		**59**		**59**		**59**		**76**
LOS		**D**		**D**		**D**		**B**
DELAY SCORE								
Cycle Length		90		90		90		90
Pedestrian Walk Time		6.8		6.8		32.2		32.2
DELAY SCORE		**38.5**		**38.5**		**18.6**		**18.6**
LOS		**D**		**D**		**B**		**B**
OVERALL		**D**		**D**		**D**		**B**

Table 3: BLOS Intersection Analysis

Approach	Facility Type	Criteria	Travel Lanes and/or Speed	BLOS
Main Street/Oblats Avenue				
North Approach	Cycle Track	Right Turn Lane Characteristics	No right turn lane	A
		Left Turn Accommodation	Two-stage left-turn bike box	A
South Approach	Cycle Track	Right Turn Lane Characteristics	No right turn lane	A
		Left Turn Accommodation	One lane crossed; 50 km/h	C
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared through/right lane	A
		Left Turn Accommodation	One lane crossed; ≤ 40 km/h	B
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left/through/right lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	B
Main Street/Hazel Street				
North Approach	Cycle Track	Right Turn Lane Characteristics	No right turn lane	A
		Left Turn Accommodation	Two-stage left-turn bike box	A
South Approach	Cycle Track	Right Turn Lane Characteristics	No right turn lane	A
		Left Turn Accommodation	Two-stage left-turn bike box	A
East Approach	Mixed Traffic	Right Turn Lane Characteristics	Right turn lane < 50m	D
		Left Turn Accommodation	No lane crossed; ≤ 50 km/h	B
West Approach	Mixed Traffic	Right Turn Lane Characteristics	Shared left/through/right lane	A
		Left Turn Accommodation	No lanes crossed; ≤ 50 km/h	B

Table 4: Existing Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max v/c	LOS	Mvmt	Max v/c	LOS	Mvmt
Main Street/Oblats Avenue	0.72	C	SBT	0.66	B	SBT
Main Street/Hazel Street	0.73	C	NBT	0.66	B	SBT

APPENDIX K

Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

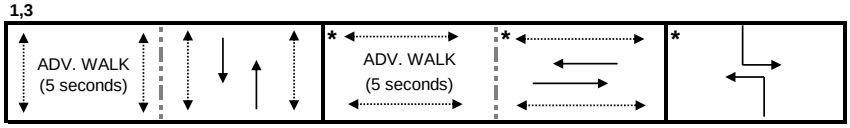
Intersection:	***Main:*** Main	***Side:***	Oblats
Controller:	**ATC3**	**TSD:**	**5903**
Author:	Matthew Anderson	**Date:**	02/Apr/2020

Existing Timing Plans†

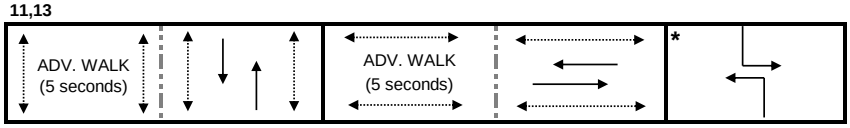
	Plan							Ped Minimum Time		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**AM School**	**Weekend**	**PM School**	***Walk***	***DW***	***A+R***
	1	2	3	4	11	12	13			
Cycle	90	70	90	70	90	70	90			
Offset	57	0	62	X	57	X	31			
NB Thru	47	43	48	43	47	43	48	25	8	3.3+1.8
SB Thru	47	43	48	43	47	43	48	25	8	3.3+1.8
EB Thru	27	27	27	27	27	27	27	7	12	3.3+2.0
WB Thru	27	27	27	27	27	27	27	7	12	3.3+2.0
NB Left	16	-	15	-	16	-	15	-	-	3.3+1.7
SB Left	16	-	15	-	16	-	15	-	-	3.3+1.7

Phasing Sequence‡

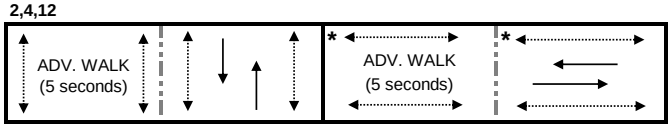
Plan: **1,3**



Plan: **11,13**



Plan: **2,4,12**



Notes: 1) Thru arrows are displayed during the NS Advanced Walk

Schedule

Weekday

Time	Plan
0:15	4
6:30	1
7:30	11
8:30	1
9:30	2
14:30	13
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:15	4
9:00	2
13:00	12
22:15	4

Sunday

Time	Plan
0:15	4
9:00	2
13:00	12

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $58.78 ($52.02 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

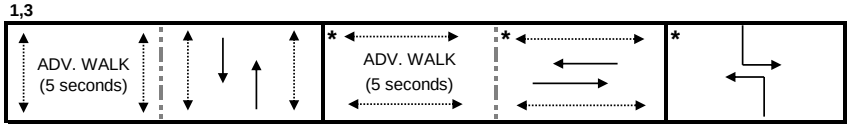
Intersection:	***Main:*** Main	***Side:***	Hazel
Controller:	**ATC3**	**TSD:**	**5186**
Author:	Matthew Anderson	**Date:**	02/Apr/2020

Existing Timing Plans†

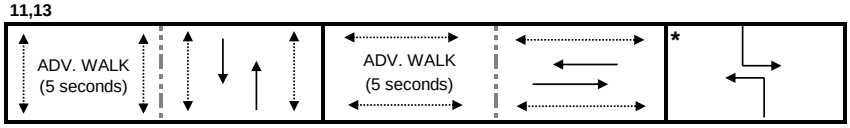
	Plan							Ped Minimum Time		
	AM Peak	**Off Peak**	**PM Peak**	**Night**	**Weekend**	**AM School**	**PM School**	***Walk***	***DW***	***A+R***
	1	2	3	4	5	11	13			
Cycle	90	70	90	70	80	90	90			
Offset	46	0	70	X	58	46	31			
NB Thru	48	44	49	43	43	48	49	23	10	3.3+2.5
SB Thru	48	44	49	43	43	48	49	23	10	3.3+2.5
EB Thru	27	26	26	27	27	27	26	7	13	3.3+2.9
WB Thru	27	26	26	27	27	27	26	7	13	3.3+2.9
NB Left	15	-	15	-	-	15	15	-	-	3.3+2.5
SB Left	15	-	15	-	-	15	15	-	-	3.3+2.5

Phasing Sequence‡

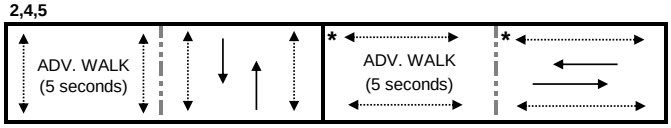
Plan: **1,3**



Plan: **11,13**



Plan: **2,4,5**



Notes: 1) Thru arrows are displayed during the NS Advanced Walk

Schedule

Weekday

Time	Plan
0:15	4
6:30	1
7:30	11
8:30	1
9:30	2
14:30	13
15:00	3
18:30	2
22:00	4

Saturday

Time	Plan
0:15	4
6:30	5
22:15	4

Sunday

Time	Plan
0:15	4
11:00	5
22:00	4

Notes

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

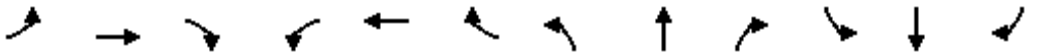
(fp): Fully Protected Left Turn

◄·····► Pedestrian signal

Cost is $58.78 ($52.02 + HST)

APPENDIX L

Synchro Analysis



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	19	2	0	6	31	636	3	4	692	12
Future Volume (vph)	12	1	19	2	0	6	31	636	3	4	692	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.98	0.98		0.99	1.00		0.99	1.00	
Frt		0.919			0.850			0.999			0.998	
Flt Protected		0.982		0.950			0.950			0.950		
Satd. Flow (prot)	0	1543	0	1555	1357	0	1644	1728	0	1710	1743	0
Flt Permitted		0.898		0.734			0.208			0.296		
Satd. Flow (perm)	0	1408	0	1182	1357	0	357	1728	0	527	1743	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21			363						1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	2		7	7		2	34		36	36		34
Confl. Bikes (#/hr)									4			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	5%	10%	0%	10%	4%	4%	10%	0%	3%	0%
Adj. Flow (vph)	13	1	21	2	0	7	34	707	3	4	769	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	35	0	2	7	0	34	710	0	4	782	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		16.0	47.0		16.0	47.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		17.8%	52.2%		17.8%	52.2%	
Maximum Green (s)	16.7	16.7		16.7	16.7		11.0	41.9		11.0	41.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	7	7		7	7			20			20	
Act Effct Green (s)		11.3		11.3	11.3		62.6	61.1		59.9	56.4	
Actuated g/C Ratio		0.13		0.13	0.13		0.70	0.68		0.67	0.63	
v/c Ratio		0.18		0.01	0.01		0.10	0.61		0.01	0.72	
Control Delay		21.6		32.5	0.0		1.2	3.3		5.0	18.7	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		21.6		32.5	0.0		1.2	3.4		5.0	18.8	
LOS		C		C	A		A	A		A	B	
Approach Delay		21.6			7.2			3.3			18.8	
Approach LOS		C			A			A			B	
Queue Length 50th (m)		2.3		0.3	0.0		0.3	7.3		0.2	95.8	
Queue Length 95th (m)		10.4		2.3	0.0		m0.5	11.8		1.4	#200.3	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		278		219	547		408	1173		513	1092	
Starvation Cap Reductn		0		0	0		0	36		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	24	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.13		0.01	0.01		0.08	0.62		0.01	0.73	

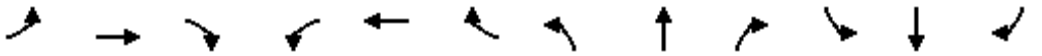
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 57 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 11.4 Intersection LOS: B
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1	10	6	0	19	10	620	18	55	644	23
Future Volume (vph)	35	1	10	6	0	19	10	620	18	55	644	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.94	0.96	0.99	1.00		0.99	1.00	
Frt		0.971				0.850		0.996			0.995	
Flt Protected		0.963			0.950		0.950			0.950		
Satd. Flow (prot)	0	1548	0	0	1555	1391	1710	1723	0	1555	1730	0
Flt Permitted		0.772			0.724		0.265			0.210		
Satd. Flow (perm)	0	1222	0	0	1118	1335	471	1723	0	340	1730	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				128		2			3	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		27	27		9	41		30	30		41
Confl. Bikes (#/hr)			2						3			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	6%	0%	10%	10%	0%	10%	0%	4%	0%	10%	3%	10%
Adj. Flow (vph)	39	1	11	7	0	21	11	689	20	61	716	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	7	21	11	709	0	61	742	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	38.8	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%	24.4%	16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	15.8	15.8		15.8	15.8	15.8	9.2	42.2		9.2	42.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	20	20		20	20	20		20			20	
Act Effct Green (s)		12.3			12.3	12.3	55.0	50.4		59.9	58.3	
Actuated g/C Ratio		0.14			0.14	0.14	0.61	0.56		0.67	0.65	
v/c Ratio		0.29			0.05	0.07	0.03	0.73		0.19	0.66	
Control Delay		32.2			32.3	0.5	6.3	23.0		8.6	13.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.1	
Total Delay		32.2			32.3	0.5	6.3	23.0		8.6	13.3	
LOS		C			C	A	A	C		A	B	
Approach Delay		32.2			8.4			22.7			12.9	
Approach LOS		C			A			C			B	
Queue Length 50th (m)		6.8			1.2	0.0	0.5	89.2		2.9	35.3	
Queue Length 95th (m)		16.9			5.0	0.0	2.5	#181.6		m7.9	#179.6	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		223			196	339	428	965		351	1121	
Starvation Cap Reductn		0			0	0	0	0		0	36	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.23			0.04	0.06	0.03	0.73		0.17	0.68	

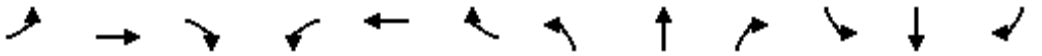
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 46 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 74.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	9	1	0	4	2	514	0	2	696	7
Future Volume (vph)	7	0	9	1	0	4	2	514	0	2	696	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.99			0.99	1.00	
Frt		0.925			0.850						0.998	
Flt Protected		0.978		0.950			0.950			0.950		
Satd. Flow (prot)	0	1598	0	1555	1347	0	1710	1748	0	1710	1744	0
Flt Permitted		0.893		0.746			0.240			0.370		
Satd. Flow (perm)	0	1451	0	1204	1347	0	429	1748	0	657	1744	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		110			402						1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	5		6	6		5	27		30	30		27
Confl. Bikes (#/hr)									1			1
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	10%	0%	10%	0%	3%	0%	0%	3%	0%
Adj. Flow (vph)	8	0	10	1	0	4	2	571	0	2	773	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	0	1	4	0	2	571	0	2	781	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	16.7	16.7		16.7	16.7		10.0	42.9		10.0	42.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	6	6		6	6			20			20	
Act Effct Green (s)		11.3		11.3	11.3		62.4	61.1		62.4	61.1	
Actuated g/C Ratio		0.13		0.13	0.13		0.69	0.68		0.69	0.68	
v/c Ratio		0.06		0.01	0.01		0.01	0.48		0.00	0.66	
Control Delay		0.4		32.0	0.0		3.5	5.0		5.0	14.0	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		0.4		32.0	0.0		3.5	5.1		5.0	14.1	
LOS		A		C	A		A	A		A	B	
Approach Delay		0.4			6.4			5.1			14.0	
Approach LOS		A			A			A			B	
Queue Length 50th (m)		0.0		0.2	0.0		0.1	17.3		0.1	61.0	
Queue Length 95th (m)		0.0		1.5	0.0		m0.1	25.9		0.9	#194.4	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		358		223	577		443	1186		578	1185	
Starvation Cap Reductn		0		0	0		0	65		0	0	
Spillback Cap Reductn		1		0	0		0	0		0	23	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.05		0.00	0.01		0.00	0.51		0.00	0.67	

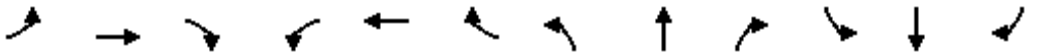
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.1 Intersection LOS: B
Intersection Capacity Utilization 57.5% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	2	11	20	0	37	14	464	15	17	646	35
Future Volume (vph)	16	2	11	20	0	37	14	464	15	17	646	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.96	0.96	0.99	1.00		0.98	1.00	
Frt		0.949				0.850		0.995			0.992	
Flt Protected		0.973			0.950		0.950			0.950		
Satd. Flow (prot)	0	1626	0	0	1710	1391	1710	1732	0	1555	1726	0
Flt Permitted		0.819			0.736		0.248			0.375		
Satd. Flow (perm)	0	1354	0	0	1276	1335	443	1732	0	604	1726	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		12				128		3			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		17	17		9	31		30	30		31
Confl. Bikes (#/hr)									1			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	0%	0%	0%	0%	10%	0%	3%	9%	10%	3%	6%
Adj. Flow (vph)	18	2	12	22	0	41	16	516	17	19	718	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	0	22	41	16	533	0	19	757	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	38.8	
Total Split (s)	21.0	21.0		21.0	21.0	21.0	15.0	49.0		15.0	49.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%	23.3%	16.7%	54.4%		16.7%	54.4%	
Maximum Green (s)	14.8	14.8		14.8	14.8	14.8	9.2	43.2		9.2	43.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	15	15		15	15	15		20			20	
Act Effct Green (s)		11.0			11.0	11.0	59.7	57.2		60.9	59.6	
Actuated g/C Ratio		0.12			0.12	0.12	0.66	0.64		0.68	0.66	
v/c Ratio		0.18			0.14	0.15	0.04	0.48		0.04	0.66	
Control Delay		27.3			36.7	1.1	5.3	12.2		4.4	8.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		27.3			36.7	1.1	5.3	12.2		4.4	8.3	
LOS		C			D	A	A	B		A	A	
Approach Delay		27.3			13.6			12.0			8.2	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		3.4			3.7	0.0	0.8	35.7		0.4	17.7	
Queue Length 95th (m)		11.4			10.4	0.0	3.1	98.3		m1.3	#182.9	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		232			209	326	429	1101		509	1144	
Starvation Cap Reductn		0			0	0	0	0		0	14	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.14			0.11	0.13	0.04	0.48		0.04	0.67	

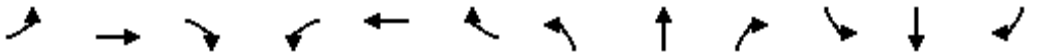
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 65.1% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	19	50	0	54	31	681	19	17	704	12
Future Volume (vph)	12	1	19	50	0	54	31	681	19	17	704	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.98	0.98		0.99	1.00		0.99	1.00	
Frt		0.920			0.850			0.996			0.997	
Flt Protected		0.982		0.950			0.950			0.950		
Satd. Flow (prot)	0	1545	0	1555	1357	0	1644	1718	0	1710	1741	0
Flt Permitted		0.884		0.736			0.253			0.285		
Satd. Flow (perm)	0	1389	0	1185	1357	0	433	1718	0	507	1741	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			370			2			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	2		7	7		2	34		36	36		34
Confl. Bikes (#/hr)									4			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	10%	0%	10%	4%	4%	10%	0%	3%	0%
Adj. Flow (vph)	12	1	19	50	0	54	31	681	19	17	704	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	50	54	0	31	700	0	17	716	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		16.0	47.0		16.0	47.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		17.8%	52.2%		17.8%	52.2%	
Maximum Green (s)	16.7	16.7		16.7	16.7		11.0	41.9		11.0	41.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	7	7		7	7			20			20	
Act Effct Green (s)		11.5		11.5	11.5		61.4	58.6		60.0	56.3	
Actuated g/C Ratio		0.13		0.13	0.13		0.68	0.65		0.67	0.63	
v/c Ratio		0.16		0.33	0.11		0.08	0.63		0.04	0.66	
Control Delay		21.6		41.0	0.4		1.3	3.8		5.1	16.7	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		21.6		41.0	0.4		1.3	3.9		5.1	16.8	
LOS		C		D	A		A	A		A	B	
Approach Delay		21.6			20.0			3.8			16.6	
Approach LOS		C			B			A			B	
Queue Length 50th (m)		2.2		8.6	0.0		0.4	7.9		0.7	82.0	
Queue Length 95th (m)		9.9		18.5	0.0		m0.6	13.4		3.2	#158.6	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		273		219	553		451	1119		501	1088	
Starvation Cap Reductn		0		0	0		0	29		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	27	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.12		0.23	0.10		0.07	0.64		0.03	0.67	

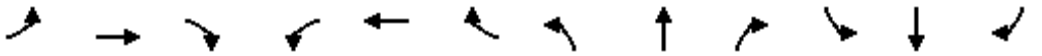
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 57 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 11.0 Intersection LOS: B
Intersection Capacity Utilization 59.1% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	1	10	37	0	49	10	652	25	62	697	23
Future Volume (vph)	35	1	10	37	0	49	10	652	25	62	697	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.94	0.96		1.00		0.99	1.00	
Frt		0.971				0.850		0.994			0.995	
Flt Protected		0.963			0.950		0.950			0.950		
Satd. Flow (prot)	0	1548	0	0	1555	1391	1710	1719	0	1555	1728	0
Flt Permitted		0.753			0.727		0.281			0.231		
Satd. Flow (perm)	0	1193	0	0	1122	1335	506	1719	0	374	1728	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				128		3			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		27	27		9	41		30	30		41
Confl. Bikes (#/hr)			2						3			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	0%	10%	10%	0%	10%	0%	4%	0%	10%	3%	10%
Adj. Flow (vph)	35	1	10	37	0	49	10	652	25	62	697	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	46	0	0	37	49	10	677	0	62	720	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	33.8	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%	24.4%	16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	15.8	15.8		15.8	15.8	15.8	9.2	42.2		9.2	42.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			7.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	20	20		20	20	20		20			20	
Act Effct Green (s)		12.3			12.3	12.3	55.0	50.4		59.9	58.3	
Actuated g/C Ratio		0.14			0.14	0.14	0.61	0.56		0.67	0.65	
v/c Ratio		0.27			0.24	0.17	0.03	0.70		0.18	0.64	
Control Delay		31.8			37.5	1.2	6.2	21.6		7.8	12.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.1	
Total Delay		31.8			37.5	1.2	6.2	21.7		7.8	12.9	
LOS		C			D	A	A	C		A	B	
Approach Delay		31.8			16.8			21.5			12.5	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		6.1			6.3	0.0	0.5	82.4		2.8	32.0	
Queue Length 95th (m)		15.6			14.8	0.0	2.4	#168.5		m8.2	#98.0	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		217			196	339	447	963		370	1119	
Starvation Cap Reductn		0			0	0	0	0		0	40	
Spillback Cap Reductn		0			0	0	0	6		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.21			0.19	0.14	0.02	0.71		0.17	0.67	

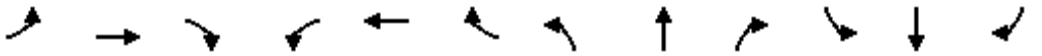
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 46 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 76.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	9	37	0	38	2	539	51	57	742	7
Future Volume (vph)	7	0	9	37	0	38	2	539	51	57	742	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.99	0.99		0.99	1.00	
Frt		0.924			0.850			0.987			0.999	
Flt Protected		0.979		0.950			0.950			0.950		
Satd. Flow (prot)	0	1597	0	1555	1347	0	1710	1720	0	1710	1745	0
Flt Permitted		0.886		0.747			0.280			0.309		
Satd. Flow (perm)	0	1438	0	1205	1347	0	500	1720	0	549	1745	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		110			415			7			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	5		6	6		5	27		30	30		27
Confl. Bikes (#/hr)									1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	10%	0%	10%	0%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	0	9	37	0	38	2	539	51	57	742	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	37	38	0	2	590	0	57	749	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	16.7	16.7		16.7	16.7		10.0	42.9		10.0	42.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	6	6		6	6			20			20	
Act Effct Green (s)		11.3		11.3	11.3		58.5	53.9		62.8	61.1	
Actuated g/C Ratio		0.13		0.13	0.13		0.65	0.60		0.70	0.68	
v/c Ratio		0.06		0.25	0.07		0.01	0.57		0.12	0.63	
Control Delay		0.4		38.6	0.3		4.0	7.5		5.2	13.2	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		0.4		38.6	0.3		4.0	7.6		5.2	13.3	
LOS		A		D	A		A	A		A	B	
Approach Delay		0.4			19.2			7.6			12.7	
Approach LOS		A			B			A			B	
Queue Length 50th (m)		0.0		6.3	0.0		0.1	19.2		2.5	56.5	
Queue Length 95th (m)		0.0		14.6	0.0		m0.1	32.4		7.6	#169.8	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		356		223	587		478	1033		514	1185	
Starvation Cap Reductn		0		0	0		0	24		0	0	
Spillback Cap Reductn		1		0	0		0	0		0	22	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.05		0.17	0.06		0.00	0.58		0.11	0.64	

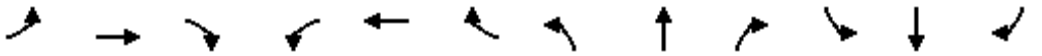
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 10.9 Intersection LOS: B
Intersection Capacity Utilization 68.4% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	2	11	34	0	53	14	524	47	50	695	35
Future Volume (vph)	16	2	11	34	0	53	14	524	47	50	695	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.96	0.96	0.99	0.99		0.99	1.00	
Frt		0.949				0.850		0.988			0.993	
Flt Protected		0.973			0.950		0.950			0.950		
Satd. Flow (prot)	0	1626	0	0	1710	1391	1710	1710	0	1555	1728	0
Flt Permitted		0.820			0.738		0.274			0.329		
Satd. Flow (perm)	0	1356	0	0	1280	1335	489	1710	0	531	1728	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				128		7			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		17	17		9	31		30	30		31
Confl. Bikes (#/hr)									1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	10%	0%	3%	9%	10%	3%	6%
Adj. Flow (vph)	16	2	11	34	0	53	14	524	47	50	695	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	29	0	0	34	53	14	571	0	50	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	38.8	
Total Split (s)	21.0	21.0		21.0	21.0	21.0	15.0	49.0		15.0	49.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%	23.3%	16.7%	54.4%		16.7%	54.4%	
Maximum Green (s)	14.8	14.8		14.8	14.8	14.8	9.2	43.2		9.2	43.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	15	15		15	15	15		20			20	
Act Effct Green (s)		11.0			11.0	11.0	58.0	54.4		61.2	59.6	
Actuated g/C Ratio		0.12			0.12	0.12	0.64	0.60		0.68	0.66	
v/c Ratio		0.17			0.22	0.19	0.04	0.55		0.12	0.64	
Control Delay		27.1			38.5	1.6	5.4	14.9		4.6	8.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.1	
Total Delay		27.1			38.5	1.6	5.4	14.9		4.6	8.4	
LOS		C			D	A	A	B		A	A	
Approach Delay		27.1			16.0			14.7			8.1	
Approach LOS		C			B			B			A	
Queue Length 50th (m)		3.0			5.8	0.0	0.7	62.1		1.3	22.9	
Queue Length 95th (m)		10.7			14.2	0.0	2.8	112.5		m4.1	#51.9	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		232			210	326	450	1036		467	1145	
Starvation Cap Reductn		0			0	0	0	0		0	35	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.13			0.16	0.16	0.03	0.55		0.11	0.66	

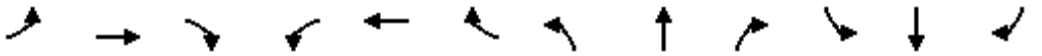
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.64
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 69.9% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	12	1	19	57	0	61	31	688	27	26	714	12
Future Volume (vph)	12	1	19	57	0	61	31	688	27	26	714	12
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.98	0.98		0.99	1.00		0.99	1.00	
Frt		0.920			0.850			0.994			0.998	
Flt Protected		0.982		0.950			0.950			0.950		
Satd. Flow (prot)	0	1545	0	1555	1357	0	1644	1712	0	1710	1743	0
Flt Permitted		0.882		0.736			0.247			0.274		
Satd. Flow (perm)	0	1386	0	1185	1357	0	423	1712	0	488	1743	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		19			368			3			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	2		7	7		2	34		36	36		34
Confl. Bikes (#/hr)									4			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	5%	10%	0%	10%	4%	4%	10%	0%	3%	0%
Adj. Flow (vph)	12	1	19	57	0	61	31	688	27	26	714	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	32	0	57	61	0	31	715	0	26	726	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		16.0	47.0		16.0	47.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		17.8%	52.2%		17.8%	52.2%	
Maximum Green (s)	16.7	16.7		16.7	16.7		11.0	41.9		11.0	41.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	7	7		7	7			20			20	
Act Effct Green (s)		11.6		11.6	11.6		61.1	58.4		60.0	56.1	
Actuated g/C Ratio		0.13		0.13	0.13		0.68	0.65		0.67	0.62	
v/c Ratio		0.16		0.37	0.12		0.08	0.64		0.06	0.67	
Control Delay		21.5		42.2	0.5		1.3	4.4		5.3	17.2	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		21.5		42.2	0.5		1.3	4.6		5.3	17.3	
LOS		C		D	A		A	A		A	B	
Approach Delay		21.5			20.7			4.4			16.9	
Approach LOS		C			C			A			B	
Queue Length 50th (m)		2.2		9.9	0.0		0.3	8.2		1.1	83.7	
Queue Length 95th (m)		9.9		20.3	0.0		m0.6	#17.9		4.3	#166.0	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		272		219	551		444	1111		490	1087	
Starvation Cap Reductn		0		0	0		0	32		0	0	
Spillback Cap Reductn		0		0	0		0	0		0	29	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.12		0.26	0.11		0.07	0.66		0.05	0.69	

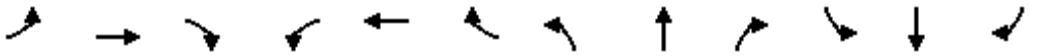
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 57 (63%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 11.6		Intersection LOS: B	
Intersection Capacity Utilization 59.6%		ICU Level of Service B	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	3	10	44	2	56	10	660	34	72	704	23
Future Volume (vph)	35	3	10	44	2	56	10	660	34	72	704	23
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.95	0.96	0.99	1.00		0.99	1.00	
Frt		0.972				0.850		0.993			0.995	
Flt Protected		0.965			0.954		0.950			0.950		
Satd. Flow (prot)	0	1558	0	0	1567	1391	1710	1717	0	1555	1731	0
Flt Permitted		0.755			0.700		0.277			0.217		
Satd. Flow (perm)	0	1202	0	0	1087	1335	493	1717	0	352	1731	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				128		4			2	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		27	27		9	41		30	30		41
Confl. Bikes (#/hr)			2						3			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	6%	0%	10%	10%	0%	10%	0%	4%	0%	10%	3%	10%
Adj. Flow (vph)	35	3	10	44	2	56	10	660	34	72	704	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	46	56	10	694	0	72	727	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	38.8	
Total Split (s)	22.0	22.0		22.0	22.0	22.0	15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%	24.4%	16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	15.8	15.8		15.8	15.8	15.8	9.2	42.2		9.2	42.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	20	20		20	20	20		20			20	
Act Effct Green (s)		12.3			12.3	12.3	54.8	50.2		60.0	58.3	
Actuated g/C Ratio		0.14			0.14	0.14	0.61	0.56		0.67	0.65	
v/c Ratio		0.28			0.31	0.19	0.03	0.72		0.22	0.65	
Control Delay		32.3			39.7	1.4	6.3	22.7		8.2	13.1	
Queue Delay		0.0			0.0	0.0	0.0	0.1		0.0	0.2	
Total Delay		32.3			39.7	1.4	6.3	22.8		8.2	13.2	
LOS		C			D	A	A	C		A	B	
Approach Delay		32.3			18.7			22.5			12.8	
Approach LOS		C			B			C			B	
Queue Length 50th (m)		6.5			7.9	0.0	0.5	86.6		3.1	32.1	
Queue Length 95th (m)		16.2			17.6	0.0	2.4	#177.0		m9.4	#174.8	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		219			190	339	439	958		358	1121	
Starvation Cap Reductn		0			0	0	0	0		0	45	
Spillback Cap Reductn		0			0	0	0	12		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.22			0.24	0.17	0.02	0.73		0.20	0.68	

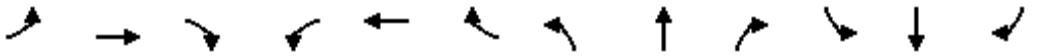
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 46 (51%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 77.9% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	0	9	57	0	60	2	561	69	77	762	7
Future Volume (vph)	7	0	9	57	0	60	2	561	69	77	762	7
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	15.0		0.0	15.0		0.0	25.0		0.0
Storage Lanes	0		0	1		0	1		0	1		0
Taper Length (m)	7.5			40.0			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.98		0.99	0.97		0.99	0.99		0.99	1.00	
Frt		0.924			0.850			0.984			0.999	
Flt Protected		0.979		0.950			0.950			0.950		
Satd. Flow (prot)	0	1597	0	1555	1347	0	1710	1714	0	1710	1745	0
Flt Permitted		0.880		0.747			0.267			0.278		
Satd. Flow (perm)	0	1429	0	1205	1347	0	477	1714	0	494	1745	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		110			406			9			1	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		101.9			115.4			148.7			241.1	
Travel Time (s)		7.3			8.3			10.7			17.4	
Confl. Peds. (#/hr)	5		6	6		5	27		30	30		27
Confl. Bikes (#/hr)									1			1
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	10%	0%	10%	0%	3%	0%	0%	3%	0%
Adj. Flow (vph)	7	0	9	57	0	60	2	561	69	77	762	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	0	57	60	0	2	630	0	77	769	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		5.0	10.0		5.0	10.0	
Minimum Split (s)	24.3	24.3		24.3	24.3		10.0	38.1		10.0	38.1	
Total Split (s)	22.0	22.0		22.0	22.0		15.0	48.0		15.0	48.0	
Total Split (%)	24.4%	24.4%		24.4%	24.4%		16.7%	53.3%		16.7%	53.3%	
Maximum Green (s)	16.7	16.7		16.7	16.7		10.0	42.9		10.0	42.9	
Yellow Time (s)	3.3	3.3		3.3	3.3		3.3	3.3		3.3	3.3	
All-Red Time (s)	2.0	2.0		2.0	2.0		1.7	1.8		1.7	1.8	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.3		5.3	5.3		5.0	5.1		5.0	5.1	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min		None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0			25.0			25.0	
Flash Dont Walk (s)	12.0	12.0		12.0	12.0			8.0			8.0	
Pedestrian Calls (#/hr)	6	6		6	6			20			20	
Act Effct Green (s)		11.6		11.6	11.6		57.8	53.3		62.6	60.8	
Actuated g/C Ratio		0.13		0.13	0.13		0.64	0.59		0.70	0.68	
v/c Ratio		0.06		0.37	0.11		0.01	0.62		0.18	0.65	
Control Delay		0.4		42.0	0.4		5.0	8.9		5.7	13.9	
Queue Delay		0.0		0.0	0.0		0.0	0.1		0.0	0.1	
Total Delay		0.4		42.0	0.4		5.0	9.0		5.7	14.0	
LOS		A		D	A		A	A		A	B	
Approach Delay		0.4			20.7			9.0			13.3	
Approach LOS		A			C			A			B	
Queue Length 50th (m)		0.0		9.8	0.0		0.1	21.7		3.4	59.2	
Queue Length 95th (m)		0.0		20.3	0.0		m0.2	46.3		9.6	#189.2	
Internal Link Dist (m)		77.9			91.4			124.7			217.1	
Turn Bay Length (m)				15.0			15.0			25.0		
Base Capacity (vph)		354		223	580		462	1018		480	1179	
Starvation Cap Reductn		0		0	0		0	29		0	0	
Spillback Cap Reductn		1		0	0		0	0		0	30	
Storage Cap Reductn		0		0	0		0	0		0	0	
Reduced v/c Ratio		0.05		0.26	0.10		0.00	0.64		0.16	0.67	

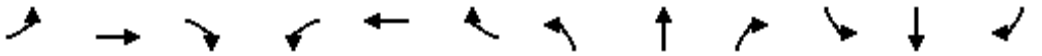
Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 12.0		Intersection LOS: B	
Intersection Capacity Utilization 69.5%		ICU Level of Service C	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & Oblats Avenue

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	6	11	54	4	75	14	542	65	70	715	35
Future Volume (vph)	16	6	11	54	4	75	14	542	65	70	715	35
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Storage Length (m)	0.0		0.0	0.0		35.0	20.0		0.0	15.0		0.0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (m)	7.5			7.5			20.0			30.0		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.97			0.97	0.96	0.99	0.99		0.99	1.00	
Frt		0.955				0.850		0.984			0.993	
Flt Protected		0.976			0.956		0.950			0.950		
Satd. Flow (prot)	0	1646	0	0	1721	1391	1710	1698	0	1555	1728	0
Flt Permitted		0.828			0.717		0.268			0.284		
Satd. Flow (perm)	0	1383	0	0	1247	1335	478	1698	0	459	1728	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11				128		9			4	
Link Speed (k/h)		50			50			50			50	
Link Distance (m)		122.8			111.8			136.0			148.7	
Travel Time (s)		8.8			8.0			9.8			10.7	
Confl. Peds. (#/hr)	9		17	17		9	31		30	30		31
Confl. Bikes (#/hr)									1			
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	0%	0%	0%	0%	0%	10%	0%	3%	9%	10%	3%	6%
Adj. Flow (vph)	16	6	11	54	4	75	14	542	65	70	715	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	33	0	0	58	75	14	607	0	70	750	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07	1.07
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	

Lane Group	Ø10
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Storage Length (m)	
Storage Lanes	
Taper Length (m)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (k/h)	
Link Distance (m)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(m)	
Link Offset(m)	
Crosswalk Width(m)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (k/h)	
Number of Detectors	
Detector Template	
Leading Detector (m)	
Trailing Detector (m)	
Detector 1 Position(m)	
Detector 1 Size(m)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(m)	
Detector 2 Size(m)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	10
Permitted Phases	
Detector Phase	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0	10.0	5.0	10.0		5.0	10.0	
Minimum Split (s)	26.2	26.2		26.2	26.2	26.2	10.8	38.8		10.8	38.8	
Total Split (s)	21.0	21.0		21.0	21.0	21.0	15.0	49.0		15.0	49.0	
Total Split (%)	23.3%	23.3%		23.3%	23.3%	23.3%	16.7%	54.4%		16.7%	54.4%	
Maximum Green (s)	14.8	14.8		14.8	14.8	14.8	9.2	43.2		9.2	43.2	
Yellow Time (s)	3.3	3.3		3.3	3.3	3.3	3.3	3.3		3.3	3.3	
All-Red Time (s)	2.9	2.9		2.9	2.9	2.9	2.5	2.5		2.5	2.5	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.2			6.2	6.2	5.8	5.8		5.8	5.8	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	Min	Min		Min	Min	Min	None	C-Max		None	C-Max	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		23.0			23.0	
Flash Dont Walk (s)	13.0	13.0		13.0	13.0	13.0		10.0			10.0	
Pedestrian Calls (#/hr)	15	15		15	15	15		20			20	
Act Effct Green (s)		11.2			11.2	11.2	56.1	51.4		61.1	59.4	
Actuated g/C Ratio		0.12			0.12	0.12	0.62	0.57		0.68	0.66	
v/c Ratio		0.18			0.37	0.27	0.04	0.62		0.18	0.66	
Control Delay		28.1			42.8	3.8	5.6	17.9		5.0	9.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.2	
Total Delay		28.1			42.8	3.8	5.6	17.9		5.0	9.2	
LOS		C			D	A	A	B		A	A	
Approach Delay		28.1			20.8			17.6			8.8	
Approach LOS		C			C			B			A	
Queue Length 50th (m)		3.7			10.0	0.0	0.7	69.2		1.8	26.3	
Queue Length 95th (m)		11.9			21.0	3.3	2.8	126.1		m5.8	#180.8	
Internal Link Dist (m)		98.8			87.8			112.0			124.7	
Turn Bay Length (m)						35.0	20.0			15.0		
Base Capacity (vph)		236			205	326	437	973		424	1140	
Starvation Cap Reductn		0			0	0	0	0		0	45	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.14			0.28	0.23	0.03	0.62		0.17	0.68	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 31 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 73.5% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Main Street & Hazel Street

Lane Group	Ø10
Switch Phase	
Minimum Initial (s)	3.0
Minimum Split (s)	5.0
Total Split (s)	5.0
Total Split (%)	6%
Maximum Green (s)	3.0
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	Max
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (m)	
Queue Length 95th (m)	
Internal Link Dist (m)	
Turn Bay Length (m)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary